

# How a large medical center used the Health Catalyst Late-Binding™ EDW to reduce heart failure readmissions

## HEALTHCARE ORGANIZATION

Large medical center

## TOP 3 RESULTS

Six months after implementation.

- A 21 percent seasonally adjusted reduction in 30-day HF readmissions
- A 14 percent seasonally adjusted reduction in 90-day HF readmissions
- A 63 percent increase in post-discharge medication reconciliation

## PRODUCTS

- Key Process Analysis Application
- Late-Binding Data Warehouse™
- Cohort Finder
- Heart Failure Advanced Application
- Analytic Visualization Solutions



*“Our data is now accessible to stakeholders throughout the organization, including clinical teams who can use it to drive improvements in care processes, care quality and patient outcomes. The integration of data management with evidence-based practices, operational data and financial metrics has given us a much more comprehensive perspective of care delivery.”*

~ The Medical Center's Director of Clinical & Business Analytics

## Client Background

Like most healthcare systems facing the transition to value-based reimbursement, this large, internationally renowned medical center found it necessary to assess its overall quality improvement program, with an emphasis on evaluating its data management capabilities.

Leadership realized it needed to be able to analyze and better manage specific patient populations, especially patients with chronic conditions and those at greatest risk for readmission. Administrators also recognized the need to address inefficiency and waste in the center's care programs, but they lacked hard data to confirm suspected problems or to detect hidden inefficiencies and safety issues.

To solve this problem, the medical center initially decided to deploy a traditional enterprise data warehouse (EDW). But it found that this type of EDW took years to fully deploy and failed to enable the near-real-time analysis of clinical data required for success under value-based care. The center then turned to Health Catalyst's Late-Binding Data Warehouse™, an agile platform that not only supports the fast-changing rules and use cases of healthcare data, but delivers value in a matter of weeks and months.

The healthcare EDW was launched in mid-2011 and was fully deployed within just three months.

## Client Story

The new healthcare EDW quickly pooled financial, operational, patient satisfaction and clinical data from the center's electronic medical record and other major applications. Then a multidisciplinary team of physicians, nurses and leaders from quality, finance, IT and other medical center departments analyzed the pooled data using the Health Catalyst Key Process Analysis (KPA) Application. The KPA Application pinpoints clinical areas with the highest variation that consume the most resources. It quickly identified Cardiovascular as one of the top clinical programs with the greatest opportunity for improvement.

### AIM STATEMENT

*To achieve and sustain a 30 percent reduction in the 30-day and a 15 percent reduction in the 90-day all-cause readmission rates for patients with HF by October 2014 and sustained reduction in readmission rates through 2016.*

Armed with that insight and its new technology capabilities, the center applied for and received a grant from a major foundation to support a transitional care program for heart failure patients. The center borrowed the grant's objectives to define its long-term AIM statement:

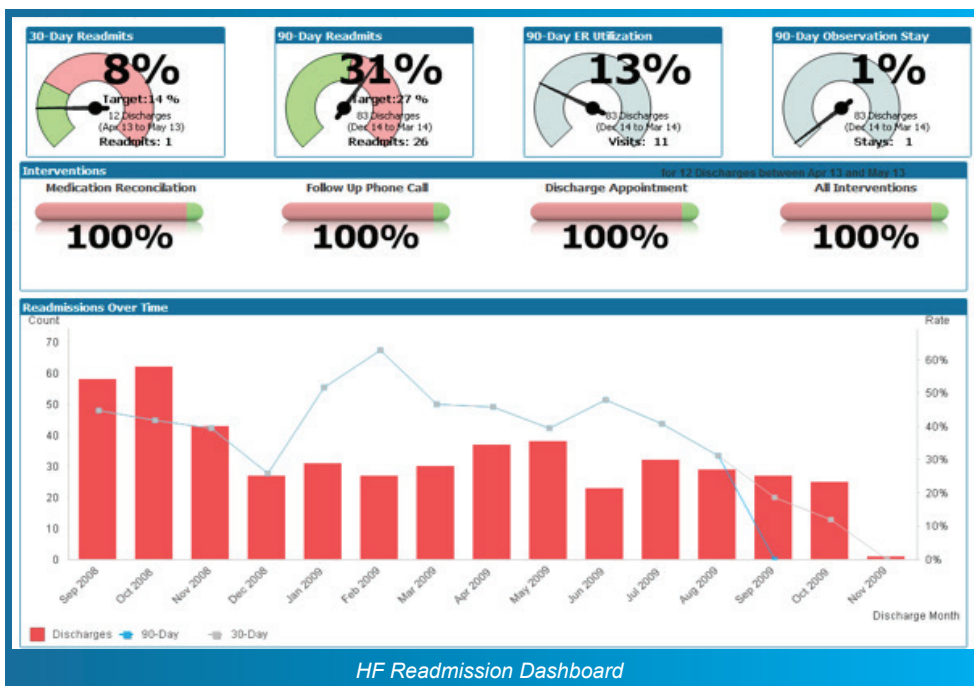
*To achieve and sustain a 30 percent reduction in the 30-day and a 15 percent reduction in the 90-day all-cause readmission rates for patients with HF by October 2014 and sustained reduction in readmission rates through 2016.*

HF consistently ranks among the top five causes of hospital readmissions. According to the Centers for Medicare and Medicaid Services, during a recent three-year period the national rate of readmission for HF was 24.7 percent, resulting in billions of dollars in direct medical costs.

To achieve the goals set forth in its AIM statement, the center's clinical leaders developed three evidence-based, HF-specific best practice interventions, which were rolled out over a few months:

- **Medication reconciliation** – Within forty-eight hours of discharge, a physician reviews a list of the patient's medications with explicit instructions on how to properly take them.
- **Post-discharge appointments** – Before being discharged, patients are scheduled for follow-up care. When possible, patients at high risk for readmission are scheduled to be seen within seven days of discharge; all others are scheduled to be seen within 14 days.
- **Post-discharge phone calls** – Within a specified time frame following discharge (again based on the patient's level of risk for readmission), a member from the coordinated care team calls patients to assess their condition and see if they have any questions or are having any problems with their medications.

An integrated dashboard was created in the healthcare EDW platform for each of the three interventions so clinicians and administrators could easily visualize the impact the changes were having on readmissions. Additionally, the healthcare EDW and Advanced HF Application allowed the multi-disciplinary teams to assess the interventions' impact on, costs and patient satisfaction.



“Today, we have a solution that integrates data management with evidence-based practice, operational data and financial metrics to allow us to understand the bigger scope of care delivery. This is a dream come true. We have never had the opportunity to do that before because so many silos of data existed. Now we can put patients first because we can see the data.”

~ The Medical Center’s Director of Clinical & Business Analytics

To ensure that the focus on reducing readmissions did not have an unintentional effect in other areas, such as an increase in emergency department (ED) visits or a decrease in patient satisfaction, the center built in balance measures including the tracking of ED encounters, observation stays, length of stay and patient satisfaction rates.

Six months after implementing the program, the medical center had experienced:

- **A 63 percent increase** in post-discharge physician medication reconciliation within 48 hours
- **A 2x increase** in the number of phone calls made to patients within 48 hours of discharge
- **A 21 percent seasonally adjusted reduction** in 30-day HF readmissions
- **A 14 percent seasonally adjusted reduction** in 90-day HF readmissions

As a result of these successes, the medical center is deploying the healthcare EDW, the Health Catalyst Population Health Advance Application, and quality intervention process within a coordinated care program it is piloting for university and hospital employees and dependents. It is also creating a healthcare EDW-powered population health analytics dashboard that stratifies risk for other chronic conditions such as diabetes, identifies care gaps and implements risk measures to improve population health outcomes.

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