MODELING THE PERFORMANCE IMPROVEMENT PROCESS

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Abstract

The city of Gary, Indiana, has experienced an economic downturn in recent years that has led to an unemployment rate that is 2.5 times higher than the national average. In addition, Lake County, which includes the city of Gary, is currently one of the two unhealthiest counties in the state of Indiana. Documented poor health behaviors in this area highlight the need to change how at-risk communities access health care. Community HealthNet (CHN) is a federally funded clinic with five locations in Lake County and a vision to provide accessible, affordable, and quality medical services. Since 1998, CHN has made efforts to create a continuum of care and a stabilized medical experience for patients in their jurisdiction. CHN also targets services to specific needs, such as prenatal care and education to address the high infant mortality rate in this area. A case study of this particular federally qualified health center has shown a need for sufficient information technology infrastructure and a database so that the clinic can be constantly aware of patient needs and can allocate resources effectively. Purdue researchers and I have worked closely with CHN staff to establish this database and have examined the clinic's internal process to create and measure strategies for performance improvement. CHN shows increased efficiency in meeting funding requirements and utilizing resources. This improvement of CHN's process will translate to improved access to affordable and high-quality health care for the Gary community.

MODELING THE PERFORMANCE IMPROVEMENT PROCESS:
A Case Study of a Federally Qualified Health Center

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INTRODUCTION

It is not unusual for a degree of health disparity to occur across different communities because of the unique attributes of each population and environment. However, when such disparities become significant, the impact can be greatly detrimental to the communities' long-term social and economic futures. This is the clear case in Lake County, Indiana, which has been ranked as one of the two worst counties in the state for health factors, including behaviors, clinical care, social and economic factors, and the physical environment (Catlin, Jovaag, Willems Van Dijk, 2015). A partnership between leaders of state and federal agencies has attempted to address this problem by increasing accessibility to health care in this particularly troubled community through two main types of initiatives: reducing economic barriers to receiving quality health care and creating physically accessible care through local health clinics such as Community HealthNet (CHN).

After fifteen years of interventions by CHN, medical professionals and Medicaid enrollment specialists have achieved increased awareness of both health issues and available resources in Lake County; however, a critical gap still exists in the successful implementation of clinic initiatives and services that could translate to improved health outcomes in this community. To address this gap, our research has focused on ways to tailor health interventions to the particular array of health needs and unique community attributes in Lake County in order to maximize effectiveness. What follows details our project, which began with data collection and analysis in year one, and year two was spent translating the balanced scorecard model (Perspectives, 2014) for applicability to federally qualified health centers (FQHCs) such as CHN.

METHODS

Data Collection and Analysis

We began our study with an analysis of a variety of Lake County statistics obtained from the federal and state agency publications in order to better understand the characteristics of the population and the unique health care challenges of this area. Table 1 details what information was obtained from the various sources.

After establishing trends in the Lake County population and comparing these trends against the rest of the state, we began a series of site visits to CHN's main location in Gary, Indiana, the largest city in Lake County. During these visits, we interviewed patients, medical providers, Medicaid enrollment specialists, the clinic CEO and founder, and the clinic CFO. Surveying both the clinic's patients and medical providers showed perspectives from both ends of the care spectrum and exposed gaps in communication that existed between the providers and recipients of health care services.

In addition to interviewing medical providers, I shadowed Dr. Cynthia Hoess, pediatrician and CHN medical director, as she saw patients in the clinic. I observed her patient care interactions and educational methods with children and their parents, allowing me to see common complaints and to hear about patients' health concerns, lifestyle factors, and questions. It was beneficial to gather this data in person in order to make subjective—as well as objective—evaluations, and to better understand patient backgrounds.

Figure 1 (Above). Community HealthNet, a federally qualified health clinic located in Gary, Indiana.

Source	Data obtained
US Census Bureau	Race representation Age group representation Single parent homes Households with children
US Bureau of Economic Analysis	Poverty rate Poverty rate among children under 18 Welfare statistics Food stamp recipients Free and reduced lunch recipients
Indiana Department of Education	School enrollment Private vs. public school enrollment High school diplomas obtained Higher education enrollment
Indiana Family Social Services Administration	Median household income Per capita personal income
Behavioral Risk Factor Surveillance System	Exercise statistics Fruits and vegetables statistics Obesity statistics High blood pressure statistics Smoking statistics Diabetes statistics

Table 1. Data obtained from federal and state agency publications.

We also held a series of meetings with CHN leadership to learn about the internal process of Community HealthNet. We spoke with Dr. Janet Seabrook, CEO, and Beryl Fitzpatrick, COO, and Tiffany Robertson, CFO, to hear about the procedures they have in place to comply with Health Resources and Services Administration (HRSA) regulations, the vision and goals of the clinic, their financial needs and other resource needs, their understanding of the patient population they serve, the health care interventions currently in place, and activities they would like to expand in order to better meet the needs of the patients. We obtained this information firsthand at the clinic because there was no published data about the leadership's thought processes and opinions of their own management activities.

Balanced Scorecard Translation

After gaining a better understanding of the needs in the Lake County jurisdiction and what CHN was doing to meet those needs, we examined the balanced scorecard model in parallel to the internal process of the clinic. The goal of doing this was to create an efficient, effective, and reproducible model that can be utilized by FQHCs across the nation. The balanced scorecard is a strategic planning and management system that provides a practical model to align a business or organization's activities to its vision and strategy, while continually monitoring the organization's performance according to its strategic goals. This approach,

Figure 2. A Medicaid enrollment specialist at Community HealthNet.

developed by Dr. Robert Kaplan and Dr. David Norton from the Harvard Business School, has primarily been used by large US firms and major companies all over the world. It also was selected as one of the most influential business ideas of the past 75 years by *Harvard Business Review* (Balanced Scorecard Institute, 2014). We have studied the vision, goals, strategies, and processes of CHN and have used tables and strategy maps to reformat the balanced scorecard model to fit the distinctive qualities of an FQHC.

RESULTS AND DISCUSSION

Comparisons of county data against state averages revealed that the Lake County population is characterized by high rates of poverty, food stamp recipients, welfare-qualified families, free and reduced lunch recipients, single parent homes, and uninsured residents. In addition to these population qualities, Lake County has high rates of health risk factors, including obesity, high blood pressure, and diabetes. Of further interest, data shows that Lake County has a higher uninsured population rate than the rest of the state; however, they also have more primary care physicians per capita than the rest of the state. These key data findings are summarized in the table below.

While Lake County has more primary care physicians per person than the rest of the state, we hypothesized that people may be hindered in their access to these services because of the demographic features of the area, including single mothers who lack reliable transportation, unavailability of child care, difficulty of transportation with children, and lack of education about what health care resources are available, including financial aid or free services. In our site visits, Medicaid enrollment specialists noted that one of their main concerns is that people who qualify for Medicaid coverage under the Affordable Care Act are unaware of the assistance available to them through this program.

Data	Lake County	Indiana
Poverty rate (2011)	19.3%	15.8%
Hispanic population (2012)	17.4%	6.3%
Food stamp recipients (2011)	14%	10.3%
Welfare monthly average families (2011)	1.6%	0.9%
Free and reduced lunch recipients (2013)	52.3%	43.7%
Single parent homes (2011)	11.6%	9.8%
Adults reporting obesity (2011)	39%	31%
Adults reporting high blood pressure (2011)	34.7%	32.9%
Adults reporting diabetes (2011)	9.8%	9.3%
Uninsured under 65 years (2011)	18.1%	16.6%
Primary care physicians per 100,000 population (2008)	69.46	53.6

Table 2. Comparison of Lake County data to state data. (Statistics retrieved from HRSA Data Warehouse, n.d.; STATS Indiana, 2015; United States Census Bureau, n.d.; U.S. Department of Commerce Bureau of Economic Analysis, n.d.; Xu et al., 2014.)

From speaking with both federally qualified health center providers and patients considered to be medically under-served, we were able to identify some common mindsets and concerns amongst those both providing and receiving care from these organizations:

1. Medically underserved patients tend to believe they are unable to do anything without insurance coverage and do not fully understand the free or reduced cost services that are available to them.

2. These patients and the providers also expressed a need for continuity of care; frequently, patients are unable to be properly referred to a specialist or to follow up on diagnostic results because they lack a stable relationship with a primary care provider.

3. Many patients living in poor communities rely on public transportation to travel to medical appointments. This type of transportation brings about its own set of challenges with long travel time, missed connections, and the hassle of traveling with young children, all of which contribute to late or missed appointments.

4. Through shadowing Dr. Cynthia Hoess, CHN medical director, I was able to observe the patient population during patient-provider interactions. Dr. Hoess mostly saw children with minor illnesses, such as cold or flu, and many of these children were also struggling with malnutrition or obesity due to poor eating habits from the types of food available at home. Many patients and their guardians, frequently single mothers, were not aware of the impact of food and nutrition on their health or were unable to provide healthy food options in their homes. Lake County has a 39% obesity rate, and many patients cite the difficulty of finding inexpensive healthy food as one cause for this trend. Lake County also has a very prevalent Hispanic population at 17.4% of the population, compared to 6.3% throughout the rest of the state (United States Census Bureau, n.d.). This subset of the population experiences an increased difficulty in communication with providers and participation in health care programs due to language barriers and cultural differences concerning the obtainment of health care services.

One of the most concerning results of this data analysis is the degree to which health care resources are underutilized in Lake County. As previously mentioned, Lake County has a higher rate of uninsured people than the rest of the state; however, with the latest data in 2008, Lake County had 69.46 primary care physicians per 100,000 people, while the rest of the state had 53.6 physicians (HRSA Data Warehouse, n.d.). This gap indicates that there are available health care resources that are not being utilized. There is a large availability of federally funded health care resources targeted specifically for low income and uninsured patients in Lake County, including Community HealthNet, Health-Linc, and NorthShore medical clinics; however, many patients are not taking advantage of these resources. A lack of education, communication barriers, and lack of transportation are commonly cited reasons for this discrepancy.

After collecting and analyzing this data to determine the unique health care challenges in Lake County, our project shifted toward creating a business model that can be used for FQHCs nationwide to streamline their process, improve performance, and ensure all activities are moving the organization toward its established goals. The ultimate aim is to improve access to funding and efficient distribution of resources and health care services.

According to the balanced scorecard model, there are four perspectives defined by Kaplan and Norton to translate the business strategy into performance measures: finance, customer, internal-business-process, and learning and growth (Balanced Scorecard Institute, 2014). Federally qualified health centers such as Community HealthNet receive financial assistance from the Health Resources and Services

Figure 3. Gary residents participate in open Medicaid enroll-ment with specialists at Community HealthNet.

Figure 4. Balanced scorecard process, adapted from Kaplan and Norton (Balanced Scorecard Institute, 2014).

Administration (HRSA), which is the primary federal agency for improving access to health care services for people who are uninsured, isolated, or medically vulner-able. Community HealthNet must have a way to measure their performance to ensure they are always meeting the HRSA measures and ratios in order to receive funding.

In the case of CHN, the "customer" described by the bal-anced scorecard model is the patient. Community Health-Net must ensure they are adequately meeting the increas-ing needs of the patient population in an effective and affordable way. Community HealthNet must also have a system in place to monitor patient expectations and patient needs to ensure customer satisfaction, so the database that has been established at the clinic is a key factor in moni-toring patient needs. The clinic's internal business process requires an awareness of areas needing improvement, an assessment of tools and services, maintains the most up-to-date equipment and methods, and eliminates any superfluous processes.

The last perspective defined in the balanced scorecard model is a focus on learning and growth. This requires a team of people to research and seek out ways to improve all areas of Community HealthNet's process and to ensure all clinic staff is taken care of and effectively educated. Figure 4 details the relationship among these four perspec-tives and how each perspective applies to a medical clinic environment.

After examining Community HealthNet's process within the framework of the balanced scorecard, we targeted some methods that were inefficient and worked with clinic leader-ship to establish key measures to quantify progress in these areas. For each strategic objective defined by the clinic leadership, we also have established strategies and key mea-sures used to track progress and indicators used to measure the progress of implementation. These objectives, strategies, key measures, and indicators are detailed in Table 3.

Table 3 summarizes some of the areas where Community HealthNet's process can be improved to increase effi-

ciency. The billing system remains the largest gap with the biggest consequences. Currently, the outsourced company handling the billing is not adequately sending bills to patients or following up to collect payments, resulting in a large deficit between money owed to the center and money received. Community HealthNet would benefit from hir-ing personnel to take care of billing within the organiza-tion. If billing were brought in-house, it could be moni-tored closely to ensure bills are sent out and payments are received. This change would require hiring and training additional personnel. However, with successful imple-mentation of a new billing process, the organization can experience an appropriate ratio of bills sent and payments received for a federally qualified health center. While there would be an upfront cost to hire and train personnel, the payoff of receiving more payments for services would make up for these costs.

A reliable and speedy Internet data system would make monthly reporting of HRSA measures much more accurate and timely. Community HealthNet is currently in the pro-cess of implementing a MPLS Internet hub. The addition of a data system also would aid in the center's progress toward being recognized as a *medical home,* a base for a patient's medical and nonmedical care. With this data system in place, patient needs could be tracked along a timeline and patients could easily be contacted to improve continuity of care. This would address the need for an im-proved continuum of care so that patients can be properly referred to specialists and followed up with diagnostic results. With an appropriate data monitoring system in place, patient needs could be tracked more easily to follow an individual long-term care plan.

The expansion of patient care services is an ongoing target for Community HealthNet. The clinic currently offers a spectrum of services, including prenatal care and educa-tion; women's health; diagnostic radiologic evaluation and examination; family planning; medical consulting; school and sport examination; pregnancy testing; HIV testing and counseling; vision and hearing screening; children and ad-olescent services; laboratory testing and evaluation; EKG

Objective	Strategy	Key measure	Indicator
Establish in-house billing	• Hire new staff member • Expand current staff duties	• Measure numbers of patients and insurance companies billed • Measure payments received	• Increased number of bills sent • Increased number of payments received
Implement electronic medical record system	• Install EPIC software • Expand use of Ochin software	• Measure accessibility to patient encounter information • Measure speed of data access	• Decreased amount of time spent gathering data for HRSA reports
Improve Internet access	• Launch new system on 12/5/14	• Measure speed of accessibility of data	• Decreased amount of time spent accessing data and other Internet sources
Expand patient care	• Hire another MD, other providers	• Measure provider workload, number of encounters	• Increased number of patient encounters for each provider
Expand access to care	• Expand hours of operation to include evening and weekend hours	• Measure patient encounters during evening and weekend hours	• Increased number of patient encounters taking place during evening hours or on the weekend (there currently are no patient encounters taking place during the evenings and weekends)

Table 3. Objectives, strategies, and key measures for CHN.

Figure 5. Dr. Sandra Liu discusses electronic medical record keeping with CHN staff (Center for Global Urban Sustainability, n.d.)

testing; health and nutrition education; substance abuse referrals; behavioral health services; and care for acute and episodic events, inpatient, dental, infants, and geriatrics (Community HealthNet, 2013). While the services provided are extensive, the clinic is continually seeking to improve the quality and availability of these services through the addition of supplemental medical personnel.

HRSA measures require options for coverage when the center is closed, and CHN's current hours of operation are 8 a.m. to 5 p.m., Monday through Friday. Patients who work normal business hours may have some difficulty accessing the center during its hours of operation. Examining the local health care service providers, patients who need care outside of these hours can be seen at St.

Catherine's Hospital or at one of NorthShore federally qualified health centers, which remain open until 7 p.m. at several nearby locations, Monday through Wednesday. NorthShore's extended hours give patients an additional small window of time to be seen but still do not offer any services on the weekend. St. Catherine's Hospital has an emergency department that is open 24 hours a day; however, the hospital is not able to offer the same benefits to uninsured or Medicaid patients as the federally qualified health centers. Patients in CHN's service area would benefit from increased availability of care from a federally qualified health center during evenings and weekends.

The next step for CHN is to develop action plans that are aligned with their strategy and vision. CHN currently holds monthly meetings with all staff in attendance, and this time also can be used to keep all team members accountable at every stage of the business scorecard process detailed in this article. An improved computer system that is able to filter data and make it accessible to all team members is a crucial step in the implementation of the scorecard as a dynamic management approach.

FUTURE WORK

The ongoing challenge is to find innovative ways to help Lake County residents appropriately utilize the health care services that are available to them. Two of the main obstacles keeping people from appropriately using health care services are transportation and knowledge. Increased funding or grant money could be used for a vehicle pick-

up system so that people without transportation can have a reliable and child-safe ride to their appointments.

Many people also are not yet knowledgeable about the fundamental ways to maintain health—particularly regarding the role of proper nutrition for their families. A study of communication habits for this demographic would be helpful as the basis for developing a series of educational messages regarding nutrition. This could help determine the likelihood of underserved populations' participation in health education activities such as reading take-home pamphlets, joining a Facebook group for nutritional tips, joining a support group based in local schools, or watching instructional videos. This educational series also could reinforce the important role of primary health care providers and encourage more interaction.

ACKNOWLEDGMENTS

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