HIMSS

Intermountain Healthcare

Heart Failure Program

EMRAM Stage 7

Case Study

Intermountain Healthcare
Heart Failure Program

Profile

Intermountain Healthcare is an internationally recognized, integrated, not-for-profit health system based in Salt Lake City, Utah, (USA) with 33 Hospitals, (includes „virtual" hospital), 385 Ambulatory Care Centers (clinics), approximately 3,900 employed physicians and advanced practice providers, and a health insurance company, Select Health, which covers more than 1.2 million lives. Intermountain is widely recognized as one of the premier healthcare systems in the United States and as a leader in transforming healthcare through high-quality clinical outcomes and efficient healthcare delivery at a sustainable cost.

Intermountain is the largest healthcare provider in the Intermountain West with more than 60,000 caregivers (employees) serve communities in seven US primary states: *Utah, Idaho, Nevada, Colorado, Wyoming, Montana,* and *Kansas*, and also regularly treat patients from other parts of the Intermountain West. In addition to the services and care it offers in its physical facilities, Intermountain Healthcare also provides extensive telehealth services with over 35 telehealth programs in the western United States, further enhancing Intermountain Healthcare's ability to provide quality-based medical care to patients across its vast geography. Intermountain has been delivering on its mission of helping people live the healthiest lives possible.

Intermountain Healthcare is the **first healthcare system in the world** to earn **"Triple Stage 7 Organization" status** by adding HIMSS' new EMRAM22 **Aspirational Maturity Model** Standard requirements to their O-EMRAM and AMAM Stage 7 achievements, for care facilities located in Utah & Idaho.

Intermountain's quest for better health and high-quality care at more affordable costs is the driving force behind Intermountain's commitment to truly transform healthcare across the country. Intermountain Healthcare is uniquely positioned in the nation to provide technological advancements and innovative solutions that help meet the demand for high quality care at a sustainable cost with a long history of excellence in healthcare technology & innovation, development and to find solutions that help patients and those who provide care and to improve care and outcomes for patients.

QUOTE FROM ORGANIZATION EXECUTIVE:

"Our heart failure team modeled the future of medicine in this work. They organized a multi-disciplinary team to build a care pathway that proactively identified patients at risk using a validated predictive tool and then implanted an evidence based, patient centered intervention that improved outcomes and could be scaled across the organization."

David Min, MD, Senior Medical Director, Cardiovascular Program, Intermountain Healthcare.

The leadership structure of the Cardiovascular Clinical Program provides evidence-based clinical guidance, quality improvement, goals and metrics for the Intermountain system regarding cardiovascular care. Heart failure services at Intermountain span the enterprise with 3 dedicated heart failure clinics. Through an active outreach program, services are extended to neighboring states through dedicated cardiologists partnering with local communities in Idaho and Nevada. In addition to general heart failure services our team offers subspecialty clinics for the following; hypertrophic cardiomyopathy, familial cardiomyopathy and cardio-oncology. Advanced heart failure therapies are offered to patients with end-stage disease through various forms of temporary and more permanent forms of mechanical circulatory support using left and right ventricular assist devices (LVAD, RVAD), total artificial hearts, Extracorporeal Membrane Oxygenation (ECMO), and percutaneous support. Heart transplantation through the UTAH Cardiac Transplant Program[1] at Intermountain Medical Center in Murray, been a successful model of a collaborative program since 1985 with other local institutions in Salt Lake City.

Date Stage 7 was achieved: March 1, 2022.

The Challenge

Heart failure is well known to be a complex clinical syndrome associated with significant morbidity and mortality. It has been the leading cause for hospital admissions in the Medicare population and is associated with significant hospital readmissions, significant comorbidities and poor quality of life. As a result of the 2012 Center for Medicare and Medicaid Services (CMS) and the Hospital Readmission Reduction Program and resulting penalties for excessive readmissions[2], the Cardiovascular Clinical Program has actively supported system-wide strategies to improve 30-day outcomes for patients admitted with a diagnosis of heart failure (HF) for years. The goal has been to reduce readmission rates and improve mortality for heart failure patients. Early work showed that our outcomes improved with coordinated team efforts to provide evidence-based medications to patients with heart failure at the time of hospital discharge[3]. Aiming for a large-scale system initiative, creating computerized decision support logic to identify patients who have the highest risk for poor outcomes was our goal.

Implementation Overview

1. A team comprised of cardiovascular epidemiologists, data analysts, and heart failure experts created the Heart Failure Identification and Risk Report. The report is run off data within the electronic health record and lists patients by their likelihood of being in the hospital with a heart failure diagnosis (high, medium and low likelihood) based on a multivariate analysis of factors known in the literature and their risk of 30-day readmission and 30-day mortality based on a validated Intermountain Risk Score[4].
2. In parallel, a multidisciplinary care process was built to enhance care by using this daily report at the point of care, with unit-specific data. The emphasis was for the team to enhance the patient's transition from hospital to home.
3. The pathway focused on patients in the "high" risk group for either readmissions or mortality after discharge.
4. The care process was piloted in a small cohort, refined and then scaled across the enterprise in a phased implementation fashion.

Key participants involved in the process:

- David Min, MD, Senior Medical Director, Cardiovascular Program.
- Sheralee Petersen, MBA, PA-C, Executive Clinical Director, Cardiovascular Clinical Program
- Kismet Rasmusson, DNP, Professor, Clinical Research, Heart Failure & Transplant Program
- Farukh Usmani, MD, Medical Director, Digital Technology Services.

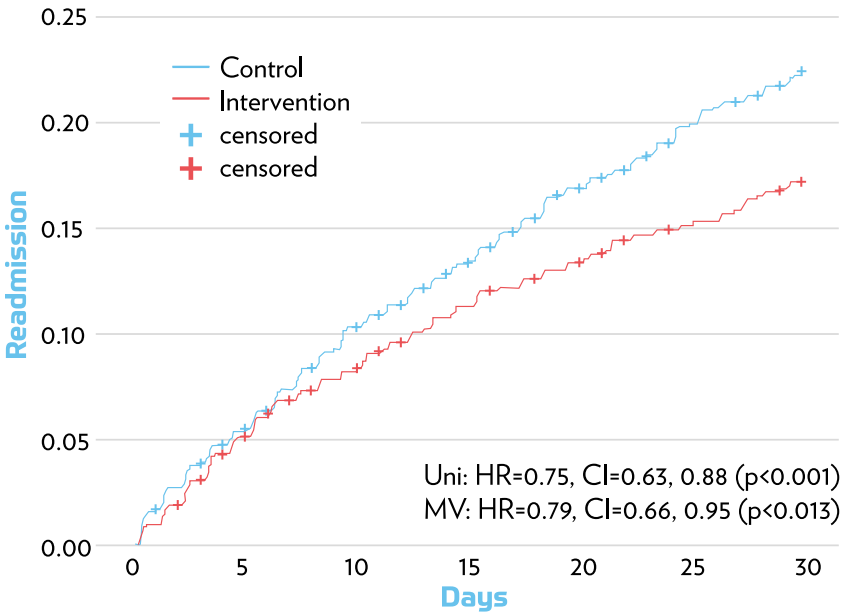
The larger team comprised of Clinical Director Cardiovascular Program, Clinical Program leaders, epidemiologist, heart failure experts, nurses, care management, pharmacists, dieticians, data analysts etc.

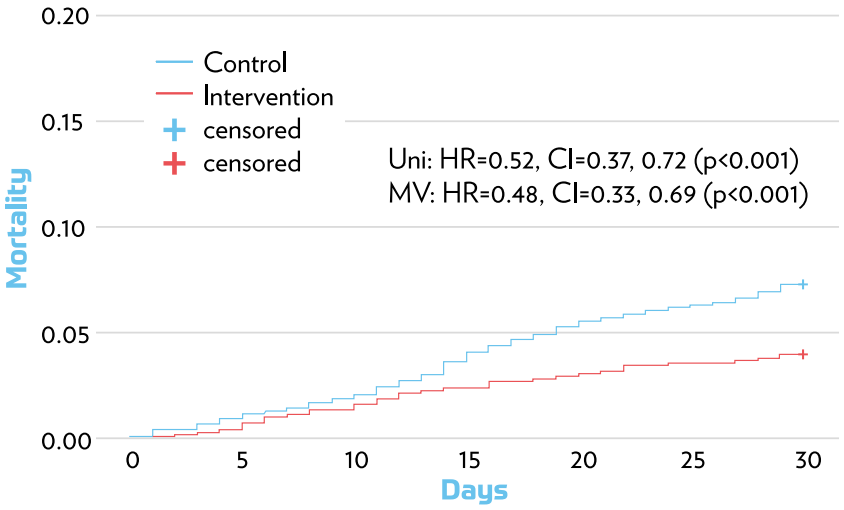
ONE SENTENCE THAT ENCAPSULATES THE EXPERIENCE AS A WHOLE:

"A risk score guided Having dedicated teams to create a validated identification and risk report used at the point of care by a multidisciplinary team can lead to improved outcomes for patients with heart failure."

Resulting Value / ROI

High risk patients identified during a HF hospitalization had 21% lower 30-day readmission compared to high risk controls and 52% lower 30-day mortality. Results of the work were published in the American Heart Journal [5].





Lessons Learned

1. Integration of Cardiovascular leadership needs to identify priorities and areas of opportunity in care delivery.
2. Maintain clinical reports and data with a clear data system to track metrics and goals allows for assessing the impact of interventions.
3. Cardiovascular research and epidemiologist teams were essential to create and validate the identification and risk report.
4. Partnering with information systems experts to create an augmented intelligence clinical decision tool within the electronic health record was key.
5. Partnering with clinical subspecialties to create a multidisciplinary team was crucial to respond to reports with a clear process at the point of care based on local resources.

1. UTAH Cardiac Transplant Program; https://intermountainhealthcare.org/services/heart-care/heart-institute/our-medical-services-and-specialties/heart-failure-transplant-artificial-heart-programs/heart-transplant/
2. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program
3. Lappé JM, Muhlestein JB, Lappé DL, Badger RS, Bair TL, Brockman R, French TK, Hofmann LC, Horne BD, Kralick-Goldberg S, Nicponski N, Orton JA, Pearson RR, Renlund DG, Rimmasch H, Roberts C, Anderson JL. Improvements in 1-year cardiovascular clinical outcomes associated with a hospital-based discharge medication program. Ann Intern Med. 2004 Sep 21;141(6):446-53. doi: 10.7326/0003-4819-141-6-200409210-00010. PMID: 15381518.
4. Horne BD, May HT, Kfoury AG, Renlund DG, Muhlestein JB, Lappé DL, Rasmusson KD, Bunch TJ, Carlquist JF, Bair TL, Jensen KR, Ronnow BS, Anderson JL. The Intermountain Risk Score (including the red cell distribution width) predicts heart failure and other morbidity endpoints. Eur J Heart Fail. 2010 Nov;12(11):1203-13. doi: 10.1093/eurjhf/hfq115. Epub 2010 Aug 12. PMID: 20705688.
5. Horne BD, Roberts CA, Rasmusson KD, Buckway J, Alharethi R, Cruz J, Evans RS, Lloyd JF, Bair TL, Kfoury AG, Lappé DL. Risk score-guided multidisciplinary team-based Care for Heart Failure Inpatients is associated with lower 30-day readmission and lower 30-day mortality. Am Heart J. 2020 Jan;219:78-88. doi: 10.1016/j.ahj.2019.09.004. Epub 2019 Sep 11. PMID: 31739181.

Questions?

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