A Novel Approach to Reduce Congestive Heart Failure 30-Day Readmissions

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Foreward

It is said, “The definition of insanity is doing the same thing over and over and expecting a different result.” In the management of heart failure, we have made significant advances in therapeutics and devices, yet we insist on grouping patients and treating them all the same way. The high rate of readmissions and associated mortality tells us that we have failed our patients. We insist on subdividing our patients in broad strokes into heart failure with reduced ejection fraction, heart failure with preserved ejection fraction, and now heart failure with mid-range ejection fraction, and based on this classification, we use a cookie-cutter recipe book to treat each patient. Instead, within each of these classifications, we must strive to find the cause of the patient’s heart failure and meet them where they are.

We also sometimes need to remember the importance of the patient’s socioeconomic barriers to accessing and maintaining treatment. The COVID era has taught us how to rapidly adapt to the patient’s needs and frankly think outside the box to meet those needs and how telemedicine and remote management fit into this picture. The Pulse Heart Institute’s Heart Failure Center of Excellence in Spokane saw that individualizing the treatment of our heart failure patients included using tools like our partners at DispatchHealth®, with the wealth

of resources they have at their disposal, we have created a necessary and beneficial ecosystem. Patients can be rapidly triaged and evaluated by our expert nurse team, cases discussed with a provider, and then further assessed and treated in their own homes. This partnership has proven to be an invaluable resource for us to reduce the risk of readmissions and improve our patients' quality of life. These patients who would typically need to go to urgent care or the emergency room are now better served at home, which is much more convenient for them and helps reduce the burden on our already overworked emergency rooms.

We plan to continue to build on this relationship and incorporate remote monitoring tools like the CardioMems device, which we implant in heart failure patients with preserved ejection fraction to help reduce rehospitalization and those with reduced ejection fraction to reduce mortality. We also aim to extend subspecialty cardiology management to remote areas of Washington state where local services like DispatchHealth can improve the treatment of heart failure in our rural communities.

I started this paragraph with a quote that has been misattributed to Albert Einstein. We use quotes to emphasize the importance of what we say or write by linking it to something intelligent someone prominent has said. That this quote, which has been repeated so many times, is misattributed does not make the meaning of it less valid, but the fact that we try to find the truth of its origin is an example of how we strive in the Inland Northwest Heart Failure team to find each patient's path to health.

Introduction

Known for a strong commitment to advancing heart and vascular medicine in the Pacific Northwest, MultiCare's Pulse Heart Institute set out to change the narrative for congestive heart failure patients. Acting on the health system's reputation for inspiration through collaboration, we partnered with DispatchHealth, an organization pioneering in-home, high-acuity healthcare, on a novel approach to the episodic treatment of congestive heart failure patients. The collective goal was to reduce practice-wide 30-day hospital readmissions to a rate substantially below the national average.

Together, our organizations created a pathway that produced extraordinary results. By taking a focused home-based approach that enabled time sensitive care to be delivered both quickly and conveniently, **readmission rates have plunged well below the national average of 25%[1] to an unprecedented 6.82%**.

By designing a patient-centric pathway for this vulnerable population, we significantly enhanced the quality of life for those served and alleviated the economic and capacity burdens placed on the greater healthcare ecosystem.

This white paper will examine the problem the program sought to address, the solution created, and outcomes measured in support of the innovative strategy.

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[1] Trends in 30- and 90-Day Readmission Rates for Heart Failure | Circulation: Heart Failure (ahajournals.org)

By 2030

More than 8 million Americans

will have heart failure

Future Costs

Could grow to $160 billion

to manage the health of this population

Readmission Rates

More than 25% of patients

will experience readmission within 30 days of discharge

50% of patients

will experience readmission within 6 months of discharge[4]

22% of patients

will not live past 12 months[5]

Historical Overview

Heart failure is a significant and growing problem in the United States, impacting the quality of life for millions of adults.[2] The American Heart Association forecasts a sharp increase in the number of people living with the disease—**by 2030, more than 8 million Americans will have heart failure. As a result, future direct costs to manage the health of this population could grow to $160 billion.**[3]

Furthermore, congestive heart failure is the most common cause of hospital readmissions among elderly and Medicare patients; more than 25% of patients experience readmission within 30 days and 50% within 6 months of discharge.[4] Sadly, mortality increases significantly with each readmission; 22% of patients will not live past 12 months.[5]

While addressing the ongoing health of heart failure patients has been the subject of national research, hospital-driven interventions, and financial penalties, readmission rates remain unacceptably high.

A solution to address this costly and debilitating disease would not only save billions of healthcare dollars and ease undue strain on hospitals but also significantly improve the lives of millions of patients and their families.

[2] Heart Disease and Stroke Statistics—2020 Update: A Report From the American Heart Association | Circulation (ahajournals.org)

[3] Forecasting the impact of heart failure in the United States: a policy statement from the American Heart Association - PubMed (nih.gov)

[4] Trends in 30- and 90-Day Readmission Rates for Heart Failure | Circulation: Heart Failure (ahajournals.org)

[5] Abstract 9704: Mortality and Readmissions in Patients With Heart Failure With Preserved Ejection Fraction versus Heart Failure With Reduced Ejection Fraction | Circulation (ahajournals.org)

The Road to a Solution

The most common cause of hospitalization among chronic heart failure patients is fluid retention and congestion.[6] Accumulation is typically gradual but can occur acutely. If not addressed timely, patients will experience a cascade of events causing further complications with other bodily functions, often requiring hospital intervention. Despite this clear cause and effect, healthcare has been short on timely solutions for addressing the complex needs of this population.

Historically, elderly cardiac patients often face mobility challenges, and securing a day of appointments within specialty clinics can be difficult. Additionally, there is a shortage of locations capable of administering necessary therapies such intravenous furosemide treatments. Traditionally, patients needing time-sensitive intervention frequently get sent to their local emergency department for help. But by bringing the emergency department to the high acuity patient at home, we solve many of these common pitfalls and yield dramatic results.

The genesis of the partnership dates to December 2018. As an alternative to emergency room care for patients with emergent, but not life or limb-threatening conditions, MultiCare engaged DispatchHealth to deliver same-day, high-acuity medical interventions as well as post-acute transitional care at home for patients in Tacoma, Washington. In the fall of 2019, the partnership expanded to Olympia, Spokane, and Seattle. Then, at the start of the COVID-19 pandemic, the partnership expanded to offer a home-based alternative to hospitalization to address pandemic-related surges in hospital capacity and fear-based deferral of healthcare.

Understanding that improving a patient's quality of life starts at home, Pulse Heart Institute's clinical leadership acted on the success of these prior programs to create a new, heart failure-specific collaboration. At the direction and request of the institute, DispatchHealth clinicians, trained in emergency medicine, would start meeting patients at home with the necessary tools, technology, and treatment to address their immediate needs.

[6] Fluid Management in Patients with Chronic Heart Failure - PMC (nih.gov)

Program Mechanics

Based on symptom parameters, patients understand when to contact the Pulse Heart Institute for help. After a detailed telephone triage, for any patient needing attention quicker than clinic availability, instead of sending them to the emergency room for support, we engage DispatchHealth.

DispatchHealth providers treat patients in need, on-demand, and at home, seven days a week, 8 AM to 10 PM, including weekends and holidays. An advanced practice provider and medical technician arrive within hours, equipped with the necessary diagnostic tools and treatments to address the unique needs of heart failure patients. Their advanced technology and mobile resources include a moderately complex CLIA lab, imaging, EKG machines, IV medications, and more.

Furosemide, an intravenous drug therapy used to reduce excess bodily fluid, was administered to 75% of the patients treated by DispatchHealth.

DispatchHealth's Spokane-based nurse practitioner Brandi Smith led clinical efforts and treated many of the study's patients. She says the program's success is rooted in the mutual quality of care and confidence. But, she adds, "End-stage heart failure patients are extraordinarily complex. We could better care for these high-acuity patients at home because of pre-established direct lines of communication with the patient's cardiologist and primary care clinicians and their ability to call on us."

This two-way communication channel and dedicated onboarding process proved vital. For example, Pulse Heart Institute clinicians wanting care for a patient would sidestep the organization's public care request line and instead utilize DispatchExpress, a dedicated provider portal, with specially trained dispatchers who understand program intricacies. Smith adds, "Traditionally, speaking with healthcare providers outside of your own clinic or facility is nearly impossible. However, I found our collaborative process extremely effective and efficient for treating a patient's immediate need as well as being able to obtain proper follow up with their specialist – it's an innovative way to best care for high-risk patients."

Outcome

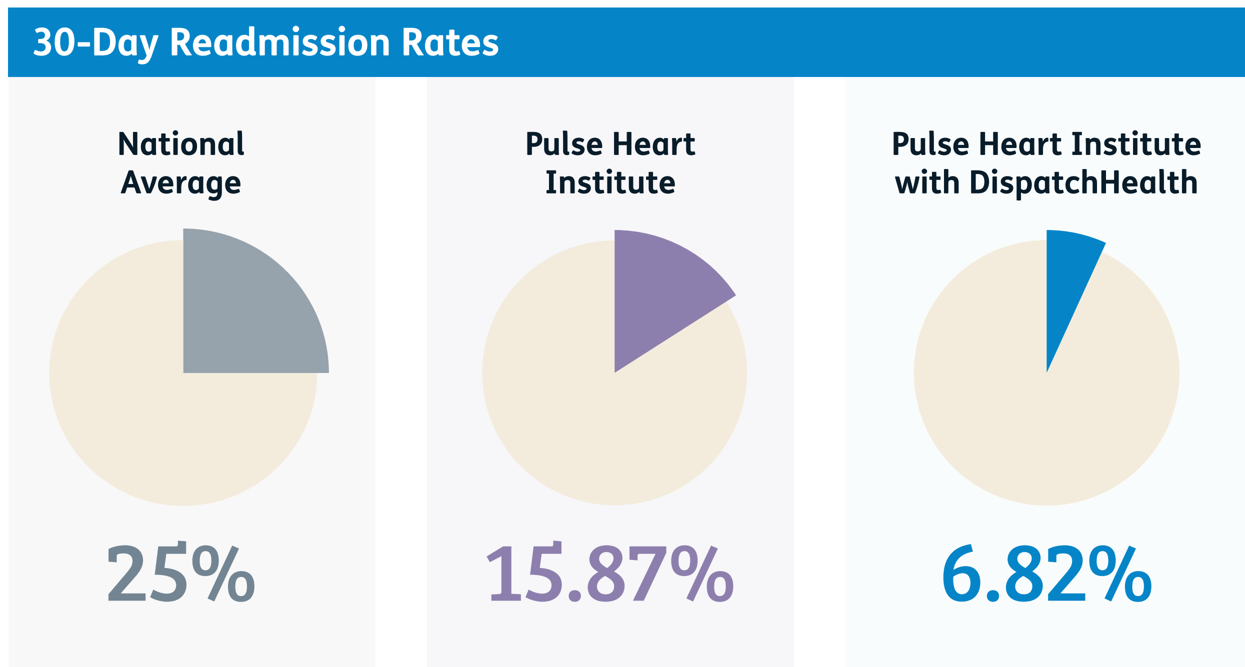
In Q2 of 2022, DispatchHealth treated 16 Pulse Heart Institute patients at home. There was no prerequisite for the visits other than a time-sensitive, complex need unable to be addressed short of emergency room intervention.

Among those treated, 64% were women, and 36% were men, ranging in age from 59 to 93, with the average age being 77. In addition, because of the collaboration and ability to reach patients needing time-sensitive treatments at home, the Pulse Heart Institute cut its 30-day hospital readmission rate by more than 50%, down from an already impressive 15.87% to an unprecedented 6.82%.

These unprecedented results offer a window into the potential for dramatically improving the lives of millions, both heart failure patients and their loved ones.

A letter from the wife of one patient stated the ability to get treatment for her husband at home was “A big load off my mind. Glad he did not have to go to the hospital.”

Furthermore, considering the multibillion-dollar cost associated with the rehospitalization of chronic heart failure patients, a reduction of 75% below the national average offers a phenomenal opportunity to positively impact our national unsustainable $4 trillion cost of healthcare. And with hospital capacity issues and provider fatigue at crisis proportion, freeing up bed space for the sickest of sick patients pays dividends to the entire healthcare ecosystem.



Summary

While addressing the growing number of Americans living with chronic heart failure may be far-reaching, this partnership has demonstrated that a solid solution exists to manage our country's unjustifiably high 30-day hospital readmission rate. Dr. Ari Malka is the regional medical director with DispatchHealth overseeing the partnership and says collaborations such as this are the future of medicine "Definitely the future standard for heart failure patients. I am hopeful it will become more common."

Together the Pulse Heart Institute and DispatchHealth have addressed many roadblocks to care that traditionally create a downward spiral of events requiring emergency intervention and hospitalization. This synergistic approach to meeting the specific needs of complex patients at home offers an exhibited solution that could remove billions of dollars from the bottom line of associated expenditures and dramatically improve the lives of millions of Americans. And these results are only the beginning.

CardioMEMS is an implanted device that allows heart specialists to monitor pressure changes indicative of worsening heart failure well in advance of physical symptoms. Abbott's CardioMEMS device was FDA-approved in 2014, with conservative requirements for implantation limiting the inclusion of the HF population. In March of 2022, following the GUIDE-HF trial (Jan 2021), the FDA expanded the criteria to NYHA Class II-IV with an elevated BNP, Pro-BNP, or hospitalization within the past 12 months. The new requirements open for greater patient inclusion giving faster objective diagnostic data for improved clinical outcomes. This knowledge, coupled with the ability to quickly deploy in-home treatment capabilities could take these trailblazing results to the next level.

Dr. Malka adds, "What we are doing is the tip of the iceberg. But, with the addition of new technology like CardioMEMS, pivotal change is on the horizon."

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Dr. Ari Malka
Regional Medical Director, DispatchHealth