Organizational Profile

The Cleveland Clinic is a nonprofit, multispecialty, academic medical center that integrates patient care—both ambulatory and inpatient—with research and education. Cleveland Clinic has multiple sites, including:

- Main campus tertiary care facility
- 18 family health centers
- 10 regional hospitals
- Additional facilities throughout the U.S.
- 3 international locations
- Over 150 outpatient locations in the Cleveland community and surrounding area

The Cleveland Clinic employs 3,400 physicians, 1,400 advanced practice providers (APPs), 14,000 nurses, and 49,000 employees. There are more than 4,300 beds in the entire system.

Enterprise 2015 statistics include a total of 6.2 million outpatient visits with 164,704 admissions. Over 1,800 of these admissions had a primary diagnosis of heart failure (HF).

The main campus alone has 1,437 beds and employs 84 full-time cardiologists in the Heart and Vascular Institute. Twelve of these cardiologists are advanced HF specialists.

The advanced HF specialists staff two inpatient services on rotation and a HF outpatient clinic. The outpatient clinic is also staffed with 2 full-time APPs and 3.5 registered nurses. The advanced HF inpatient services had over 800 admissions last year and over 11,000 outpatient appointments.

If a HF patient is not followed at the main campus, there are 40 additional locations providing HF care throughout the Cleveland Clinic. These patients are managed by 46 cardiologists employed in the regional hospitals and outpatient practices.

Executive Summary

A one-year pilot position for a Heart Failure Specialty Care Coordinator (SCC) was initiated in March, 2015. The position was for a full-time registered nurse with experience in HF management, and targeted patients discharged from a selected HF inpatient service. The patients were followed for 30 days post-discharge. They were provided care coordination focused on HF management and follow-up. This included disease specific education, face-to-face nurse visits, weekly phone calls, and health coaching to enhance self-care and self-management skills.

A multidisciplinary team was formed to aid in development of interventions and to determine how the SCC role could be an extension to the transition team already in place.

Outcomes measured included:

- 7- and 30-day post-discharge follow-up appointment completion
- 30-day all-cause readmission rate

This would be accomplished by comparing care coordinated patients vs. non-care coordinated patients on identified metrics.

In the care coordinated patients there was significant improvement in completion of post-discharge follow-up appointments. However, there was not a significant improvement in the readmission rate. There was an improvement trend noted for patients discharged with home care services and SCC involvement.

It was determined that the readmission metric will need more longitudinal monitoring to determine the impact of the SCC role.

Program Goals and Measures of Success

Prior to initiation of the SCC role, the advanced HF department struggled with post-discharge appointment completion and was exploring methods to decrease all-cause readmission rate. The primary goal of this project was to optimize outcomes while reducing costs. It was determined that this would be evidenced by:

- Improvement in post-discharge follow-up appointment completion
- A decrease in all-cause 30-day readmission rate
Additional objectives included:

- Exploring care coordination revenue possibilities by utilizing Transitional Care Management (TCM) billing
- Developing and refining documentation tools in the electronic medical record (EMR) to facilitate documentation and communication
- Developing a partnership with care coordinated patients—a partnership that would be centered on inspiring patient accountability and promoting self-care and management skills as a path for improved patient engagement and outcomes

**Population Identification**

The Cleveland Clinic’s Center for Heart Failure is a multidisciplinary team that brings together experts in cardiovascular medicine, cardiothoracic surgery, palliative medicine, radiology, infectious disease, pathology, pharmacy, bioethics, and social work. This provides expertise in diagnostic testing, medical and lifestyle management, surgical procedures, and psychosocial support for patients with all types of HF.

The organization has a large volume of complex HF patients. The HF admissions are tracked by the index primary diagnosis code on adult patients 18 years of age and older. Due to the sheer volume of patients admitted for HF, a more narrow scope was required for the care coordination intervention.

The SCC targeted patients admitted to one of two parallel HF services at the main campus. The patients admitted to these services generally have multiple co-morbidities, high utilization rates, and require close discharge follow-up by the advanced HF specialty team.

**Intervention**

The Heart and Vascular Institute at the Cleveland Clinic has established successful discharge readiness tools for the HF patient during admission. These include:

- Structured education
- Resources and roles to address patient barriers (case managers, social workers, nutritionists)
- Electronic discharge HF checklist
- Inpatient pharmacist providing HF-specific medication education

However, once the HF patient is discharged, the continuation of these interventions and resources to support patient success are limited. It was identified that a transition role to assist after discharge may be beneficial to the patient and potentially improve patient outcomes.

**Implementation of the Specialty Care Coordinator Role**

As noted above, a one-year pilot position for an outpatient HF SCC was initiated in March of 2015. The position was a full-time RN with experience in HF management. The nurse targeted patients discharged from the selected HF inpatient service. The patients were followed 30 days post-discharge.

The SCC interventions focused on HF management and follow up. These interventions included:

- Patient identification
- Inpatient face to face visit
- Facilitation of care team communication
- Early discharge follow-up phone call
- Medication review, education, coordination
- Ensure proper discharge follow-up with primary/specialties services
- Face-to-face outpatient nurse visits at follow-up appointments
- Weekly phone communication
- Provide disease specific education
- Health coaching to enhance self-care and self-management skills
- Care coordination with home care services/skilled nursing facilities

Initial patient and SCC introduction is completed during an inpatient visit. During this encounter, the SCC identifies potential barriers to patient success via patient discussion and communication with the inpatient care team. At the SCC’s discretion, a Mini-Cog screening assessment may be completed. This is a quick, three-minute validated screening tool for dementia and has been shown to identify patients at higher risk for readmission (Apurva, P. et al. 2015). This assessment is used as a risk stratification tool and assists to identify a patient with increased needs. If the patient screens
positive, the care team members are notified. The team will then discuss interventions to improve patient success after discharge.

A large number of the HF admissions followed by the SCC are discharged with home care, mobile care HF APP, or to a skilled nursing facility. The SCC functions as the gatekeeper with these services to ensure transition of care. The organization has one full-time mobile care HF APP who works with the advanced HF population, home care management services, and several connected care skilled nursing facilities.

The mobile HF APP may be consulted by a provider for high-risk patients identified with a cognition barrier, difficulty getting to appointments due to a decline in health status, and/or adherence concerns. The SCC and the mobile HF APP work closely together and conduct weekly phone conferences to discuss the plan of care for these patients. The primary cardiologist or appropriate provider is then updated and concerns are addressed. These identified patients also typically have additional home care services. All team members coordinate care and stay in close communication to improve patient success.

**EMR/Technology**

At the time of implementation of the SCC role, the EMR had basic tools to assist in care coordination.

The inpatient care process was facilitated by having established inpatient HF order sets and a HF electronic discharge checklist. This multidisciplinary discharge checklist is used throughout the Heart and Vascular Institute. It allows caregivers to operationalize the process across the institute, gain better adherence to accountability in the process, ensure care coordination, and optimize clinical outcomes. All inpatient care team members can view a patient’s checklist at any time during admission. This tool is used to evaluate discharge readiness and has been proven to decrease readmission rate and improve patient satisfaction.

In addition, there is the care team tab. This tab is used to identify all care team members actively involved in the patient’s care. It is an effective communication tool utilized by both inpatient and outpatient providers and is one of the main SCC EMR tools.

When the HF patient is identified, the SCC will add their name and contact information to the care team tab. The SCC is now accountable for care coordination for next 30 days. This will then activate an icon visible in the patient banner and serves as a notification to all providers that this a care coordinated patient.

At the end of the 30 days, or at the SCC’s discretion, sign out occurs by entering the end date in the care team tab. The care coordinator icon is now turned off; however, it remains visible in the EMR banner noting that the patient has received care coordination services in the past. The SCC contact information also remains in the care team tab. This is useful to the care team members in the event that the patient is readmitted or additional care coordination services are required.

There is an identified encounter type that all outpatient care coordinators in the enterprise utilize for documentation. This specific encounter is used for all points of contact by the SCC. This encounter may be electronically routed to any provider within the Cleveland Clinic system.

The primary care coordinators are provided a daily discharge report that allows them to select patients for care coordination. The SCC lacked a discharge report so this was created. This report is useful to quickly identify discharges and calls that are required.

**Formation of Multidisciplinary Team**

Early in the implementation of the SCC role, it was identified that bridging the care gaps through a multidisciplinary team approach was essential to success. A multidisciplinary team was formed and was committed to assisting in the project. This team worked directly with the selected HF population and included:

- A leadership physician dedicated to quality improvement
- An advanced HF APP
- Inpatient care coordinator
- Outpatient registered nurse
- Pharmacy
- Education expert
- Quality representative
- IT support
- Data analyst
- Finance support
- Leadership caregivers in inpatient nursing, home care, and administration
This multidisciplinary team met on a monthly basis and continued to develop new ideas and interventions. Initially the team brainstormed on various risk stratification ideas to assist in allocation of resources. It was identified that readmissions were not being reviewed, and perhaps through a review, areas of possible improvement might be identified.

The multidisciplinary team created a root cause analysis (RCA) tool to provide a systematic process to review readmissions of care-coordinated and non-care-coordinated patients. On average, two readmissions are reviewed each month. Discussion has begun on how this can be expanded to increase opportunities to identify trends. A database was created to compile this data.

**Education**

Outpatient education was an identified area for improvement. During admission, the patient has many points of contact for education. There are group HF classes offered for patients and family members led by a team of nurses, dietitians, and pharmacists. The classes provide tips to successfully manage the HF disease process. It is a requirement that patients attend prior to discharge. An educational HF binder is also provided to all inpatient HF patients.

The HF outpatient clinic has access to the written educational tools; however, the structure of the clinic does not allow ample opportunity for patient education. The SCC role provides an opportunity to expand on the inpatient education provided.

The SCC phone calls and the face-to-face nurse visits at the follow-up appointments provide time for additional HF education and open discussion with the patient. Educational gaps and barriers can be identified. The SCC can then assist to meet the needs of the patient and coordinate with other caregivers to assist patients if required. Patients are able to ask questions and identify their biggest struggles in their HF management. The SCC will assist the patient to improve self-management skills and develop healthcare goals.

**Outcomes and Results**

There were additional outcomes identified once the SCC role was implemented. The role provided an opportunity to generate additional revenue utilizing transitional care management (TCM) services as outlined by the Centers for Medicare & Medicaid Services (CMS). Outcomes will continue to be followed for this intervention.

The creation of the multidisciplinary team has provided the opportunity for the SCC and pharmacists to collaborate. This relationship allows for care coordination among disciplines to assist patients that have issues with medication access, adherence concerns, and knowledge gaps.

In March 2017, the SCC and two identified pharmacists began collaborating to conduct the post-discharge phone calls. This allows experts in the field an opportunity to provide additional education and address concerns that may be present after discharge within their discipline. The hope is that this call will become a virtual visit in the future.

In the Appendix are the Cleveland Clinic’s AMGA data results. The results are limited to patients discharged from the two advanced HF services. Measures 1 and 2 were obtained by AMGA’s Anceta Collaborative in collaboration with the Optum platform. These measures are not currently tracked internally at the Cleveland Clinic as outlined in the AMGA guideline measures. This made it difficult to ensure validity of data from the Optum platform. One concern relates to the idea that patients may have improved ejection fraction (EF) over time or have moved on to advanced therapies such as a left ventricular assist device (LVAD) or transplant. If the data for appropriate use of ACE/ARB and beta blocker were not obtained at the time of the lowest EF but rather at a later time when the aforementioned may have occurred, the accuracy of the data measure would be affected.

Measure 3 was tracked internally. The readmission rate declined by approximately 10% over the course of the HF Collaborative. There are many initiatives that are occurring across the enterprise that influence readmission rate. The volume, complexity, and limited SCC resource made it difficult to correlate an impact of this role on Measure 3 data.

The SCC also tracked 7- and 30-day post-discharge appointment completion and 30-day all-cause readmission rate. The results are noted in the appendix. Care coordinated patients vs. non-care coordinated patients were compared. Significant improvement was noted in appointment completion for the care coordinated patients. Readmission rates were similar. However, there was a trend for improvement in the care coordinated patients discharged with home care services. This metric will require additional long-term evaluation.
Lessons Learned and Ongoing Activities

Risk stratification is important in allocating resources. With one full-time position for this designated role, the volume of patients discharged exceeded the resource available. Not all discharges were able to be provided the SCC services. Despite the limited resources, enterprise efforts for care coordination are evolving. The SCC was actively involved in various other care coordination initiatives. This lead the SCC role to be divided between patient care and administrative duties. This limited the number of patients that could have been discharged with care coordination.

The complexity of the selected HF population was challenging. This patient population is often NYHA Class III and IV with a host of other chronic disease conditions. The initial goal of following patients for 30 days post-discharge quickly became difficult to accomplish given the severity of the patients’ health issues. Close monitoring is often still required beyond the 30 days. In addition, the relationship that is built between the patient/patient representative and the SCC makes it challenging to limit the service to a time period.

Leadership support is critical for the SCC position to succeed. There are many initiatives occurring to improve quality of care and outcomes at the enterprise and institute level. With the size of the organization, leadership staff and resources are stretched. There have also been changes to the leadership, causing care coordination efforts to be halted and revisited. The SCC is in the development phase, and it will require stable leadership guidance and support in order to succeed.

One of the biggest challenges was the data collection for the AMGA measures and the SCC metrics. Allocation of resources, time for database building, and collection of the data was difficult. The SCC and Physician Champion were required to compile and analyze data provided to ensure validity. The Cleveland Clinic faced challenges with AMGA measures 1 and 2 due to the process by which the Anceta Collaborative obtained data. It was identified that there was an issue with how the left ventricular ejection fraction (LVEF) was being pulled from the EMR structured field and text.

The future sustainability and scalability plans of the SCC role remain uncertain. For the role to be successful, it will require stronger leadership support and increased resources. Risk stratification efforts at the enterprise level continue to evolve, leading to potential benefits to optimize care coordination resources.

The coordination of pharmacist and SCC is promising. Virtual visits at the post-discharge phone call will hopefully lead to improved patient understanding and increased educational opportunity.

References


Patient Story

The patient is a 60-year-old African American male with pertinent past medical history of NICM with EF 25%, calcified pericardium with constrictive physiology, NYHA Functional Class IV, Stage: C, non-obstructive CAD, paroxysmal AF (s/p failed DCCV), HTN, former ETOH abuse/smoker, home oxygen as needed.

The patient had two admissions at the Cleveland Clinic in 2014 for HF and atrial fibrillation with rapid ventricular response and was then lost to follow up. He subsequently had multiple HF admissions at outside facilities. He presented to the Cleveland Clinic and was admitted 11/25/2015-12/4/2015 for decompensated systolic heart failure. The patient was diuresed and a right and left heart catheterization was completed and showed CAD and constrictive pericarditis. The patient had historically declined surgery therefore it was decided he would follow up in the outpatient department to discuss possible pericardial stripping and CABG. The patient was discharged with Cleveland Clinic home care and a cardiac surgery consult was scheduled. It was later decided that the patient was too high risk for cardiac surgery.

During this admission, many barriers were identified that would make his post-discharge care challenging:

- Patient lived alone
- Documented non-adherence
- Illiterate
- Polypharmacy
- Low socioeconomic status
- Lack of transportation

The inpatient care coordinator, social worker, and SCC discussed a plan of care prior to discharge. The SCC met with the patient on the day of discharge and he agreed to care coordination. A Mini-Cog screening was completed and the results were negative (Apurva, P. et al. 2015).

His sister was identified as his primary support. The SCC spoke with the patient’s sister on the day of discharge to discuss follow-up appointments and his care plan. The discharging nurse completed discharge education with the patient and his sister.

After discharge, the SCC called home care to provide hand-in-hand communication and ensure a timely start of care. The initial home care visit was completed two days after discharge. The nurse felt the patient was not home care appropriate as the patient was not home bound and not interested in medication assistance. The nurse educated the patient and advised him to follow with his primary care provider (PCP). The SCC called the home care nurse that opened the case to discuss the home care assessment, the concerns, and then requested an additional home care visit. The SCC also discussed his case with the mobile HF APP and requested a visit for evaluation.

The patient missed his post-discharge HF follow-up appointment in the outpatient clinic due to a reported transportation issue. The SCC called the patient’s sister and the appointment was rescheduled. The SCC requested that she be present at this appointment, if possible, and bring all the medications the patient was taking to this appointment. This sister agreed and both attended the appointment.

At the appointment, the medications were of great concern. The patient was using prefilled packs and also had medication bottles that were old prescriptions. At this appointment, the SCC reviewed and discussed his medication regimen and identified issues with medication access. The SCC updated the patient’s current pharmacy and faxed the updated medication list to the correct pharmacy. In addition, appointments were scheduled for the patient to meet with an outpatient pharmacist and his PCP the following week.

The SCC provided a hand-off communication to the primary care coordinator (PCC) and requested she meet with the patient at this PCP visit.

The mobile HF APP made a visit two days after the patient’s HF clinic visit to assess and ensure that he was following his medication regimen. Home care made an additional visit and services were resumed. The following week, the patient completed his appointment with the PCP, pharmacist, and PCC. The PCC and SCC remained in close communication to ensure the safest transition.

The home care nurse continued to work diligently with the patient. As mentioned above, the patient was illiterate and the nurse began teaching the patient how to meet his needs at home. He began to make some lifestyle changes and was
working diligently to understand the disease process. The home care nurse, APP, SCC, PCC and cardiologist remained in close communication.

The patient was seen in the advanced HF outpatient clinic on 1/8/2015 and despite close follow-up care, he was readmitted for acute decompensated systolic heart failure. During this admission, patient’s Mini-Cog screening was repeated and the patient screened positive at this time (Apurva, P. et al. 2015). Patient had advanced disease and palliative medicine was consulted. At discharge, the SCC provided hand-off communication to his care team members. Home care services were resumed within two days after discharge.

After this admission, the patient had close follow-up with his care team. The mobile HF APP and home care nurse made frequent home visits. The mobile palliative medicine team followed him and the SCC made weekly phone calls to the patient and patient’s sister. The cardiologist and the outpatient HF APP would see the patient in clinic when deemed appropriate. The care team conducted weekly communication on patient’s progress. In May of 2016, the patient started to decompensate on oral diuretics, and home IV Lasix was initiated.

The patient remained out of the hospital for almost one year. At present, the patient still has close coordination of care between his primary cardiologist, mobile HF APP, home care nurse, PCP, PCC, and SCC. The APP and SCC conduct weekly phone calls to discuss the plan of care, and the home care RN provides visit updates via email after each visit. The multidisciplinary collaboration and coordination were key to this patient’s success.
Appendix

Figure 1A: Measure 1 - ACE/ARB/ARNi (Cleveland Clinic)

Figure 1B: Measure 2 - Beta Blocker (Cleveland Clinic)

Figure 2: Measure 3 - Readmission Rate (Cleveland Clinic)
Figure 3: HF Specialty Care Coordination (SCC) Outcomes: March 1, 2015 – December 30, 2016

- **7-Day F/U Appt. Completed**
  - Non-SCC Pts: 24% (N=1717)
  - SCC Pts: 73% (N=277)
  - p<0.00001

- **30-Day F/U Appt. Completed**
  - Non-SCC Pts: 44% (N=1717)
  - SCC Pts: 67% (N=277)
  - p<0.00001

- **30-Day Readmission**
  - Non-SCC Pts: 17% (N=1717)
  - SCC Pts: 18% (N=277)
  - p=0.67

- **Home Care Readmission**
  - Non-SCC Pts: 27% (N=317)
  - SCC Pts: 20% (N=87)
  - p=0.15
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