Inbound Health

Advanced Care-at-Home Programs Drive Value for Heart Failure Patients

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CASE STUDY

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Abstract

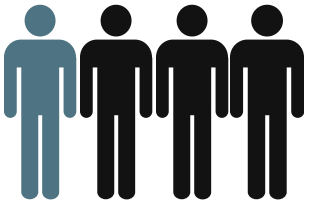
Preventable heart failure readmissions pose a significant financial challenge to hospitals and health systems. Reducing 30-day heart failure readmissions optimizes reimbursement for hospitals that participate in CMS value-based programs, such as the Hospital Readmissions Reduction Program (HRRP), which incentivizes processes of care that decrease preventable events and thereby reduce overall readmission rates.

In implementing Inbound Health's novel in-home care model that supports early hospital discharge and provides an alternative to institutional post-acute care, Allina Health was able to reduce 30-day readmissions in their heart failure population by 30% over a 2.8-year period, generating significant cost-savings for the health system.

Advanced care-at-home programs that serve as alternatives to extended hospitalization and institutional post-acute care offer an innovative and effective solution for hospitals seeking to optimize patient outcomes and reduce avoidable readmissions, resulting in substantial financial gains.

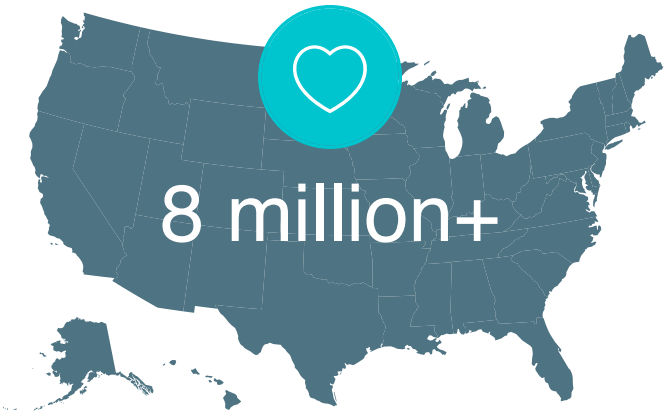
Heart Failure: A Rising Epidemic

Heart failure is among the most expensive conditions treated in US hospitals, with costs measured at $10.2 billion in 2013.[1] Readmissions and comorbidities are the leading contributors to this expense, accounting for $2.7 billion of inpatient costs in 2013.[2] 1 in 4 Congestive Heart Failure (CHF) patients face readmission within 30 days following hospitalization, inflicting a sizable financial burden on health systems.



1 in 4

CHF patients face readmission within 30 days following admission



Americans are expected to have CHF by 2030

This burden is projected to rise in coming years, with the prevalence of CHF expected to surpass 8 million people by 2030, calling on industry leaders to look for innovative ways to reduce avoidable spend.[3] Effective care that appropriately reduces medical services utilization and can safely be provided in the patient's home can lead to major cost savings.

1. Torio CM, Moore BJ. National Inpatient Hospital Costs: The Most Expensive Conditions by Payer, 2013. 2016 May. In: Healthcare Cost and Utilization Project (HCUP) Statistical Briefs [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2006 Feb–. Statistical Brief #204. PMID: 27359025.
2. Fingar K, Washington R. Trends in hospital readmissions for four high-volume conditions, 2009–2013. HCUP Statistical Brief #196. November 2015. Agency for Healthcare Research and Quality, Rockville, MD.
3. Heart failure (HEART FAILURE) rate expected to rise to 8.5 million Americans by 2030. new HEART FAILURESA initiative identifies rapidly changing landscape of HEART FAILURE in the U.S. HEART FAILURESA. (n.d.). https://Heart Failuresa.org/heart-failure-Heart Failure-rate-expected-rise-85-million-americans-2030-new-Heart Failuresa-initiative-identifies

The Solution: Advanced Care-at-Home Programs

Advanced care-at-home programs that serve as alternatives to a hospitalization or to an extended hospitalization and institutional post-acute care stay are an emerging model of care that enables eligible patients identified via strict Utilization Management criteria to receive care in the comfort of their own homes. These programs can be tailored to acute illness management, rehabilitation needs, or both, depending on the population.

When tailored to acute illness management, these programs provide comprehensive, round-the-clock support, including frequent clinical assessments through biometric monitoring, real-time oversight, and access to lab and imaging diagnostics. Patients receive provider evaluations, nursing and paramedic assessments, urgent care, and medication management. These programs integrate technology, telehealth, and in-person care to deliver effective and personalized treatment. This innovative approach to care delivery has been shown to increase hospital throughput, improve outcomes, and enhance patient satisfaction while lowering total cost of care.[4] Through implementing advanced care-at-home programs, health systems and hospitals can provide safe and effective care that prevents avoidable medical services utilization.

Such programs are commonly used to treat patients with CHF, as well as other diagnoses including but not limited to sepsis, chronic obstructive pulmonary disease (COPD), respiratory failure, pneumonia, and cellulitis.

4. Torio CM, Moore BJ. National Inpatient Hospital Costs: The Most Expensive Conditions by Payer, 2013. 2016 May. In: Healthcare Cost and Utilization Project (HCUP) Statistical Briefs [Internet]. Rockville (MD): Agency for Healthcare Research and Quality (US); 2006 Feb–. Statistical Brief #204. PMID: 27359025.

Inbound Health partners with hospitals and health systems to launch and scale advanced care-at-home programs and has treated more than 700 patients diagnosed with heart failure through its programs.

Developing The Heart Failure Clinical Pathway

Inbound Health developed its heart failure clinical pathway in collaboration with Allina Health, a Minneapolis-based health system. Allina Health developed its own at-home alternative to extended hospital stays and post-acute care services in 2020 to address capacity constraints during the COVID-19 pandemic. The health system created Inbound Health in June 2022 as a spin-off company to further address capacity and cost of care challenges. Now the two organizations operate under a partnership model which includes a program that Allina Health refers to as its Elevated Care-at-Home program, enabling early hospital discharge and an alternative to institutional post-acute care.

> *"Collaborating with Inbound Health to develop Congestive Heart Failure pathways for our Elevated Care-at-Home patients has been transformative to how we deliver care. By harnessing their expertise in establishing and operating care-at-home programs, we're not only extending our reach beyond the hospital walls but also ensuring continuity of care and improving outcomes for our Congestive Heart Failure patients. This partnership epitomizes the future of cardiology, where innovation meets compassion to revolutionize patient care."*
>
> - Dr. Mosi Bennett, MD, PhD. Cardiologist with Allina Health Minneapolis Heart Institute (AHMHI) -

Inbound Health's Care Model

One of Inbound Health care-at-home programs enables patients who meet clinical and care management criteria and require skilled care to be discharged early from their hospital stay and receive care at home. This results in shorter

hospital stays, improved hospital throughput, and eliminates the need for admission to a Skilled Nursing Facility (SNF), significantly reducing costs and improving patient outcomes.

When the hospital discharges the patient to Inbound Health's care, the patient receives:

- Daily MD/APP telehealth visits
- Daily in-home visits either conducted by an RN or a Community Paramedic
- Acute visits as needed by Community Paramedics
- 24/7 biometric monitoring
- Durable medical equipment (DME)
- In-Home lab draws
- In-home imaging and electrocardiogram (EKG)
- In-home infusion services, including IV diuretics if needed
- In-home therapy services

This model of care has proven effective at optimizing patient outcomes, as it provides:

- **Biometric Monitoring:** Patients enrolled in Inbound Health's programs are equipped with remote biometric monitoring devices that track vital signs, such as blood pressure, heart rate, and oxygen saturation levels. Via an iPad, heart failure patients also receive a daily heart failure-specific survey asking questions such as “Do you have any new or increased swelling in your feet, ankles, or legs in the last 24 hours?” or “Are you experiencing any new or increased shortness of breath in the last 24 hours?” Through remote monitoring, Inbound Health's providers and biometric monitoring nurses can detect any changes in the patient’s condition promptly

and intervene as necessary, preventing potential exacerbations of heart failure.

- **First-Hand View of Patient's Home Life:** Community Paramedics, RNs and virtual providers have a first-hand view into the patient's home through a hybrid care delivery model. They can assess the patient's clinical and social needs in their home environment to identify barriers that may contribute heart failure exacerbations such as missing medications, inadequate caregiver support, obstacles limiting mobility, transportation issues, financial impediments to nutritious food or medical resources, etc. The day the patient is discharged into the program, a Community Paramedic or RN sees the patient in their home, conducts a home safety assessment, and aids in setting up medications. In the home safety assessment, they assess home hazards and identify factors that might impede success at home such as a CHF patient not having a scale. In subsequent visits with the patient, they help identify if there are any ongoing issues in care plan compliance such as adherence to diet, financial concerns, etc.

- **Early Intervention:** Through remote monitoring and scheduled communication with the full care team, Inbound Health's programs enable early intervention for any deterioration in the patient's condition. Daily telehealth visits with MD/APPs, along with in-person visits from Community Paramedics or RNs allow for

immediate updates to treatment plans, as well as assisting the patient with barriers that may impede compliance with the treatment plan. This proactive approach allows Inbound to address issues promptly, preventing the need for hospitalization.

- **Community Paramedics:** Directed by the telehealth provider, Community Paramedics can address urgent, acute patient needs throughout the patient's care episode with Inbound. Community Paramedics are able to directly assess and intervene for issues such as abnormal vital signs or urgent changes to diuretic therapy plans. In addition, Community Paramedics reinforce patient-specific treatment plans, educate patients on warning signs of health failure exacerbations, and identify potential compliance barriers.

- **Patient and Caregiver Education and Self-Management:** Inbound Health's programs prioritize patient and caregiver education and empowerment, providing patients and their caregivers with the knowledge and skills necessary to manage their care effectively at home. Throughout the patient's care episode, the full care team provides in-person and virtual support along with tailored heart failure education to the patient and their caregiver.

- **Reducing Risk of Hospital-acquired Infections and Delirium:** Studies have shown that patients receiving care at home have a reduced risk of hospital-acquired infections and delirium compared to patients who receive care in traditional hospital settings.

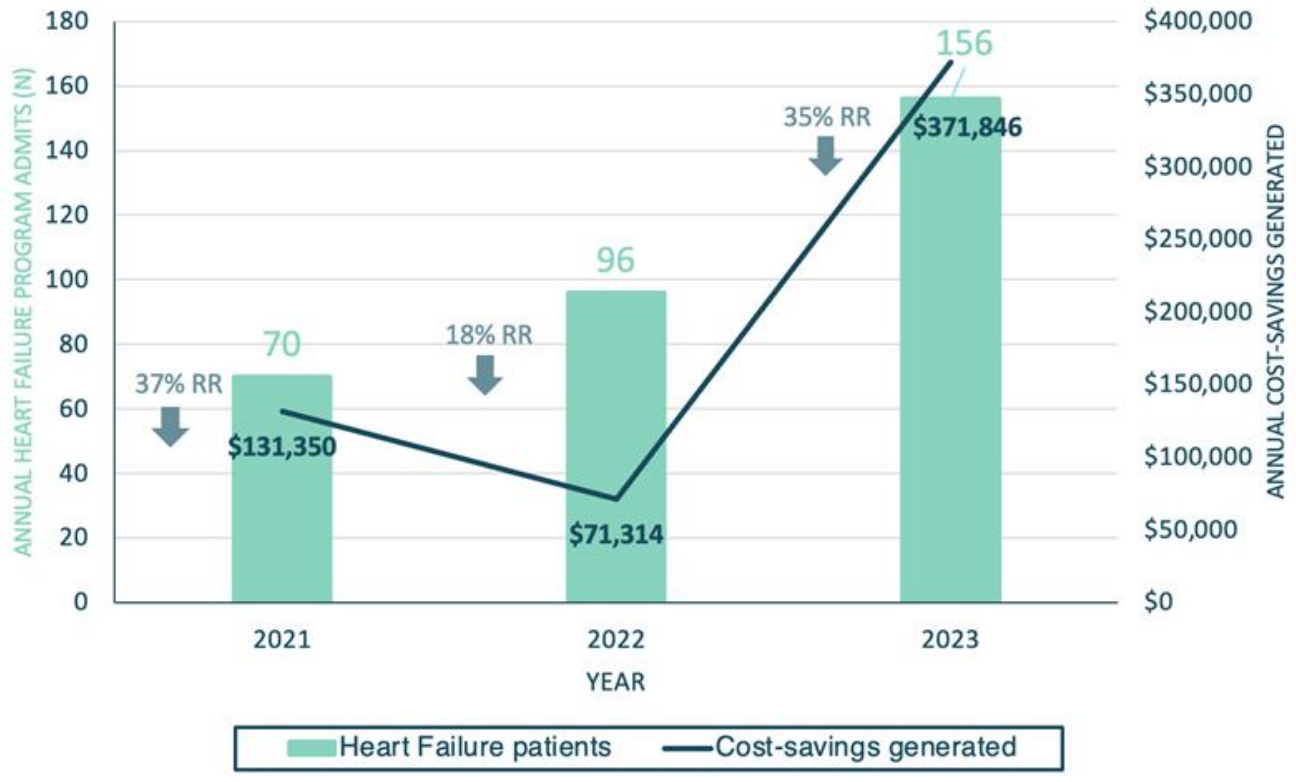
- **Enhanced Patient Satisfaction:** Patients enrolled in care-at-home programs often report higher levels of comfort and satisfaction compared to those admitted to traditional hospital settings.[5,6] The familiar home environment can contribute to reduced stress and anxiety, promoting faster recovery.

5. Yadav RR, Mahyoub MA, Capriotti MW, Berio-Dorta RL, Dougherty K, Shukla A. The Impact of a Hybrid Hospital at Home Program in Reducing Subacute Rehabilitation. Risk Manag Healthc Policy. 2023 Oct 31;16:2223-2235. doi: 10.2147/RMHP.S419862. PMID: 37927908; PMCID: PMC10625393.
6. Isaia G, Astengo MA, Tibaldi V, Zanocchi M, Bardelli B, Obialero R, Tizzani A, Bo M, Moiraghi C, Molaschi M, Ricauda NA. Delirium in elderly home-treated patients: a prospective study with 6-month follow-up. Age (Dordr). 2009 Jun;31(2):109-17. doi: 10.1007/s11357 009-9086-3. Epub 2009 Jan 30. PMID: 19507055; PMCID: PMC2693729.

Allina Health Case Study

In a study of 30-day hospital readmissions at Allina Health attributed to heart failure examined over a 2.8-year period, health outcomes for patients discharged to Allina's Elevated Care-at-Home program were modeled and compared against patients discharged to a traditional skilled home health (SHH) program or SNF following an acute inpatient stay (see Figure 1). The mean age of the patient cohort was 71 years, with a distribution of 55% female and 45% male individuals.

Figure 1: Annual Cost-Savings Generated Per Reduction in 30-Day CHF Readmissions



CASE STUDY

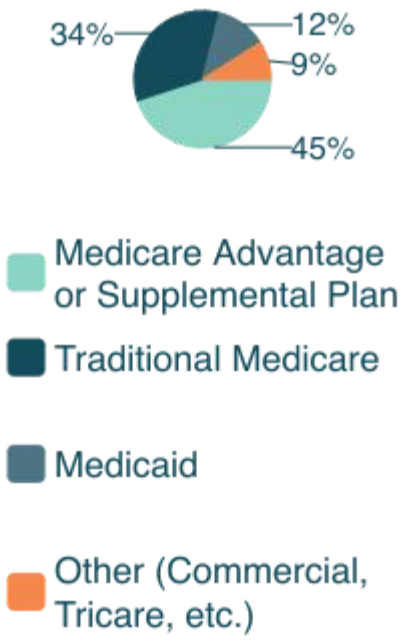
In 2021, Allina's Elevated Care-at-Home program achieved a relative reduction of -38% in 30-day hospital IP readmissions for heart failure patients, saving the health system $131K in excess costs.

↓ 30%

relative reduction in hospital readmissions

Due to the initial success of the program, Allina Health created the spin-off company, Inbound Health, to focus exclusively on expanding care-at-home programs. In shifting to a partnership model with Inbound Health, Allina doubled their CHF patient volumes in the program, achieving greater cost-savings while continuing to reduce hospital readmissions through the duration of the study. Overall, the novel in-home care model led to a cumulative cost-savings of $575K and a -30% relative reduction in 30-day readmissions over the 2.8-year period.

Figure 2: Payer Mix
(CHF Program Patients)



Nearly 20% of heart failure patients resided in a CMS designated low-income Health Professional Shortage Area (HPSA), and 21% of patients had at least one social determinant of health identified. Forty-five percent of heart failure patients were a Medicare Advantage beneficiary or participated in a supplemental plan (see Figure 2).

Conclusion

Care-at-home programs that serve as alternatives to extended hospitalization and institutional post-acute care are an effective means for health systems and hospitals to reduce 30-day heart failure readmissions and reap the associated cost savings. Inbound Health's in-home care model serves as a tangible solution to the persistent challenge of 30-day heart failure readmissions for health systems. The successful program outcomes at Allina Health underscore the potential of these programs to transform healthcare delivery, especially for medically underserved and socially vulnerable populations.

As hospitals seek to optimize patient outcomes and navigate value-based contracts, the in-home care model emerges as a compelling avenue for driving value and promoting health equity in our healthcare system.

Contact Inbound Health

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