Case Study

Reducing 30-day Heart Failure Readmissions

How Process Optimization and Peer-to-Peer Connections Standardized HF Care
Heart failure (HF) is one of the major underlying causes for hospital admissions and readmissions at the McLaren Regional Medical Center in Flint, Michigan. At the end of 2013, the hospital was seeing higher than desired 30-day heart failure readmissions. They wanted to bring their readmission percentage below the national average, in part so they could serve as an example for other facilities in the McLaren system.

Cheryl Wieber, Director of Performance Improvement in Cardiovascular Clinics at McLaren, said they struggled with the proper education and appropriate pathways for heart failure patients. "We knew we could manage these patients better," said Cheryl, "we just needed the right tools and approaches to help us meet our goals."

The Challenges

According to James Chambers, D.O., Chief of Cardiology at McLaren, a common issue they faced was discharging heart failure patients after a hospitalization without consistent instructions and education. This resulted in patients returning to the ER, sometimes within a few weeks, driving up their 30-day HF readmission rates.

"For us, the status quo wasn’t good enough," says Dr. Chambers. "As physicians, we know that heart failure patients are going to be frequent visitors to the hospital. But we looked back and realized the way we were caring for these patients was like a revolving door. We had to do better."

To address their challenges, McLaren partnered with Medtronic to pilot the Connect HF℠ Solution, a new heart failure program, which ultimately helped them reduce their 30-day heart failure readmission rates, optimizing care for heart failure patients and realizing potential cost reductions for the hospital.

The Solution

Through Connect HF, McLaren participated in a novel program that combines elements of lean sigma process improvement with best practice sharing by leading HF institutions. During this workshop-style collaboration, McLaren problem-solved and benchmarked their program with heart failure clinical advisors from Sanger Heart and Vascular Institute in Charlotte, North Carolina, Lancaster General Hospital in Lancaster, Pennsylvania, and Morristown Medical Center, in Morristown, New Jersey.

Dr. Chambers says McLaren consulted with these leading heart failure programs on the processes they had been using for several years in the management of heart failure. “We came together, formed a team, set up regular committee meetings and eventually created a process and a completely new heart failure program that never existed at our hospital,” explains Dr. Chambers. Cheryl Ellegood, Vice President of Business Development and Clinical Services at McLaren says, "Medtronic was instrumental in helping us to improve our heart failure program. “Not only did Medtronic provide us with a lean sigma Black Belt expert from its PRO|CV℠ service, who helped assess our patient workflow efficiency and effectiveness, they also connected us with best-practice organizations who had already walked the walk of improving their outcomes.”

From its participation in the Medtronic pilot heart failure program, McLaren gleaned several key best practices that helped them make significant progress in managing their heart failure patients, and in reducing their heart failure readmission rates.

* Organizational impact information provided by the customer. Results may vary. The project with McLaren Regional Medical Center was a pilot program. The Connect HF Solution from Medtronic contains both program elements that are available for a fee and program elements that are available to all customers who purchase Medtronic products.
These improvements included:

- **Implementing new admission orders** for heart failure patients presenting in the ER. They are better able to determine their high-risk HF patients, triage them and hospitalize if necessary, or treat and release within 24 hours without a hospital admission.

- **Implementing new discharge orders** for heart failure. Patients are called by an RN within a goal of 72 hours of discharge to ask them questions, such as:
  - Have you had your prescriptions refilled?
  - Have you been able to make follow-up appointments with your primary care physician or cardiologist, and if not, would you like help?
  - Do you want McLaren to contact your primary physician or cardiologist to transfer medical records and lists of medications you were taking while hospitalized?
  - Did you know you can call McLaren immediately if you notice any changes in your condition, like shortness of breath?

"With the help and guidance of Medtronic and the clinicians from Sanger, Lancaster and Morristown, we were able to design and implement best practices around admission and discharge orders and new heart failure pathways," said Cheryl Wieber.

Also, according to Dr. Chambers, another critical improvement McLaren made was ensuring that HF patients could see their primary care physician or cardiologist within seven days of discharge.

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**McLaren Regional Medical Center At-A-Glance**

- Headquartered in Flint, Michigan
- Part of the McLaren Health Care System:
  - Operates 11 hospitals
  - Owns a health plan
  - Offers the McLaren Visiting Nurse & Hospice Program

- Over 300 facilities
- Serving 6.5 million people in a 53-county area
- McLaren Hospital in Flint, MI is the flagship hospital:
  - 336 beds
  - Over 1,000 heart failure admissions per year
  - Medicare 30-day HF readmissions of 33%
5 Key Methods Used in the Medtronic Connect HF Solution Pilot Program with McLaren

1. **Value-stream map** of HF admissions, discharge and post-discharge processes.
2. **Data analysis** of HF readmissions and root causes.
3. **Recommendations** for performance improvement by leading HF clinical advisors.
4. **HF best practice tools** from clinical advisors, including:
   - Outpatient HF pathway
   - HF algorithms
   - HF nurse practitioner job descriptions.
5. **Sample staff training** and rollout plan and training content.

“In our new process, we’re working with cardiologists or other physicians to help patients get follow-up appointments faster,” explains Dr. Chambers. “Before, it may have taken them two weeks or even a month to see their doctor for follow-up, which means they may be back in the ER before they have a chance to get ‘tuned-up.’ Now, we’re making sure they get in under seven days after their heart failure hospitalization so that their doctors can optimize them, which can help prevent a return to the ER.”

**The Results**

**39.93% HF Readmission Rate Reduction**

Following the implementation of the Connect HF solution, McLaren realized a significant reduction in their 30-day readmissions. Six months post-implementation, the average readmission rate was 15.6% — a relative reduction rate of **39.93%** over the previous three-month average — in all HF readmissions, as shown below. More efficient and coordinated management of HF patient care not only resulted in better clinical outcomes for these patients, but also put the hospital on track to realize a positive financial impact.

“Medtronic was instrumental in helping us to improve... They also connected us with best-practice organizations who had already walked the walk of improving their outcomes.”

— Cheryl Ellegood
Vice President, Business Development and Clinical Services
McLaren Regional Medical Center
McLaren Regional Medical Center
Average Readmission Rates

* McLaren’s post-implementation readmission rate was 7% below the current national average. The national average readmission rate would fall another 5% before McLaren would again be subject to penalties.

**CALENDAR YEAR 2014**

<table>
<thead>
<tr>
<th>Month</th>
<th>Index HF Admissions</th>
<th>Readmissions</th>
<th>Rate</th>
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<tbody>
<tr>
<td>January</td>
<td>53</td>
<td>9</td>
<td>17.0%</td>
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<tr>
<td>February</td>
<td>35</td>
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<tr>
<td>March</td>
<td>45</td>
<td>10</td>
<td>22.2%</td>
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<tr>
<td>AVERAGE</td>
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**CALENDAR YEAR 2015**

<table>
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<tr>
<th>Month</th>
<th>Index HF Admissions</th>
<th>Readmissions</th>
<th>Rate</th>
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<tbody>
<tr>
<td>October</td>
<td>36</td>
<td>12</td>
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<tr>
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<td>33</td>
<td>8</td>
<td>24.2%</td>
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<tr>
<td>December</td>
<td>43</td>
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<tr>
<td>AVERAGE</td>
<td></td>
<td></td>
<td>25.9%</td>
</tr>
</tbody>
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**RELATIVE REDUCTION CALCULATIONS**

- Current vs. 3 Months Prior: 39.92%
- Current vs. Same Period Last Calendar Year: 26.11%
- Current vs. Current National Average HF Readmit Rate: 31.47%
$154K Potential Penalty Avoidance
In addition to optimizing the care of their heart failure patients, a potential readmission penalty cost savings of 44.6% was estimated. Applying this calculation to the HF readmission penalty paid the previous year, $154K could have been saved had the Connect HF Solution been implemented for that year.

CMS MEDICATE HOSPITAL READMISSION REDUCTION PROGRAM (HRRP) ESTIMATES

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<th>Value</th>
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<tr>
<td>Previous Actual Excess Readmission Ratio for HF</td>
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<tr>
<td>Previous Actual Hospital Readmission Adjustment Factor</td>
<td>0.99650</td>
</tr>
<tr>
<td>Estimated Potential Excess Readmission Ratio for HF</td>
<td>0.99581</td>
</tr>
<tr>
<td>Estimated Potential Hospital Readmission Adjustment Factor</td>
<td>0.99806</td>
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</tbody>
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*Actual penalty paid: $345,939.21
Modeled potential penalty owed: $191,634.59
HRRP penalty reduction if program had been implemented: $154,304.62
According to Dr. Chambers, the heart failure program at McLaren has benefitted greatly from the pilot program with Medtronic. “It hasn’t been just the reduction in readmissions,” says Dr. Chambers, “but also the improvement in working together as a care team to improve our critical metrics related to heart failure.”

“Medtronic helped us form a multi-disciplinary team that looked at the problem holistically and helped us develop workable solutions,” says Cheryl Ellegood.

Also, the new discharge pathway has staff feeling better. Dr. Chambers explains. “The staff is very encouraged because instead of seeing certain patients come back through the door in 7-10 days, they are able to help them stay at home and better care for themselves in the long-term.”

For McLaren and their heart failure team, Dr. Chambers says they would not have been able to achieve their results without benchmarking support from other heart failure programs. “For us to go through this project alone, we would have been hindered,” explains Dr. Chambers. “We would not have gotten to the place we are at with our heart failure care without the help of Medtronic and the faculty advisors from the heart failure programs at Sanger, Lancaster and Morristown.”

“We now work together as a team — physicians and hospital administration. We have a dashboard of heart failure metrics that we measure, and we now co-manage them as a team to improve our care of heart failure patients.”

— Dr. Chambers, D.O.
Chief of Cardiology
McLaren Regional Medical Center

*Calculations based on Medicare Hospital Readmission Reduction Program (HRRP) estimates applied to HF readmission rate reductions.
Connect HF is from the suite of innovative solutions offered by the Cardiac and Vascular Group at Medtronic that are designed to drive value across the care continuum.

This case study is provided for general educational purposes only and should not be considered the exclusive source for this type of information. At all times, it is the professional responsibility of the practice or clinical practitioner to exercise independent judgment. Results may vary

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