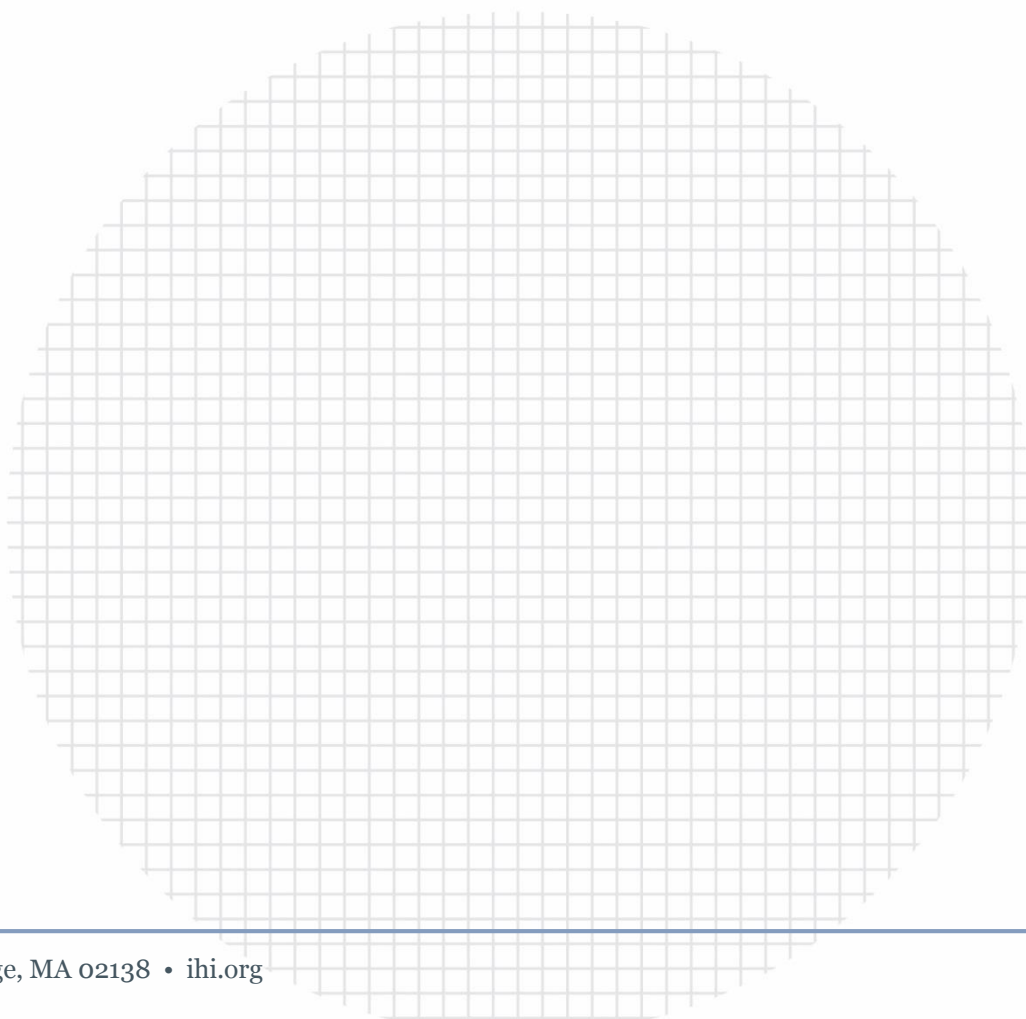# Signature Healthcare

A Triple Aim Improvement Story

AN IHI RESOURCE

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Introduction

As part of its participation in the IHI Triple Aim Community from 2012 to 2014, Signature Healthcare in Brockton, Massachusetts, initiated its Complex Care Clinic, a 12-month pilot program focused on one of its most challenging patient populations — high-risk Managed Medicare elderly patients with complex needs. For this population, Signature decreased acute admissions by 43 percent, reduced emergency department utilization by 30 percent, and improved patient care by restructuring its primary care practice and connecting these patients with resources readily available throughout the surrounding community.

This improvement story is based on an interview with Lorraine (Lori) Pigeon, NP, former Director of Clinical Geriatrics and High-Risk Populations at Signature Healthcare. The Complex Care Clinic at Signature Healthcare continues under the leadership of Marc Greenwald, MD, and Cristine Waldron, NP.

Overview

The Organization

Signature Healthcare consists of a hospital and multiple primary and specialty care practices, spread across several towns in eastern Massachusetts. The hospital, founded in 1896, has 245 licensed beds, including a 29-bed hospital-based skilled nursing unit. Fully accredited by The Joint Commission, Signature is the only not-for-profit, full-service acute care hospital in the area. The organization provides services to approximately 10,000 elders over the age of 65.

The Population

The Greater Brockton community, with a total population of 93,911, is located 25 miles south of Boston, Massachusetts. Brockton is an ethnically diverse community: 42 percent of residents are white non-Hispanic, 31.2 percent African American, 10 percent Hispanic or Latino origin, and 2.3 percent Asian/Pacific Islander (per the 2010 US Census). From 2005 to 2009, the percentage of Brockton residents who are foreign born was 24.3 percent, as compared to 14.1 percent for Massachusetts for the same time period. More than 34 percent of Brockton residents over five years of age speak a language other than English at home; the Massachusetts percentage is 20.4 percent. Of the total population in Brockton, 6.5 percent are age 65 to 74, 3.9 percent are 75 to 84, and 1.9 percent are over 85.

The Aim

The goal of Signature's work as part of the IHI Triple Aim Improvement Community was to identify and create a process to manage high-risk elderly patients with complex needs enrolled in a primary care panel – to incorporate coordinated, patient-centered care in order to meet the complex physical, functional, and social needs of these patients, based on the priorities of patients and their caregivers, while decreasing total medical expense.

The Triple Aim Story: Improving Care for the Frail Elderly Medicare Population

By creating a process to manage high-risk elderly patients with complex needs and building the supporting infrastructure in primary care, Signature Healthcare was successful in decreasing emergency department (ED) utilization by 30 percent and reducing acute admissions by 43 percent from 2013 to 2014 for the intervention group, while maintaining patient satisfaction. In the spring of 2015, the Institute for Healthcare Improvement talked with Lorraine (Lori) Pigeon, NP, former Director of Clinical Geriatrics and High-Risk Populations at Signature Healthcare, about the organization's Triple Aim journey thus far. The following is an edited version of that conversation.

Why did you decide to focus on this particular patient population?

Elders with complex needs are our most vulnerable patients, with multiple chronic illnesses, functional limitations, and unique social needs. The combination of age, chronic illness, and dependence for basic necessities of life leads to a complexity of care that our health and social systems have not prepared for, and the results are costly. In most cases, elders with complex needs are interspersed within general medical practices. An elder with complex needs is often allotted the same amount of appointment time with their provider as a 25-year-old with a sore throat on no medications.

The complex geriatric population requires specialized knowledge to care for common geriatric syndromes such as falls, delirium, functional decline, and dementia; with the infrastructure to address these needs. Most primary or general care practices are not equipped or trained to care for this population. One of the overriding problems is lack of financial infrastructure to support quality care of our elders. Above all, taking quality care of elders takes time! It can take ten minutes just for them to walk into your exam room, and another five for them to find the medication list (if you could be so lucky) that consists of about 15 to 25 medications. In a 15-minute appointment in a volume-driven primary care practice, these elders and their complex needs often get lost in the haste. They are shuffled through without the appropriate attention given to the chronic problems, medications, medication interactions, side effects, and social needs that intertwine to make up their daily life experience. Instead, there is often only enough time during the appointment to address one or two problems — most likely, those quality measures dictated and reimbursed by insurers.

Too often, the result is polypharmacy, drug interactions, miscommunication, and poorly coordinated care. This in turn leads to multiple hospitalizations, ED visits, and poor quality of life. Most elders with complex chronic illnesses require multiple providers all treating separate maladies, which leads to the potential for miscommunication and a trajectory of drug interactions that could cause harm.

Can you give an example of the type of complex needs in this patient population?

Here's an example (one of hundreds like it): Fred, a gentleman with Parkinson's disease, falls multiple times a day and has stopped walking. His daughter brings him to the doctor's office and asks, "What happened to my dad?" It all started months earlier, when he had back pain, so a provider placed him on a muscle relaxant; this led to falls. He stopped walking as a result, then

developed lower extremity swelling due to inactivity, so another provider prescribed a diuretic along with his blood pressure medication (from which he experiences swelling as a side effect).

The result: Fred became dehydrated, his blood pressure was dropping, and he was dizzy, further complicating his walking. In addition, his Parkinson's medication to help him walk was prescribed as three times per day. No one told him this medication is only effective if taken when he is up and walking, and not before he goes to bed. Because he has become so deconditioned, he needs oxygen. He can't get around with the oxygen tank, so he has become even more isolated and depressed. Fred's quality of life declined, his wife became depressed and anxious about his decline, and his daughter, with a full-time job and her own family, was stressed beyond her limits.

These scenarios are far too common in our current system. Yet Fred's story ends well: By taking the time needed to really understand what was going on with Fred, working with his family, carefully reviewing his medications' side effects and interactions and making adjustments as needed, we were able to eliminate many of his medications. By coordinating other disciplines to help, such as a physical therapist, Fred started walking again; the increased activity lessened the edema in his legs, he got off oxygen with conditioning, and within months he was back to bowling with his buddies.

Why did Signature Healthcare undertake this project?

When given an opportunity as Director of Clinical Geriatrics, I took this as my chance to implement change; to prove that quality care can be provided in a cost-effective way. I spent half my time providing care to high-risk elders and the other half developing, implementing, and coordinating a program to care for high-risk elders within a primary care practice.

In this position, I was able to demonstrate that our organization, like many organizations across the country, lacked the infrastructure needed to meet the needs of our vulnerable geriatric population. When Signature entered into a contract assuming 100 percent risk of a Managed Medicare population, there was a motivation to change. The assumed risk allowed for, and motivated the investment to develop, the infrastructure needed to care for this population, guided by the principles of the IHI Triple Aim (improved health of a population, better individual experience of care, and lower cost). So, this is where the journey began.

Where did you begin?

The first thing we did was a gap analysis to identify key gaps in care for this population. Being a provider within the practice, I could see firsthand the drivers that were causing high rates of ED utilization and hospitalization for this population. Before Signature assumed risk for this population, it was a volume-driven system — higher rates of utilization meant increased revenue. Assuming risk flipped this model; there was a financial incentive to reduce utilization.

Our organization's leadership assumed that lack of access to care drove up utilization. This was not the case; I found next available appointments were same-day or next-day. Access was not the problem; a 15-minute visit without the time needed to correctly evaluate the patient was the problem. Providing a 15- to 20-minute appointment slot does not allow time needed for care coordination, comprehensive medication review, end-of-life care discussions, or cognitive assessments. There was no attention or processes to assess and address activities of daily living, social needs, housing needs, and general quality of life.

Once you identified the problem, how did you go about addressing it?

Once the gaps were identified, I set out to close those gaps and develop processes, infrastructure, and education. The first step was identifying the target population. The organization assumed risk for approximately 1,400 adults 65 years or older who were enrolled in a Managed Medicare product. These patients were dispersed among as many as 20 different providers in different geographical locations, across several different towns and medical buildings.

I decided to focus on a segment of this population based on geography and volume. I found approximately 320 of these patients were concentrated among three providers, all on one floor of one building in one primary care practice. Therefore, a convenience sample of approximately 320 patients enrolled on these internal medicine practice panels received the intervention, while the remaining 1,080 patients received usual care. This allowed for a comparison.

The next step was to stratify this population to identify those who were at high risk for future cost and high utilization. Like many small organizations, we did not have sophisticated software to calculate these algorithms. Based on the knowledge gained from the Institute for Healthcare Improvement's 2013 Innovation Project on high-risk, high-cost patients, as well as referencing the Predictive Risk Project Literature Review,[1] I developed a category of patients with three or more of five chronic illnesses that are predicted to worsen with time. These patients were then put in a registry that is updated quarterly. Each quarter, I took the registry to the providers who treated these patients and asked for their input, requesting that they identify any high-risk patients not on the list. We found that about 10 percent to 15 percent of our population fell into the high-risk category. This number also allowed me to predict the future scale-up needs.

Once you identified your target population, and then stratified this population to identify patients at high risk for utilization and cost, what was the next step?

Once we identified our high-risk patients, my next goal was to standardize the care. I found providers had different interpretations of how often these patients should be seen and what should be assessed. We created a standard for providers to see all high-risk patients at a minimum once every three months, with monthly visits as the ideal. All non-high-risk patients in the target population were to be seen quarterly.

Next, we developed a process to engage patients. Based on quarterly reports, we reached out to patients without booked appointments. Through this process, we also tabulated and intervened on those patients who were homebound; then we mobilized services to the home via our relationship with the community. A geriatric template was built into the electronic medical record [EMR] to help guide providers in assessing common geriatric issues often not addressed during appointments, such as falls, depression, end-of-life care, and functional status.

What changes in infrastructure were required to support these changes?

First, there was a culture shift to have nurse practitioners [NPs] become active participants in the management of chronic disease. NPs were mainly utilized for urgent care visits. Time slots were changed from 15 minutes to 30 to 40 minutes per visit for this high-risk population. We formed a Complex Care Clinic, consisting of two NPs, myself, and an NP who had been in the practice. High-risk patients were referred to us. With the care coordination team, the NPs managed these patients, consulting with their primary care physicians as necessary. For example, Fred, the patient I described, was referred to me due to high utilization and frequent hospital and ED admissions.

Second, we soon realized we needed to reach outside the health care system to engage support for our elders. A weekly meeting was organized that includes the NPs, medical assistants, a pharmacist, and a case manager RN from the insurer. During these meetings, the team developed a plan to meet both the medical and social needs of our patients. Based on needs assessment, we identified that our elders needed assistance with meals, finances, transportation, and basic functional needs, to name a few. Without internal resources within Signature to help meet these needs, I recruited support from organizations in our community — the Alzheimer's Association, the Visiting Nurse Association, a palliative and hospice care organization, and the Aging Service Access Points. These organizations signed confidentiality agreements and were active participants in weekly care plan meetings. I also reached out to our community public transportation system to simplify the application process for subsidized transportation.

Third, we recognized that we needed to change some internal roles. For example, the medical assistants on the team had been with the organization for years and knew our patients intimately. We saw great benefits by redefining their role to make them a more active part of the team. This had a twofold effect: better patient care and improved job satisfaction for staff.

Fourth, we educated staff and developed guidelines around geriatric syndromes such as when to consult palliative care, how to have end-of-life care discussions, depression screening, and identifying and reporting elders at risk. We developed standards around cognitive screening to allow identification of early dementia. We educated all staff, including secretaries, on our goals to coordinate care for high-risk members.

Fifth, we developed a process to screen all patients over age 65 for fall risk, built automatic alerts into the patient chart to identify those at risk for falls, and established a way to track this risk on a large scale and run reports on the data. We built these elements into the standard of care for this population, and within the first year we went from a no-screening process to screening more than 1,000 patients over age 65 for fall risk.

And finally, to improve care transitions, the NP from primary care attended discharge planning meetings held at the hospital for warm handoffs. The discharge plans were revisited at the weekly team meetings. A follow-up visit was arranged within seven days of discharge and medication reconciliation was done by the NPs.

Why is medication reconciliation for this population so important?

The World Health Organization 2013 report, *Adherence to Long-Term Therapies: Evidence for Action*, stated that the average adherence rate to therapies for chronic conditions in developed countries was a sobering 50 percent.[2] The report emphasized that the cause of poor adherence does not reside with the patient, but with the health system. In Signature's target population, we found undetected cognitive impairment to be a big driver of medication discrepancies, as well as lack of provider time to explain and review medications on each visit.

By assessing cognition and executive function, we could detect those patients at risk for medication complications. For these patients, we enlisted the help of family members and a visiting nurse for medication review within the home. We updated the appointment booking process to include a prompt for clinic staff to remind patients to bring medications to their visit. At the time of the visit, we printed out the medication list and reviewed it, medication by medication, with the patient or family at every visit. At completion of the clinic visit, the electronic note from the EMR that also indicated medication changes was faxed to the Visiting Nurse Association to communicate medication changes for further assessment in the home. We also had the help of a pharmacist for

medication reviews on transitions of care; however, this intervention was not exclusive to the pilot group and was implemented across both the intervention and control groups.

Did these changes in care require any changes in the electronic medical record?

The IT department within the organization was integral to our success. With their help, we built a distinct section in the EMR to allow providers to quickly identify advanced directives. Prior to this, the information was buried in the EMR. A care coordination section was also built into the EMR where the care plan was documented and communicated clearly among the interdisciplinary team. High-risk alerts were built into the EMR home page to alert all staff of a "high-risk patient."

Very important to the program was building ways within the EMR to allow us to capture and report process and outcome measures on a large scale. These included such measures as ED and acute utilization, fall risk screening, health care proxies completed, and advance directives addressed. This was extremely challenging due to limitations within our EMR and all the new electronic demands placed on an already strained IT department.

What were the results of your project?

The Complex Care Clinic started in mid-January 2013. Data was collected using claims data of ED and acute care utilization. Data was compared in the intervention group between 2012 (pre-intervention) and 2013 (intervention phase). Data was also compared between the intervention group of 320 patients and the 1,080 patients in the control group who received care as usual. The Risk Adjustment Factor [RAF] for the intervention group was slightly higher, with a RAF score of 1.27 versus 0.98 in the control group (age and sex were comparable). Data collection stopped in April 2014, due to the resignation of one of the primary physicians and a shift in patient population.

The overall result for the intervention group was that ED utilization decreased by 30 percent and acute admissions decreased by 43 percent. The control group showed an increase in ED utilization and a fairly flat rate of acute admissions. Allowing more in-depth assessments to address all chronic conditions during appointments also improved our billing and coding, bringing increased bulk payments to manage patient care. An anonymous survey was conducted for the intervention population approximately six months into the project; data was collected from 102 of the 320 patients. The response was overwhelmingly positive, with approximately 98 percent rating their care as "very good."

What are the key lessons learned from this project?

Prior to the project, this population had been managed mainly by physicians; with the addition of a nurse practitioner, geriatric education, standards, and guidelines, we saw a significant decrease in utilization and improved care coordination. Patient engagement and trust was a significant driver for our success. The patients and families felt part of the care team and sensed the genuine concern for their holistic needs. Acknowledging that it takes an interdisciplinary team to care for high-risk patients was pivotal. Lastly, leading change is hard work! It required daily perseverance and encouragement. I was very fortunate to take this journey with the help of the IHI staff and others leading change across the country. Signature Healthcare's participation in the IHI Triple Aim Improvement Community during this journey was an extremely valuable experience.

References

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