Best Practices in Managing Patients with Heart Failure Collaborative Case Study

USMD Holdings, Inc.
Organizational Profile

USMD Holdings, Inc. (USMD), a multispecialty medical group, provides primary and specialty care to nearly 400,000 patients annually across the Dallas-Fort Worth area. The system is a large, integrated care organization that encompasses 2 acute care hospitals, 27 primary care medical centers, and 20 specialty centers. USMD is now an affiliate of WellMed Medical Management, Inc. and OptumHealth Holdings, Inc.

The health system has more than 2,000 employees, including 214 providers (109 primary care providers and 105 specialists, including 4 cardiologists) and 35 advanced practice providers (APPs), including nurse practitioners and physician assistants.

USMD uses NextGen as its electronic medical record (EMR) in primary care, women's services, and medical specialties. Allscripts is the EMR for all of the surgical specialists.

In 2016, USMD provided almost one million patient encounters, of which more than 15% were conducted through the medium of “virtual medicine” (secured messaging between physician and patient).

The mission and vision of USMD Health System stems back to 1992, when a single specialty surgical group began to collaborate on excellence in patient outcomes—outcomes that would receive national recognition for the group before the close of the decade.

The nature of specialty health care is an interdisciplinary collegiality with primary care. The premier primary care medical group in the area included a variety of specialty group partnerships across the region. The relationship of these two groups led to the single surgical specialty group joining forces with the premier primary care physician group in 2012 in a merger that would absorb two physician-owned hospitals.

The Triple Aim mission of USMD is thus firmly rooted in a history defined by premier physicians who collaborate across specialties because they have a common vision of superior patient outcomes throughout a continuum of care.

Executive Summary

With roughly 5.7 million adults in the United States diagnosed with heart failure (HF) and approximately half of those facing death within five years of obtaining that diagnosis, HF is a serious problem for health systems and patients across the country.

At USMD, approximately 1.2% of the primary care patients have received the formal diagnosis of HF, and the organization is striving to find ways to collaborate with those patients and other stakeholders to maximize patient health and quality of life using a Triple Aim-guided approach.

During this AMGA Heart Failure Collaborative, USMD leveraged technology and data to achieve its aims and accomplished the following:

- Piloted predictive modeling software
- Provided additional heart failure education for providers, staff, and patients
- Identified opportunities to standardize clinical processes and work flows
- Invested in its care management team and tools

The results for the clinical measures of angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARB) and beta blocker usage exceeded expectations and were maintained throughout the measurement period.

There is additional work to be done to improve the readmission rate for HF patients. However, 2016 served as a year for learning how to build additional infrastructure and how to utilize new protocols and technologies to support this effort. The health system expects to yield positive results in 2017.

The lessons learned during the AMGA HF Collaborative include:

- The importance of a strong data analytics function and claims data management
- Disease-specific training
- Expanded care team members having access to predictive modeling
- Standardized clinical work flows
- The additional full-time employees (FTEs) needed to provide value-based care
- The essential need for a strong hospice/palliative care and advanced care planning program
Program Goals and Measures of Success

USMD had the following goals and objectives entering into the HF Collaborative:

1. Create disease-specific congestive heart failure (CHF) readmissions data extractions to allow for specific goals to be set for improvement
2. Create a system to better communicate in the EMR to all staff members (including the transition of care team) each patient’s severity due to CHF and co-morbidities
3. Bring more focus on CHF via enhanced quality/readmissions data reporting to providers and leadership
4. Create and disseminate more standardized CHF protocols to reduce variation of care and create a provider and staff educational program to go along with them
5. Create a post-discharge follow-up checklist and training for staff and the care management team
6. Develop central recall processes to more closely monitor patients with severe CHF and address medication issues and barriers more aggressively
7. Create more patient-friendly standardized educational materials

Data collection and measurement was one of the greatest challenges initially as the health system entered the HF Collaborative. Once a readmission data extraction system was constructed using an external vendor, a readmission goal of less than 10% was set and a goal for beta blocker and ACE/ARB usage of greater than 90% was established.

The outcomes for the other goals and objectives are discussed in more detail in the “Outcomes and Results” section.

Population Identification

The organization has four cardiologists rotating in six major primary care sites to care for patients with higher level cardiac needs, like HF. All of the 27 primary care locations have panels of HF patients, albeit of varying sizes and degrees of complexity, throughout the Dallas-Fort Worth area.

USMD has created an employment model for cardiology to promote a model of e-consults and phone consults. The system compensates its cardiologists hourly to remove volume-based incentives and to encourage them to coordinate patient care via telephone, secured email, or in-person consults with the primary care providers (PCPs). Using this methodology also allows the cardiologists to be the gatekeepers of more expensive procedures and more invasive specialists, when needed.

The entire HF population for the organization totaled 3,170 patients. The population was found to be 82.8% White, 8.1% African American, 4.9% Latino, 1.6% Asian, and 2.6% other/not reported.

For the purposes of the HF Collaboration, USMD looked at its population of patients with HF in two ways.

First, the system measured beta blocker and ACE/ARB prescriptions on all CHF patients within its entire population across all payors, including the:
- Medicare Shared Savings Program (MSSP)
- Accountable Care Organization (ACO)
- Medicare Advantage
- Commercial payer groups

Second, due to data limitation, the all-cause readmission rate could only be measured for the populations whose plan and payor arrangements provided full claims detail. In this case, the Medicare Advantage Risk Product and MSSP ACO were the only two plans to fit that condition. Consequently, they were the only two included in this data set.

The medical group used its existing EMR, NextGen, to create custom Structured Query Language (SQL) reports and capture all of the Healthcare Effectiveness Data and Information Set (HEDIS) data elements to confirm proper medication prescribing. The group also used this methodology to create an individual HF registry for each PCP with the corresponding medication data included. The system used a data analytics vendor platform to analyze the hospital claims information and readmissions data.
Intervention

First, a work group was created to include the areas of:

- Clinical analytics
- Primary care leadership and medical directors
- Quality
- Clinical education
- Care management
- Information technology

The team initiated an action plan to tackle each of the areas of interest within this project. This group met every six-to-eight weeks to ensure that progress toward the action plan was being made and to assign additional duties as needed.

Initial work began in parallel on the clinical standards and algorithms, as well as the data extraction methodology and population identification. Once the clinical standards and algorithms were outlined and approved by clinical leadership, the next step was to create educational programming for all levels of the organization: clinic floor staff, health coaches, case management, associate practitioners, physicians, and most importantly, patients.

The educational outlets included PowerPoint presentations, seminars, handouts, a new training intranet page, and a newly designed patient booklet.

Additional technology was prioritized next and research was conducted to identify a system that could enhance the post-discharge, follow-up process. An additional objective was to recall patients at risk for hospitalization in a more predictive manner.

Throughout the process, organizational leadership and providers received communications on the program’s processes, goals, objectives, and data in order to bring attention to HF in 2016. The accomplishments were celebrated in the physician newsletters, the Chief Physician Officer weekly email communications, and in physician leadership meetings.

The primary care leadership reviewed the current HF ACCF/AHA guidelines and worked with cardiology to summarize the findings in a digestible format for staff and providers. With the plethora of lengthy guidelines, providers requested actionable and easy-to-read summaries of the guidelines, which the medical directors created and vetted with the clinical practice committee of the organization.

As the guidelines were reviewed and the action plans were created, it was noted that the health system had several opportunities to enhance workflow.

The CMIO led the team in incorporating the HF medication measures into the point-of-care tool USMD utilizes for adult medicine morning huddles and in preparing for clinic visits, and performed extensive quality assurance testing.

During that process and during the creation of internal SQL reports, it was noted that the ejection fraction (EF) on the echocardiograms was not being captured in a discreet data field. Therefore, the Information Technology (IT) department helped to create a new data field, and a new work flow was created by the training department and operations for documenting data on internal (cardiology staff) and external (primary care staff) echocardiograms.

At the same time, a new third-party document management vendor was also being piloted in several primary care clinics and staff was trained to intake all faxed documents and to enter the echocardiogram information into the discreet data fields in the EMR’s health maintenance template (including the date and the EF percentage information, with a less than 1% error rate). To level set all patients in the organization, the system’s central quality team performed a manual chart audit to correct any missing EFs that could be identified.

The IT department also expanded resources in the form of a new interface manager position to better handle the vast amount of claims data coming into the system and to interface with payors and analytics vendors.

Many of USMD’s goals depended on enhancing the care management team and infrastructure. Therefore, much of the focus for the intervention was placed there. One of the first steps was bringing in a highly-experienced leader to be the new Director of Care Management. The Director was a critical partner during the HF Collaborative.

In the initial phases, the job descriptions and roles for health coaches, case managers and social workers were redesigned. Then, the operational teams approved additional full time equivalents (FTEs) in the form of health coaches to support value-based care.
Next, a new transition of care process and tool was created in conjunction with a third-party care management analytics vendor, and the pilot work began in October of 2016. This tool aligned the team with the National Committee for Quality Assurance (NCQA) care management guidelines and the best practices for preventing readmission (e.g., medication reconciliation, care plans with goals and barriers identified, assisting patients in making a follow-up appointment with their PCP in three-to-seven days post-discharge, etc.).

A new algorithm was also created to streamline the escalation of patients who require a higher level of case management support post-discharge (see Figure 3). Note: Most of this work was not completed until late in 2016 and may not yet reflect in the data captured thus far.

Another important piece of strengthening the infrastructure was the installation and piloting of a new analytics software package for the care management team with predictive modeling for HF patients and a resultant risk score pulled from multiple factors which went live in November (see Figure 4).

The software predicts which HF patients will have higher costs in the next 6-12 months. This allows the care management team to address any issues that will lower that risk, thus lowering admissions and potential readmissions. Those patients may already be in the “critical” category with high clinical risk and high per patient per month (PMPM) spend. They may otherwise be in the “hidden risk” category with high clinical risk and low PMPM spend (see Figure 5).

In addition to the new software, the team used internal reporting to create the HF registry with medication status for providers from data derived from the EMR. That report was used to bring awareness to the providers of their HF panel size and the number of patients not on the ACE/ARB and beta blocker regimens.

Due to the inherent inflexibility of the IT and communications platforms, as well as other prioritized needs, the group had to delay implementation of a new alert system in the EMR that would notify providers, staff, and call center of a patient’s history of severe HF. There are plans to resume that work in 2018.

During the initial preparation and analysis of the organization’s tools and materials, it was noted that standard patient-centered HF education materials were not available for use in the clinic and for the care management teams. Therefore, the primary care leadership and the care management team collaborated to create a patient-friendly and easy-to-read booklet that was promoted and distributed to all of the teams for patient education. This concise guide contains general information about HF, as well as information on symptoms, treatment options, diet and exercise, weight tracker, decreasing other risk factors, and additional websites and smart phone apps that might be helpful.

USMD also noted a need for providers and staff to receive more detailed education on current HF guidelines and the need for a platform to store and catalogue learning materials. It used its quarterly provider camaraderie meetings to introduce the HF project concepts, goals, and objectives; to present metrics and data as the collaborative progressed; and to review the most current clinical guidelines and tools.

An educational PowerPoint presentation and a one-page quick reference guide were provided to all providers to review at their clinical meetings. These two resources were also sent via interoffice mail with a printed copy of the detailed HF registry and a copy of the patient education booklet to ensure all providers had a chance to review the materials and act on them.

In September 2016, an educational series on hospice, advanced directives and palliative care was provided for all PCPs by a local hospice and advanced care planning provider. HF patients in more advanced stages were one of the groups this program focused on to ensure every patient had a chance—in their own home and with family members present—to understand and review end-of-life choices with a professional who specialized in this area. Earlier in January, all of the care management team was trained in making those referrals as well.

Clinic staff and care management staff also received additional clinical training staff education on HF at the monthly clinical team lead and care management meetings. A new “mastery” series was created with congestive HF as the first topic.

Afterwards, staff showed an increased confidence in knowing which symptoms were concerning for HF exacerbation and which medications needed to be present on the medication list to maximize the patient’s state of health. After all of the training materials were presented, the organization stored these on the newly-created quality and safety intranet page to allow access by providers and staff at any time.
Outcomes and Results

As the group reviewed the baseline and ongoing data regarding ACE/ARB and beta blocker use, the results ranged between 90.8% and 93.6% and between 95.9% and 97.7%, respectively (See Figure 1).

Using the OPTIMIZE-HF study4 to create a benchmark for the number of patients in the general population who may not tolerate beta blockers (approximately 12%), the group determined there was little room to increase further on these metrics. They also used the publicly-reported MSSP ACO 90th percentile benchmarks of the HF metrics for beta blockers and ACE/ARB use in patients with coronary artery disease or diabetes and left ventricular systolic dysfunction (LVSD) as a proxy (90%).5

However, providers were asked to review their HF registries again in Q4 of 2016 to ensure there were no other opportunities present. Overall, the organization was able to maintain its goal of greater than 90% on both of these metrics.

The readmission rate for HF patients proved much more difficult to derive and manage. Numerous attempts finally resulted in a rate for the MSSP ACO patients and the full-risk Medicare Advantage products.

The overall goal for readmissions of any kind for the organization was less than 10%. Preliminary data has shown some overall decline in the readmission rate for all-cause readmission (closer to 12-14%), but the data restricted to HF showed a steady increase and then a slight decline in the third quarter of 2016, ranging from a high of 32.5% in the first quarter of 2016 to a rate of 28.4% in the third quarter of 2016 (see Figure 2). The reasons for this increase are still unclear.

Many of the interventions the system made would not be evident until the first quarter of 2017. The team will continue to monitor the readmission rates even after the close of the HF Collaborative in order to determine if the inventions led to a decrease in admissions and readmissions.

While working on the HF Collaborative and other projects to decrease unnecessary admits, emergency department (ED) visits, and readmissions, it was noted that one of the system's more rural and underserved areas seemed to have a larger proportion of patients in the HF panel and more of the admissions (and consequently, the readmissions).

Also, many psychosocial barriers were noted in this population, which was also heavily weighted with dual-eligible patients. As a result, a social worker was added to those sites to assist the team. The group will continue to follow their results going forward.

It was also noted that approximately 30% of the patients older than 65 years of age in the system who are sent to the ED for evaluation were admitted. On closer examination, many of those patients may have had a chance to be followed closely as an outpatient if the PCP had been involved at the time of choosing to go to the ED.

As a result, the organization chose to engage in an “ED reduction” pilot. The main root cause noted was that the majority of patients were not aware that the clinic was available for after-hours calls and advice. Several clinics were chosen to educate patients during multiple visit touch points regarding the system’s “24/7” on-call access, and accompanying flyers and magnets were given out with verbal reminders on check-in, by the provider/staff in the exam room, and on check-out. The preliminary data has been positive but more work needs to be done to expand the pilot and measure more thoroughly for a variety of populations.

The care management team has other internal processes that it will track in 2017 that the system expects will have value over a longer timeframe than the scope of this collaborative. They include: total engagement, successful completions, advanced directives, satisfaction, number of patients reached, and 80% follow-up in 30 days (see Figure 6).

The measures for total engagement, successful completions, 80% follow-up in 30 days, and number of patients reached were chosen to create a positive influence on the health of more patients. Also, they were chosen to support contractual arrangements, to demonstrate value and partnership with clinics, and to create a methodology to show a positive return on investment for the care management programs. The measures include: total engagement, successful completions, advanced directives, satisfaction, number of patients reached, and 80% follow-up in 30 days (see Figure 6).
by measuring the percent of patients who had a documented discussion with care management staff regarding advanced directives.

Lastly, the patient’s satisfaction with care management services is important to meet the Triple Aim goals. Measuring will provide a continual feedback loop and identify areas for process improvement. In the ideal, this could potentially lead to better patient engagement and retention in the care management programs and in the health system in general.

**Lessons Learned and Ongoing Activities**

USMD learned valuable lessons from participating in the AMGA HF collaborative. The use of a multidisciplinary team to create the project plan and to manage the project throughout was an approach that worked well. In retrospect, having more clinic-based “physician champions” and “staff champions” might have enhanced the project even more and may have led to additional innovation at the clinic level. Having additional “operational champions” was also identified as an area that could bring added value.

Another lesson learned was the importance of a strong data/IT infrastructure to manage claims data and to build internal reporting, as well as to analyze the data. The group is looking to expand the analytics team. USMD currently uses a third-party vendor to manage the enormous amount of claims data. It may be that USMD could have even more flexibility by having additional resources in-house to manipulate that data in more innovative ways and to marry the claims and EMR data more intricately. USMD used a vendor to calculate the readmission rate. Active prescriptions were measured out of the EMR, but no pharmacy claims were used to look at medication adherence to the HF regimens. With a more integrated and advanced system, and with access to more full claims data from other payors, the organization could create a more data-driven process to track and serve patients that have been admitted, while also ensuring patients are actually receiving their prescribed medications.

It was noted that real-time admit and discharge information for the group's local hospitals is a must, and that there is opportunity to improve that coordination with local hospitals outside of the USMD system.

The care management team is committed to the idea that discharge planning begins at admission and there is a greater need to coordinate with hospital care managers, payor care managers, office-based provider communications, and the centralized outpatient care management services of the system. However, that is difficult to do without assistive technology.

Although there are portals from one external system and a direct feed to the practice’s EMR from another system, both routes of communication require significant manual labor and do not provide the smooth managerial features that are truly needed. Those processes do not address the payor coordination piece either.

The Chief Medical Information Officer (CMIO) is also working on direct messaging options between USMD’s EMR and that of some of the local hospitals for which there are currently no “admit, discharge, transfer” (ADT) feeds nor portal communication options. Direct messaging is the term used to describe our health information exchange activities that occur when our providers who transition their patients to another setting of care or refer their patients to another provider of care provide a summary care record via a HIPAA-compliant, secured message sent from one EMR to another.

The care management team is also working to create additional lines of communication (via additional meetings and new, timelier reports) and to coordinate processes more closely with the payor care management teams to avoid burdening patients with unnecessary calls while ensuring their post-discharge needs are met in a timely manner.

Along those same lines, there was a lesson learned about capturing data from scanned documents and standardizing work flow around clinical quality data capture. The echocardiograms that were faxed to the institution and not completed internally were not captured in consistent places in the EMR. As a result, trying to manage the HF population and stratify them based on LVSD was extremely difficult. Utilizing an outside vendor to standardize the process has been working well in the pilot phase. The organization will continue to expand the document management program and will monitor its return on investment on several levels over the next 12-18 months.

Expanding access is another opportunity for the organization. Lessons learned about the increased number of FTEs (both providers and staff) needed to perform well in value-based care have been critical lessons. The group is still analyzing the ideal
balance in going from volume to value, but does plan to expand its primary care base.

Even with adequate access, USMD also found that achieving patient buy-in on agreeing to a follow-up appointment within three-to-seven days post-discharge was also a barrier to success. The patient did not always see value in it. Additional staff training in patient motivation and updated scripting may help to overcome this issue.

Standardization of clinical processes and provider engagement in process improvement was found to be another area that will continue to be explored and addressed. The organization has dedicated new resources in the first quarter of 2017 to clinic workflow process improvement and to the reduction of practice variation. USMD will continue to look for ways to innovate in that area while being mindful of physician and staff burnout.

Enhanced staff training and education in HF was an area of focus that was very well received. The staff reported feeling more empowered in mastering the HF disease process and treatment protocols.

Using predictive models to proactively identify and outreach to patients with HF was another point that the team felt was crucial for success and fueled the interest in engaging with the new care management vendor. There has been insufficient time to measure return on investment (ROI) data and see if this assumption was accurate. The importance of standardizing the care management outreach process and adding additional metrics to the care management team were important lessons learned.

Lastly, the team discovered an underutilization of hospice, palliative, and advanced care planning counseling and completion (both for advanced directives and living wills). This trend was equally true for patients with mild and severe HF. Cost-effective community partners were identified and the collaboration between those community partners and the USMD system has been invaluable and has brought additional in-home services to patients referred for all of those services. Those community partners have also provided education for providers, clinic staff, and the care management team, which was well received and has enhanced usage.

The organization’s next steps will focus on areas like EMR alert enhancements, new data analytic tools with a new HF registry function, incorporating standard CHF pathways into the EMR, standardized referrals to hospice, palliative care and advanced care planning, and a new pilot to utilize remote monitoring of weight for HF patients.

References


Appendix

Patient Story

One of the case managers shared a powerful experience she recently had with a patient, demonstrating how the focus on HF management helped improve patient outcomes. The case manager met with this patient who had moderate CHF in a post-discharge, follow-up visit in the clinic setting.

The patient had recently been admitted for accelerated hypertension with transient ischemic attack (TIA) symptoms. During their conversation and connecting time, the case manager discovered the patient had gone five days without his medication due to being on the road for his job. Due to the educational efforts around congestive HF, the care manager was able to educate the patient and his spouse using the new patient education materials on the importance of controlling risk factors, like hypertension, and on the symptoms that could signal a worsening.

A few days later, the patient’s spouse called and reported that the patient’s blood pressure had begun to steadily increase again, and that the patient had a significant weight gain.

The team began to investigate how this sudden worsening could have happened so quickly. They used the analytics tools to ensure the patient was actually picking up his prescriptions from the pharmacy and found that prior to his recent hospital stay, he had been taking both a 12.5mg and 25 mg dose of the same beta blocker together with good results. The team realized that post-discharge the patient had been directed to take the 25mg dose alone.

Upon this discovery, the team contacted the patient’s cardiologist, who worked him in first thing the next morning and adjusted his medication. The patient avoided an ED visit and admission and has had no further exacerbations since.
Figure 1A: Measure 1 - ACE/ARB/ARNi (USMD HS)

Figure 1B: Measure 2 - Beta Blocker (USMD HS)

Figure 2: Measure 3 - Readmission Rate (USMD HS)
Figure 3: Updated Transition of Care Workflow

- Identify from vitreos multiple ER visits, residents of graduated member
- Call 1 to TOC Patients
  - Reached? No → Send letter with online TOC link
  - Reached? Yes → Process Ends
- Additional needs identified? No → Process Ends
  - Yes → Refer to CM
- Attempt to Reach in Clinic
  - Yes → Complete Assessment
  - No → Send Reach Letter
- Complete needs identified? No → Process Ends
  - Yes → Refer to CM
- Complete pre-visit
  - Assess clinic referrals—include gaps in care
- Complete needs identified? No → Process Ends
  - Yes → Refer to CM

Key:
- Care Coordinator
- Health Coach
- Care Manager

Figure 4: Multiple Risk Factors Used to Determine Patient Risk in the New Care Management Analytic Software

Patient Information

- Diagnosis
- Procedure
- Vitals
- Labs
- Medications
- Demographics
- Address PCP Attribution

Clinical Risk Algorithm → Clinical (State-of-Health) Risk Score

Socioeconomic Algorithm → Socioeconomic Risk Score

Access to Care Algorithm → Access to Care Risk Score
Figure 5: New Paradigm: Pragmatic Cost/Risk Stratification

Figure 6: Care Management Metrics for 2017

Goals

- 80% follow-up in 30 days
- # Patients/Role
- Total Engagement
- Successful Completions
- Advanced Directives
- Satisfaction
Project Team

Rodney Briggs  
Data Analytics

Dr. Rupal Chiniwala  
Medical Director, Primary Care East

Dr. Stephanie Copeland  
Chief Quality Officer

Dr. Bryan Demarie  
Medical Director, PHMD & SeniorCare

Dr. Stephen Johnston, Cardiology  
Medical Director of Medical Specialties

Dr. Lynn Lester  
Medical Director, Primary Care West

Julie Martinez  
Director of Care Management

Michele Smith  
Manager of Care Management

Dr. Charles Van Duyne  
Chief Medical Information Officer

Laura Weber  
VP of Quality, Safety, and Nursing