2017

Discovering Opportunities to Improve Profitability at a Federally Qualified Health Center

Robert Jackson Jackson
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral dissertation by

Robert Jackson

has been found to be complete and satisfactory in all respects,

and that any and all revisions required by

the review committee have been made.

Review Committee

Dr. Aridaman Jain, Committee Chairperson,

Applied Management and Decision Sciences Faculty

Dr. Diane Stottlemyer, Committee Member,

Applied Management and Decision Sciences Faculty

Dr. Robert Kilmer, University Reviewer

Applied Management and Decision Sciences Faculty

Chief Academic Officer

Eric Riedel, Ph.D.

Walden University

2017

Abstract

Discovering Opportunities to Improve Profitability at a Federally Qualified Health Center

by

Robert Jackson

Dissertation Submitted in Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

in Engineering Management

Walden University

March 2017

Abstract

Federally Qualified Health Center (FQHC) organizations, which provide health care services to low-income, underserved patients, are underfunded. From 2000 to 2007, the cost of treating a FQHC patient increased by $146, while federal compensation to FQHCs increased by only $44 per patient. One FQHC organization in rural Alabama experienced financial losses from fiscal year 2011 through 2014, jeopardizing services to approximately 6,000 low-income patients. The purpose of this qualitative case study was to analyze the subject organization and discover opportunities to improve financial performance. The research question pertained to the opportunities for improving profitability at the subject organization. The conceptual framework was the systems thinking model. Along with data from the literature review, reviews of the organization's archived data containing employee feedback and feedback from unstructured interviews of four of the 14 FQHC chief executive officers in Alabama were used to develop the profitability model. No employees were interviewed or surveyed during this study, however, a review of archived documents revealed information provided by employees that was helpful in developing the profitability model. To help determine the subject organization's performance, data from independent auditors, technical assistants, FQHC performance reports, the organization's electronic health record system, accounting system, meeting minutes and performance reports were coded, classified, and analyzed. Data from these sources was compared to the profitability model and a gap analysis was used to identify the areas and causes of poor performance. The results indicated that the rural environment impacted the organization's financial performance. The subject FQHC organization may be able to use the results of this study to improve profitability. This study contributes to positive social change by providing a profitability model that other FQHC organizations may use to improve their financial viability, and expand services to underserved patients throughout the United States.

Discovering Opportunities to Improve Profitability at a Federally Qualified Health Center

by

Robert Jackson

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Engineering Management

Walden University

May 2017

Acknowledgments

I want to thank my family and all those who supported, encouraged, and helped me to complete this work.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

Introduction

In 1965, President Lyndon Johnson implemented the Great Society program to address poverty and racism in America. As part of this program, the U.S. government began funding Federally Qualified Health Centers (FQHCs) to improve access to health care for America's underserved citizens (Anderson & Olayiwala, 2012). In 2015, the U.S. Health Resources and Services Agency (HRSA) continued to fund FQHC organizations to help patients whose incomes were less than 200% of the federal poverty guidelines (HRSA Sliding Fee Scale Discount Policy, 2015).

One of the federal requirements for funding is that FQHC organizations must provide services to any patient, even those who cannot pay for the services they receive (HRSA Sliding Fee Scale Discount Policy, 2015). Private care providers and urgent care centers usually demand payment up front and serve a clientele that is employed and well insured. Hospital emergency room staffs, on the other hand, bill patients later for medical services provided. Consequently, many poor and underserved patients choose to go to the hospital emergency rooms, where they endure long waits, delay the delivery of services intended for people who are suffering from critical injuries, and drive up the overall cost of emergency room operations (Thakarar, Jake, Jessie, Hohl, & Mari-Lynn, 2015).

FQHC organizations provide high quality, alternative care for uninsured or underinsured patients and provide relief to the overutilized hospital emergency rooms. Unfortunately, the federal funding that the FQHC organizations receive has not kept up with the cost of providing primary health care services to America's underserved

populations. FQHC organizations must identify opportunities to improve financial performance, since the federal funding they receive is inadequate.

Since they provide uncompensated care to a high percentage of uninsured patients, FQHC organizations may find it increasingly difficult to maintain profitability while pursuing their mission of providing affordable, quality care (Wright & Ricketts, 2013). From 2000 to 2007, the cost of treating an FQHC patient increased by $146, while the compensation that FQHC organizations received from the federal government increased by only $44 (UDS, 2000-2007). One FQHC organization, which is the subject of this study and serves patients living in some of Alabama's Black Belt counties, had operational losses for fiscal years (FY) 2011 through 2014 (Sheppard-Harris, 2014). If this situation continues, the organization may be unable to sustain long-term health care services for the thousands of patients facing substantial barriers to health care that the organization serves.

Residents of Alabama's Black Belt counties are predominately uninsured, African Americans with high rates of heart disease, diabetes, hypertension, and obesity (Salanitro et al., 2011). The research problem is the literature gap on how underfunded FQHC organizations can meet patient service requirements and achieve profitability. This chapter includes background information, the problem statement, the purpose of the study, the research questions, the conceptual framework, the nature of the study, and the potential for positive social change.

Background

HRSA provides funding to FQHC organizations based on the economic status of the patients, the number of qualifying patients served, and the scope of services that the

FQHC organizations provide (UDS, 2014). Patients whose incomes are less than 200% of the federal poverty guidelines are eligible for reduced service fees. FQHC organizations use sliding fee scales, based on federal poverty guidelines, to determine discounts for low-income patients (HRSA, 2012).

In 2015, there were 14 FQHC organizations in Alabama. Five of the organizations were rural, serving less than 10,000 patients each. The remaining nine organizations were large, with clinical locations in both urban and rural areas, serving between 20,000 and 60,000 patients (UDS, 2014). Rural patients demonstrated higher disease rates than urban patients. Rural environments had less public transportation, fewer people per square mile, less technology infrastructure, higher rates of poverty, and fewer public services than did urban areas (Bauer, 2010).

Patients in Alabama's rural Black Belt counties suffered from greater health disparities than patients in the state's urban counties, exacerbating the need for rural FQHC organizations to maintain financial viability. In a comparison of rural and urban patients in Alabama, Massey, Appel, Buchanan, and Cherrington (2010) observed that the rural group had fewer patients meeting the blood sugar and blood pressure goals. The rural patients also received fewer preventive services, and a smaller percentage of rural patients met the American Diabetes Association standards. Duncan and Memon (2012) determined that rural Alabamians did not understand diabetes. Washington (2011) found that most of the African-American women who participated in a study were unaware that diabetes and cholesterol are predictors of hypertension. The U.S. Centers for Disease Control (CDC, 2012) observed that rural patients were more obese than urban patients and poor eating habits were one of the leading causes of death in the United States. Seal

and Chandler (2010) found that high consumption of fats and calories, high use of television and video games, lack of exercise, and limited access to nutritional information contributed to obesity in rural areas.

Bauer (2010) determined that rural residents had less private insurance coverage, received fewer Medicaid benefits, and had higher rates of diabetes and obesity than urban residents. In 2010, about 17.8% of rural patients were uninsured, versus 15.3% of urban patients; yet fewer than 10% of physicians practiced in rural communities. Many physicians avoided rural medicine due to the economics of practicing in rural areas, along with limited educational and social opportunities for the rest of the family (Bauer, 2010).

The population density in rural areas was low, which made it difficult for rural FQHC organizations to reach the break-even volumes of patients required for long-term business success. Also, due to the sparse population and high levels of poverty, Internet service providers avoided investing in rural areas because the returns on investments would have been relatively low. The lack of technology infrastructure made it difficult for rural FQHC organizations to implement and maintain electronic health record (EHR) systems, now required for all FQHC organizations by HRSA. Healthcare organizations are using EHR systems to maintain patient records, collect and analyze patient information, make better clinical and business decisions, and improve operational and financial efficiencies.

Some health care organizations are using systems thinking (ST) and the lean six sigma (LSS) approach to manage change and improve operations. Along with mechanical and functional dynamics, Mowles (2011) found that social and political interactions contribute to changes within organizations. Other researchers found that

organizations used ST to address health disparities (Roux, 2011) and to improve organizational performance results (Skarzauskiene, 2010). Gitlow and Gitlow (2013) observed that hospitals used LSS to control hospital costs. Powell (2008) found that hospitals and health care management teams viewed LSS as an important set of quality improvement tools. Kellogg (2010) studied the financial benefits of applying LSS methods to acute care hospitals, and Chassin (2013) determined that health care organizations were using LSS tools to improve the flow of information. Polk (2011) observed that organizations combined LSS and innovation to improve operational results, while Hernandez and Mustapha (2010) identified organizations that were using LSS specialists to support management.

Research literature highlights how general organizations used financial ratios to monitor and improve performance (NetMBA.com, 2010). There is also information on how healthcare organizations used ST, LSS, and other tools to improve clinical quality results in various populations. Other literature highlights how hospitals and other large private care facilities used ST and LSS to reduce cost and improve operations, which ultimately impact profitability. There is a lack of literature, however, on how FQHCs can achieve and maintain profitability in the face of inadequate federal funding, increasing healthcare costs, and the requirement of guaranteeing quality services to low-income patients. This study is needed to help fill this information gap.

Problem Statement

Federally Qualified Health Centers (FQHCs) are underfunded safety-net providers that must remain profitable while pursuing their mission of providing affordable, quality health care (Wright & Ricketts, 2013). From 2000 to 2007, the cost of treating an FQHC

patient increased by $146, while the compensation that FQHCs received from the federal government increased by only $44 (UDS, 2000-2007). The problem is that one FQHC organization operating in rural Alabama experienced financial losses from FY 2011 through FY 2014 (Sheppard-Harris, 2014), jeopardizing the organization's ability to continue providing services to more than 6,000 patients. There is a substantial amount of literature on how hospitals and private healthcare providers use ST, LSS, and other tools to improve profitability. The research problem for this study, however, is the lack of literature on how FQHC organizations can achieve and maintain profitability with the level of uncompensated care they must provide to patients who may be unable to afford the cost of office visits, diagnoses, and treatments.

Purpose of the Study

The purpose of this qualitative case study was to analyze the subject organization as a bounded system and discover opportunities to improve financial performance at the subject FQHC organization. For this study, financial performance was defined as profitability, which is a function of revenues generated from grant sources, foundations, and patient service revenues, minus operational expenses. Using the qualitative case study approach, I examined various data and information sources, both internal and external to the subject FQHC organization. This approach yielded a range of information, ideas, and concepts which were then grouped and analyzed for their impacts on profitability.

Research Questions

The primary research question guiding this study was: What are the opportunities for improving profitability at the subject FQHC organization? Since profitability is a

function of revenues and expenses, additional related questions were: What are the items that impact revenues and expenses and What can be done to optimize the balance between revenues and expenses in the subject FQHC organization? To help answer these questions, I reviewed data and information from the federal universal data system (UDS), the subject FQHC organization's financial and health records systems, financial audit groups, federal program compliance auditors, management and employees, my research observations, and various existing documents and records.

The UDS report, published annually by the U.S. Bureau of Primary Health Care (BPHC), is a summary of the subject FQHC organization's performance in several different areas, some of which are directly related to profitability. The UDS report includes comparison data of the subject organization's performance to the aggregate performance of all FQHC organizations in the state of Alabama and the nation. Financial and electronic health records (EHR) reports contain detailed information on revenues, expenses, profitability, patient volume, and provider productivity. Independent, professional financial audits were performed annually and the results include findings and information that represent opportunities to improve profitability. HRSA program compliance audit reports also include findings related to profitability. Reports from the management team, quality team, and miscellaneous employees, as well as from the researcher's observations highlight opportunities to improve financial performance.

Conceptual Framework for the Study

The framework for this study was ST and the components that impact profitability at FQHC organizations. Organizations use ST to address complex problems, understand the interactions between system components, and discover what makes the entire system

greater than its individual components (Flood, 2010). Since system components and problems are interconnected, problem solvers must implement solutions in places that will impact the entire system (Trbovich, 2014). In this study, I compared two systems (Figure 1). The first system consisted of some key factors that contributed to profitability in an FQHC organization. To identify the components, I used results from the literature review, feedback from the subject FQHC organization's employees, and feedback the chief executive officers (CEOs) of four other FQHC organizations in the state of Alabama.

The second system included the performance results of the subject FQHC organization itself. These performance results were impacted by the functional and geographic subgroups that comprised the organization, and the rural environment in which the organization operates. Within the subject FQHC organization, the sum of interactions between people, policies, procedures, practices, culture, the environment, and other factors contributed to poor financial performance. The subject FQHC organization included five geographically separate clinics, six different functional groups, and had several external stakeholder groups that influenced the organization. Components that affected profitability were interconnected, therefore, efforts to improve the performance of one component might have degraded the performance of other components. Future research might involve a design of experiments that seeks to optimize total system performance.

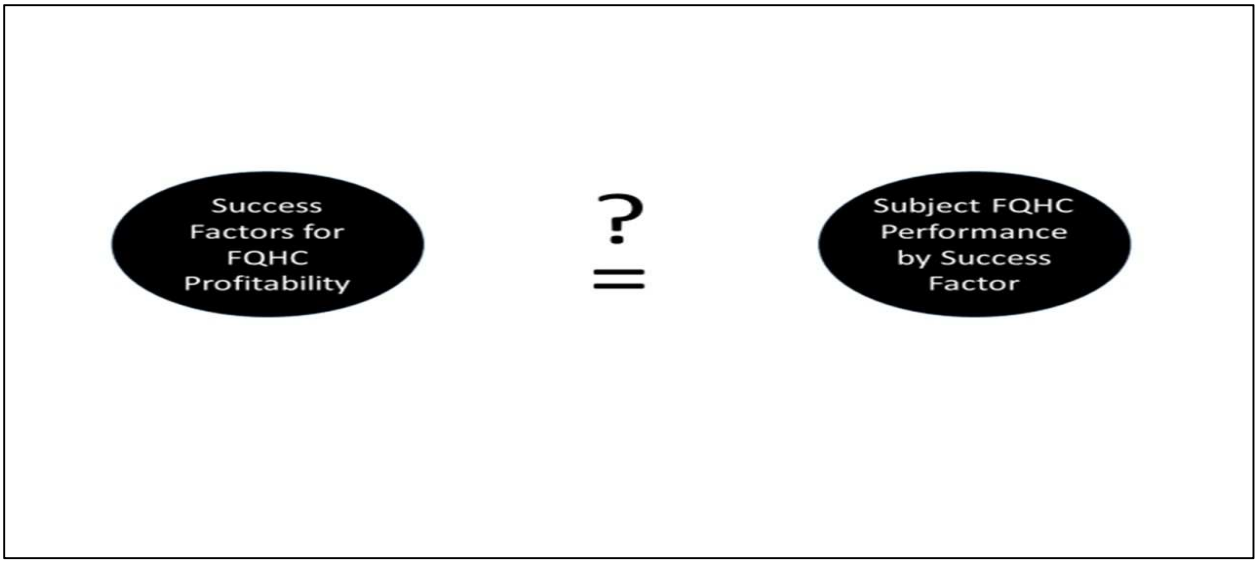

Figure 1. Comparison of two systems.

Nature of the Study

A case study involves a detailed analysis of one or more bounded systems, highlights important characteristics of the systems, is interdisciplinary, using different concepts and theories to explain the case, and uses multiple data collection methods (Nisrin, 2011). For this study, I used a qualitative case study approach to compare the subject FQHC organization's actual performance to the factors that are critical for profitability success in FQHC organizations. From this comparison, I identified performance shortfalls and opportunities for improving profitability at the subject FQHC organization.

Using the case study approach, I compared two bounded systems: the subject FQHC organization and the system of components that affect profitability. The critical characteristic was financial performance. The interdisciplinary components included administrative, financial, clinical, technological, operational, and cultural factors. I collected and analyzed data from various sources, including findings from a literary

review, requirements stated in the HRSA Nineteen Program Objectives, the Bureau of Primary Health Care UDS reports, feedback from independent auditors, and feedback from sources internal to the subject FQHC organization.

Definitions

Billing Process: The steps used to collect the fees due for patient services from private insurers, Medicaid, Medicare, and patients (US Health Resources and Services Administration, 2017).

Black Belt Counties: A group of low-income, rural counties in Alabama, distinguished by the dark color of the soil (black), conducive to farming and by the large percentage of African American populations (Alabama Black Belt Heritage, 2014).

DMAIC: An acronym for define, measure, analyze, improve, and control. DMAIC is an application model or roadmap of how to implement LSS in an organization or to a process (Radziwill & Benton, 2013).

Federally Qualified Health Center (FQHC): Partly-public funded health service organizations providing services in medical, dental, behavioral, and other specialties, serving patients with public insurance, private insurance, or who are uninsured and underinsured. Mission is to improve health care access for underserved populations in certain, assigned or approved geographic areas (National Association of Community Health Centers, 2015).

HRSA Technical Assistant: Consultants and specialists used by the U.S. Department of Health Resources and Services Administration (HRSA) to assess and provide administrative, clinical, and financial technical assistance to Community Health Centers (HRSA Site Visit Guide, 2015).

Lean Six Sigma (LSS): LSS is a body of knowledge that includes tools and concepts for improving process efficiency, quality, and financial performance. LSS is based in academic disciplines, such as industrial engineering, statistics, and human

resource development. LSS is being used by many diverse organizations to improve operational and financial results (Polk, 2011).

Patient Self Pays: The portion of a medical bill that is not covered by insurance for which the patient, patient's guardian, or patient's sponsor must pay directly to the health care provider. Examples of patient self-pays include insurance deductibles, co-pays, and Sliding Fee Scale charges based on the U.S. Federal Poverty Guidelines and applied to FQHC patients who are uninsured or underinsured (HRSA UDS Report, 2015).

Payer Mix: The types of payers and the percentage of total revenues collected from each payer type in an organization. In a FQHC organization, the payer mix includes sliding fee scale payers (uninsured and underinsured patients); Medicaid payers; Medicare payers; and private insurance payers (HRSA UDS Report, 2013).

Percentage of Fees Collected: Percent of fees collected compares the total amount of fees charged (denominator) for health services (to Medicaid, Medicare, private insurers, and patients) to the total amount of fees collected (numerator) by the CHCs (HRSA, 2015).

Process Model: Any collection of mathematical equations by which the system output response to a given input can be predicted (Ogunnaike & Ray, 1994, p. 128).

Process Improvement Model: A formula or collection of mathematical equations by which specific results or outputs from systems and processes can be improved. A set of standard procedures or steps for improving the quality of an organization and its key results (Ogunnaike & Ray, 1994).

Profitability: The state or condition of yielding a profit or gain. http://www.businessdictionary.com/definition/profitability.html

Quality Pyramid: A conceptual model that attempts to summarize the development and evolution of the world-wide quality movement, including academic disciplines, key contributors, concepts, and tools, as well as application models (Jackson, 2010).

Revenue Sources: Sources of revenue for the organization, including Medicaid, Medicare, Private Insurers, and direct payments from patients (Kubis & Cicarelli, 2012).

Statistical Process Improvement: Use of sampling and other statistical methods to determine the extent to which the output from a process meets requirements or expectations (Polk, 2011).

Sliding Fee Scale Discounts: The scale used to determine the discount that a person whose income is at or less than 200% of the U.S. Federal Poverty Guideline will receive (HRSA Sliding Fee Discount Policy, 2012).

Assumptions

I made two assumptions for this study. The first was that the level of systemic error associated with any single data source would be reduced by using several, different data sources. When different data sources are used it is easier to recognize outliers for analysis. This assumption was necessary for the internal validity of the study. The second assumption was that the information discovered in the literature review, pertaining to better practices and profitability improvements in FQHC organizations, was applicable to other FQHC organizations in the nation. This assumption was needed for the development of a profitability model that would be generalizable to other FQHC organizations.

Scope

In 2015, there were 14 FQHCs in Alabama and more than 1,278 FQHCs nationally. This study involved the development of a model for improving profitability at all national FQHC organizations and the identification of opportunities to improve profitability performance at the subject FQHC organization. For the development of the profitability model, the scope was all the FQHC organizations in the United States. For the identification of improvement opportunities, however, the scope was limited to the subject FQHC organization located in Alabama. This organization was selected because it had experienced financial losses for 4 consecutive years, because I had access to data and information that affected the subject FQHC organization's financial performance, and because substantial time and expense might have been required to obtain access to such information from other FQHC organizations. Although there may have been other FQHC organizations with financial issues, the subject FQHC organization represented a system of interactive problems that I could compare to the FQHC profitability model. While CEO of the organization, I had access to the subject FQHC organization's performance data, archived in both internal and federal data bases. Most organizations, both public and private, were very protective of their financial performance data. Efforts to obtain access to such information from various other FQHC organizations, especially by the CEO of a competing organization, would have been met with strong resistance. Therefore, the research had to be limited to this one organization.

Limitations

This study was limited to the development of a profitability improvement model for FQHC organizations in the United States. The development of the model did not

encompass other health care providers, such as hospitals and private specialty practices. Although there are similarities in all health care providers, there are differences between categories of providers and organizations within each category. For example, in 2014, the governor of Alabama decided to opt out of the Affordable Care Act (ACA) and to prohibit the expansion of the state's Medicaid program. This decision affected all health care providers in the State of Alabama (Kirby, 2014). There were different implications, however, for private providers and FQHC organizations. Some Medicaid patients were reassigned and several private providers received additional Medicaid patients, while some FQHC organizations lost Medicaid patients.

The profitability improvement opportunities identified in this study, however, are limited to the subject FQHC organization. In this study, I analyzed the subject FQHC organization as a single, bounded system, with unique interactions between people, policies and procedures, plans, capabilities, and performance. Although the profitability improvement opportunities identified in this study pertain only to the subject FQHC organization, other organizations may gain insight and ideas from this study.

Significance

This study is significant because it may help to fill a literary gap and contribute to positive social change, by helping underfunded FQHC organizations serving low-income patients to achieve and sustain financial viability. Although the focus of this study is on FQHC organizations, health care providers of all types may be able to use components or derivatives of the profitability model to improve financial stability. Also, other health care providers and researchers may be able to increase their understanding of the

challenges faced by underserved populations in some rural environments (Leither & Onthrop, 2012).

Potential for Positive Social Change

The potential for positive social change is related to the important role that FQHC organizations play in society. These organizations serve many low-income, uninsured people. FQHC organizations must provide high-quality screenings and disease management services that non-FQHC providers are not required to provide to patients (UDS, 2014). In 2014, approximately 339,389 patients made over one million visits to the 14 FQHCs located in the state of Alabama (UDS, 2014). Of this number of patients, 47% were uninsured, 29 % had Medicaid coverage, 10% were covered by Medicare, and 13% had private insurance coverage. Approximately 18% of the uninsured were children between the ages of 0 and 19 years old. More than 70% of the patients were at or below the federal poverty threshold. Without Medicaid, Medicare, and FQHC organizations, many low-income Americans would not receive treatment until their condition becomes life-threatening (Braunfeld, 2013).

Leither and Onthrop (2012) reported that the United States had 57 million uninsured citizens, of which 8 million were patients of FQHC organizations. The remaining 49 million uninsured people either struggled to pay for health care out of their own pockets or had given up on seeking health care. Leither and Onthrop (2012) estimated that 23 million people were uninsured, despite the 2010 Affordable Care Act.

There is a difference of opinion, however, on who can best provide access to health care for economically diverse populations, including those who are uninsured. One opinion is that federally funded and regulated FQHC organizations should continue

providing health services to all patients, regardless of their economic class. Leither and Onthrop (2012) found that uninsured patients rated FQHC organizations higher than they rated both care management organizations and private physicians in the areas of primary care quality and diabetes mellitus care. The other opinion is that health care should be privatized because private industry can better ensure long-term profitability of health care programs.

Braunfeld (2013) observed that privatization of health care would result in only wealthy and healthy citizens receiving health care. Due to the limited number of health care providers, the unregulated, free-market would drive up the price of health care, making it unaffordable for low-income and uninsured patients. There would be a high influx of patients at understaffed emergency rooms, degradation in the quality of care, an increase in bankruptcies, homelessness, and outbreaks of controllable diseases. Shi et al. (2013) observed that racial/ethnic minorities and uninsured patients of FQHC organizations receive better health care than uninsured racial/ethnic minorities who are not patients of FQHC organizations. Rothkopf, Brookler, Wadha, and Sajovetz (2011) found that FQHC organizations are effective alternatives for reducing emergency room visits and hospital readmissions.

Summary

Information from the UDS reports indicated that funding for FQHC organizations has not kept pace with the cost of providing quality healthcare to America's underserved populations (Wright & Ricketts, 2013). One FQHC organization serving patients in the rural areas of Alabama experienced financial losses from FY 2011 through FY 2014, threatening the organization's ability to continue providing services to the patient

population. The subject FQHC organization faces several clinical and environmental challenges, which may be contributing to the organization's poor financial performance. These problems include low population densities, high percentages of low-income, uninsured patients, patients with complex diseases, and patients with limited health education. Rural environments have little public transportation, poor information technology infrastructures, and limited public services. The subject FQHC organization may be able to use the results of this study to help overcome these challenges, improve financial performance, become a more stable provider of health care services, attract additional funding, and enhance its potential for growth. In this chapter, I introduced the study and provided background information, the problem statement, purpose, research question, hypothesis, definitions, scope, limitations, and the significance of the study. In Chapter 2, I present a review of relevant, current literature related to ST and factors that impact FQHC profitability.

Chapter 2: Literature Review

Introduction

The subject FQHC organization had financial losses from FY 2011 through FY 2014. This financial performance jeopardizes the organization's ability to continue services to current patients, attract funding for new projects, and increase the organization's capacity to serve more patients. There is sufficient literature on how health care organizations are using ST, LSS, and other tools to improve population health outcomes. There is also a substantial amount of literature on the conditions or elements that affect a FQHC organization's financial and clinical performance. There is a gap in the literature, concerning how underfunded FQHC organizations may overcome financial losses and achieve profitability. The purpose of this study was to discover possibilities for improving profitability at a small, rural FQHC organization in Alabama.

This chapter includes a synopsis of relevant, current literature, a description of the literature search strategy, a description of the conceptual framework, and a detailed literature review. The synopsis of literature includes information on factors that may affect performance at FQHC organizations, health care challenges in rural environments, and ST and LSS applications in the health care field. The literature search strategy includes information relevant to the research questions. The sources I used in the literature review include peer-reviewed journals, federal websites, books, and professional reports. The conceptual framework is ST and the components that impact profitability in FQHC organizations.

Synopsis of Relevant, Current Literature

Current literature includes information on factors that affect profitability performance in FQHC organizations, clinical and environmental challenges that rural patients and providers face, and general applications of ST and other performance improvement tools in health care. Wright and Martin (2014) found that, in general, FQHC organizations struggle to provide health care services to low-income patients while maintaining financial viability. Rural FQHC organizations face more financial challenges than urban organizations from both the patient population and from the environment. In rural areas, there are relatively high levels of poverty and high percentages of uninsured patients who suffer from complex diseases (Salanitro et al., 2011). The population densities are low, there are limited numbers of providers, little public transportation, and a lack of reliable technology infrastructures (Alabama Office of Primary Care and Rural Health, 2013). Organizations use ST to define the internal components, to understand the environment in which the organization functions, to understand the interactions between the organization and the environment, and to discover hidden challenges and opportunities that can help the organization to improve overall performance (Flood, 2010). Although there is a lack of literature on how FQHC organizations specifically can improve profitability, some literature shows how hospitals and other private health care organizations are addressing the problems faced by rural health providers. This information may be a source for ideas on what can be done to help the subject FQHC organization improve profitability.

Literature Search Strategy

To complete the literature search, I broke the problem statement down into smaller components, including FQHC organizations, financial improvement strategies in health care, clinical and environmental issues that impact rural health care, and the application of ST, LSS, and other performance improvement tools in health care. Through Walden University, I accessed the ProQuest and EBSCOhost literature databases. Other key literary sources included reports from HRSA, the U. S. Centers for disease Control (CDC), the Alabama Department of Public Health, subject-related books, and journal articles. Authors wrote or developed most of the literature over the past 5 years.

Conceptual Framework: Systems Thinking

A system is a complete structure of interconnected, interrelated components that serve a specific purpose. The system exists within an environment, which can influence individual components of the system and the total system. Analysis of the system's components involves understanding the behavior of each component and the relationships or interactions between components (Figure 2). System analysis often leads to the discovery of key factors that may enable or disable system functionality (Flood, 2010).

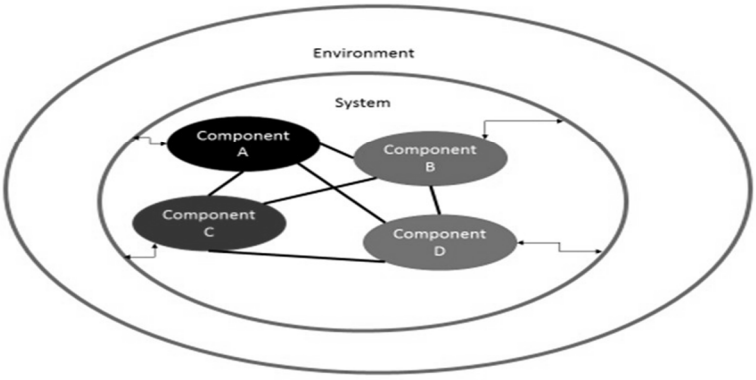

Figure 2. The System and environment.

Using ST, people can better understand complex systems or organizations, the subgroups or components within the organizations, the interactions between the subgroups, and discover the hidden properties of the system that emerge upon analysis of the entire system (Flood, 2010). ST also encompasses organizational environments, complex problem-solving, and the impacts of human interactions (Figure 3). Key contributors to the ST body of knowledge include Frederick Winslow Taylor, Mary Parker Follett, Russell Ackoff, W. Edwards Deming, Peter Senge, and Robert Flood. Although each contributor had a unique or special focus, the ST body of knowledge is a

synthesis of the collective efforts of these and other contributors.

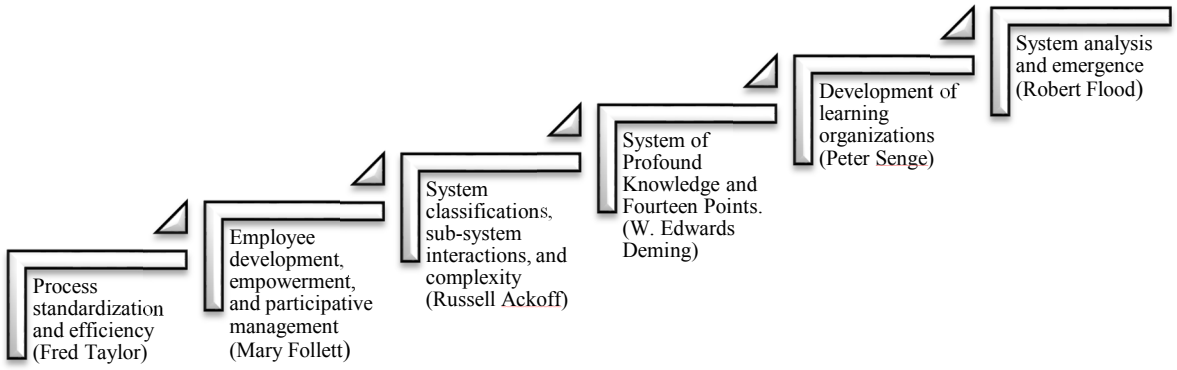

Figure 3. Evolution of ST.

Taylor emphasized process standardization and efficiency. Follett emphasized participative management, horizontal authority, cross-functional teamwork, and facilitation leadership (Gibson et al., 2013). Deming promoted employee empowerment and organizational transformation (Radziwill & Benton, 2013). Ackoff emphasized interdependence, systemic development, and problem dissolution (Flood, 2013). Senge (1996) identified the need for traditional organizations to transform themselves into learning organizations while Flood (2013) emphasized the importance of discovering hidden organizational dynamics and capabilities.

In the early 1900s, Taylor developed a concept called scientific management, which he used to standardize and improve the efficiency of mechanical, industrial processes (Grachev & Rakitsky, 2013). Process standardization involves doing things the same way to achieve consistent results. Standardization minimizes unwanted variation in results caused by different people doing things in different ways. While some variation is expected, and may even be good, too much variation can lead to poor quality, waste, and high costs. Healthcare organizations use standardization in the forms of medical

protocols, standards, regulatory agency requirements, and organizational policies and procedures (Roux, 2011).

Management can improve process performance by maintaining a culture of respect and dignity for all employees. Mary Parker Follett encouraged management to use employee empowerment and horizontal management approaches to address complexity and improve the performance of the total system (Gibson, Chen, Erin, Humphries, & Lien, 2013). Effective healthcare organizations use empowerment to ensure that nurses, assistants, and associates participate in the management process. Böhme, Williams, Childerhouse, Deakins, and Towill (2014) used ST to compare and improve health care supply chains. In this study, I analyzed recommendations and ideas from employees to help improve financial performance at the subject FQHC organization.

For many years, relying upon the Newtonian theories of cause and effect, organizations focused on mechanical systems, overlooking the possibility that other types of systems existed (MacCoby, 2010). Russell Ackoff expanded the concept of ST to include organic and social systems. He defined the relationships between systems, subsystems, and system environments. He also highlighted the dynamic and complex interactions between organizational sub-systems and recommended ways of addressing systematic problems (McCoby, 2010). Health care organizations, whether large or small in the number of patients they serve or the number of people they employ, are complex systems. Laws, standards, and clinical requirements contribute to this complexity. Interactions between internal functional groups, funding agencies, insurance companies, vendors, and boards of directors also contribute to the complexity. In this study, I

developed a model that FQHC organizations may be able to use to improve profitability. I then compared the subject FQHC organization's documented performance to the profitability model. Based on the results of these comparisons, I identified opportunities to improve profitability at the subject FQHC organization.

Healthcare organizations must be knowledgeable and flexible enough to stay abreast of clinical research and treatment breakthroughs, challenges and opportunities related to health technology, as well as federal and state laws about health care. As members of FQHC organizations interact with each other, they should gain experience in addressing both routine and unique problems (Senge, 1990). The functional groups and individuals within FQHC organizations may discover hidden individual talent and organizational capabilities. These special organizational capabilities are greater than the collective talents of the individuals in the group (Flood, 2010).

In this study, I compared the subject FQHC organization's performance to a system of components that contribute to profitability in FQHC organizations (Figure 4). The system of profitability components included FQHC performance improvement strategies identified in the literature review, employee feedback, and feedback from CEOs of other FQHC organizations in the state of Alabama. The subject FQHC organization's performance data came from key performance metrics for FQHC organizations listed in the federal UDS report, performance feedback from independent financial auditors and HRSA technical consultants, my observations, and feedback from the subject FQHC organization's employees, performance systems, and other internal data sources. The purpose of this study was to discover possible opportunities for the subject FQCH organization to improve its financial performance.

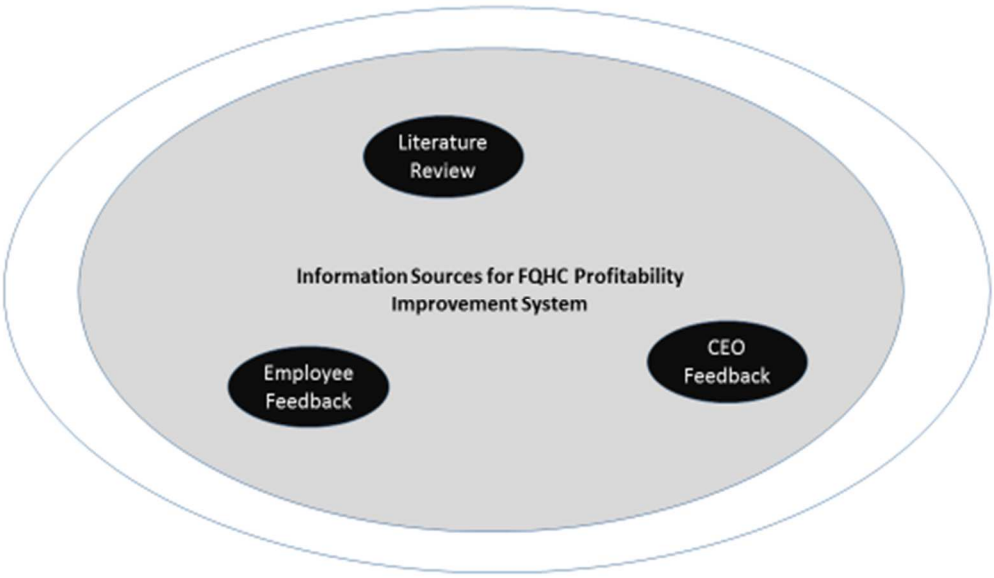

Figure 4. Data sources for FQHC profitability improvement model.

The subject FQHC organization is a system comprised of different, interconnected employees and subsystems. These subsystems included functional groups such as health providers, accounting personnel, and maintenance technicians; geographically separated clinics; and many processes for executing the organization's mission. Through understanding the systemic complexity of the subject FQHC organization and by comparing the organization's performance to the profitability model, I identified opportunities for improving the organization's financial performance.

Review of Relevant Literature

Systems Thinking

There are numerous examples of ST and LSS applications in healthcare. ST literature addresses FQHC organizations, health complexity, global financing of health care programs, and understanding the environment in which healthcare organizations

operate. The subject FQHC organization's environment included at a minimum HRSA, the patient population, regulatory groups, technology, and cultural influences.

ST applications in FQHC organizations.

Many FQHC organizations face financial challenges. Wright and Ricketts (2013) found that FQHC organizations do not receive adequate funding from the federal government. The organizations deal with the shortfalls by writing off large amounts of bad debt, setting up payment plans, using collection agencies, and denying treatment to patients. These reactionary measures may provide some temporary relief, but they do not solve long-term profitability problems. Wright and Rickets recommend that the federal government should do a better job allocating Affordable Care Act funds amongst FQHC organizations.

FQHC organizations are using ST to improve clinical outcomes and to build support networks. Van der Wees, Friedburg, Guzman, Ayanian, & Rodriguez (2014) found that FQHC organizations were more effective in managing diabetes mellitus when allowed to use a flexible approach as opposed to a structured, rigorous approach. Burke et al (2013) used ST to determine the number and types of providers needed to address behavioral health issues in an FQHC organization. Ritzwoller at al. (2013) determined that special programs designed for obese patients of FQHC organizations were more expensive than traditional programs and were not covered by Medicaid.

To improve continuity of patient care, Neuhausen, Grumbach, Bazemore, and Phillips (2012) recommended that FQHC organizations align with local governments or hospitals that already have networks of specialists in place. In FQHC organizations, primary care providers refer patients to specialists as required. When FQHC

organizations align with local governments or hospitals with existing specialty networks, the FQHC organizations help to form continuous care networks that provide more comprehensive and cost effective services.

ST for the global financing of health care.

Proponents of global health care are developing financial support strategies for organizations that aim to improve health outcomes. Garrett (2009) observed that some poorer countries have developed better strategies for financing universal health care systems than wealthier nations. In 2008, the United States spent more than $2 trillion dollars on health care, however, nearly 100 million people lacked adequate health coverage. In 2005, almost 50% of bankruptcies filed in the United States were due to health care expenses. In 2007, 25% of housing foreclosures occurred because people had to use much of their available incomes to pay for health care. Twenty-five million people are forced into poverty each year as uninsured and underinsured people struggle to pay for the increasing cost of health care (Garrett, 2009).

On the other hand, Costa Rico, Cuba, Gabon, and Gambia have developed strategies to provide more comprehensive health coverage for a greater percentage of their citizens than do the United States, China, and India. Garrett (2009) found that nations with emerging economies were using ST to identify and engage key groups to help implement affordable health care plans. In Rwanda, the Mutuelles insurance plan used government financing, low individual copayments, and a third-party foundation to provide coverage for Rwandan people. Between 2003 and 2007, the Mexican government used taxation, employer contributions, and individual payments to increase health care coverage by 20%.

ST for addressing complexity.

Organizations must be able to overcome complex challenges including managerial bias, vendor influence, dysfunctional boards of directors, and political influences. Mowles (2011) recommended ST as a means of identifying and monitoring the interactions between groups that comprise an organization and between an organization and its environment. Many complex interactions make management control a difficult task. Organizations struggle to achieve goals due to opposing forces from within the organization and from the environment. Thunhurst (2012) found that operational research and ST can be used to define and manage complex health systems.

Roux (2011) observed that since biological and social factors contribute to the overall health of populations, health professionals must address the entire system of complex, interrelated factors to understand and improve health outcomes. Roux pointed out that health professionals must develop comprehensive policies that address feedback mechanisms, genetics, interdependencies, socioeconomic factors, stress factors, and environmental safety when trying to improve health outcomes. Those concerned about improving health outcomes should also be concerned about financing health care programs. Dutta (2001) used ST to determine the interactions between customer behavior, financial performance, and network performance in a technology organization.

Within the subject FQHC organization, continuous interactions between clinical, patient services, administrative, and financial employees contributed to a web of complexity. Some board members, vendors, and local politicians had long-standing relationships with certain employees and were able to influence some activities within the subject FQHC organization. The rural environment also presented challenges.

The system's environment.

Bleich (2014) observed that understanding the environment in which a system functions improves understanding of the system itself. The environment includes agencies and forces that influence the system and provide resources to the system. HRSA and patients are two of the groups that influenced the subject FQHC organization, demanding high levels of service and performance in exchange for financial resources.

HRSA.

In 2015, HRSA provided more than three million dollars per year and a network of technical assistance resources to help the subject FQHC organization to provide quality, affordable health care to patients, regardless of the patients' economic status. All HRSA-funded FQHC organizations must demonstrate compliance with 19 program objectives and submit detailed, periodic performance reports (HRSA, 2014). The program objectives include clinical, operational, financial, and administrative components.

One such administrative requirement is that FQHC organizations must use a sliding fee scale, based on federal poverty guidelines, to determine the level of discounts that economically qualified patients receive. FQHC organizations must also use appropriate finance and accounting control systems to help ensure financial success (HRSA, 2014). These two HRSA requirements, one designed to improve access to health care and the other designed to maintain financial stability, force FQHC organizations to seek a balanced approach to providing health care services. Although HRSA, as with most funding agencies, exercises tremendous influence over FQHC organizations, patients are also an important force.

Rural patients.

Although the rural environment may appear simple, rural patients face relatively complex health issues due to both clinical and nonclinical factors. While many patients may have similar clinical diseases, those who lack socioeconomic resources, cultural networks, environmental support, and healthy behaviors are more complex. Massey, Appel, Buchanan, and Cherrington (2010) observed that distance from providers, mistrust of providers, inadequate financial means, illiteracy, and cultural are among the barriers to health care for rural patients. Graves (2012) observed that clinical factors, such as obesity, smoking, hypertension, dyslipidemia, and diabetes, as well as nonclinical factors, such as the physical environment, culture, and social factors contribute to cardiovascular disease. Graves also noted that interactions between the clinical and nonclinical factors result in more complex diseases in rural patients than in urban patients. The location of paper mills and toxic waste areas in or near certain rural environments; lack of health education amongst rural patients; risky sexual behaviors; lack of access to places for physical exercise; and the high consumption of pork, sodium, fats, and sugars contribute to a complex web of health issues among rural patients.

The service area of the subject FQHC organization included Dallas, Marengo, Perry, and Wilcox counties in Alabama, all of which are rural. Per the 2011 report issued by the Alabama Department of Public Health, in the year 2010 heart disease, cancer, and stroke were the top three causes of death in Dallas, Marengo, Monroe, and Perry counties. In Wilcox County, the top three causes of death were heart disease, cancer, and accidents, with strokes only slightly lower than accidents. The clinical factors that contributed to heart disease, cancer, and strokes include diabetes, hypertension, obesity, and communicable diseases. These factors can be controlled and patient education plays

an important role (CDC, 2014). Carter, Tippett, Anderson, and Tameru (2010) found that education promotes prostate screening among African American men living in Alabama's Black Belt counties.

Morbidity rates for the subject FQHC organization's service area were higher than the rates for the state of Alabama and for the USA. The morbidity rates for heart disease (Figure 5) ranged from 311.6 to 451.8 deaths per 100,000 people in the service areas, compared to a rate of 259.4 for the state and 186.5 for the nation. The morbidity rates for cancer (Figure 6) ranged from 235.1 to 394.8 deaths per 100,000 people in the service areas, compared to a rate of 212.5 for the state and 175.5 for the nation. The morbidity rates for stroke (Figure 7) ranged from 60 to 95.1 deaths per 100,000 people for the service areas, compared to a rate of 54.4 for the state and 40.7 for the nation.

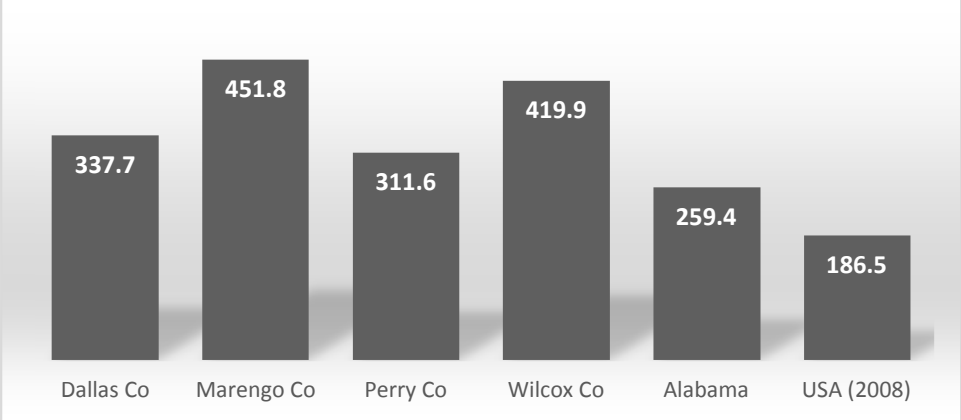

Figure 5. Comparison of heart disease morbidity rates/100,000 population, 2010. Adapted from "County Health Profiles, 2010" by Alabama Department of Public Health. (2011). http://www.adph.org/healthstats/assets/C2013.pdf. & from "Health Data, 2012" by U.S. Centers for Disease Control. 2013. http://www.cdc.gov/diabetes and prediabetes

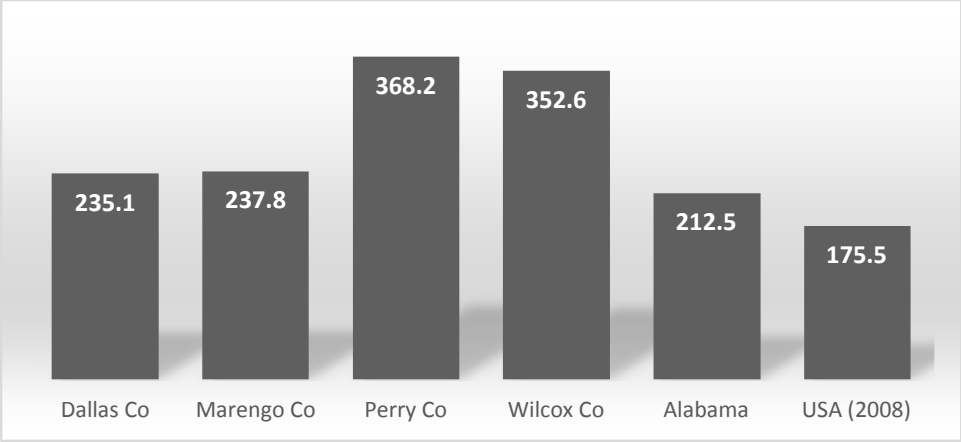

Figure 6. Comparison of cancer morbidity rates/100,000 population, 2010. Adapted from "County Health Profiles, 2010" by Alabama Department of Public Health. (2011). & "Health, United States, 2013" by U.S. Centers for Disease Control. 2013. http://www.cdc.gov/nchs/data/hus/hus13.pdf.

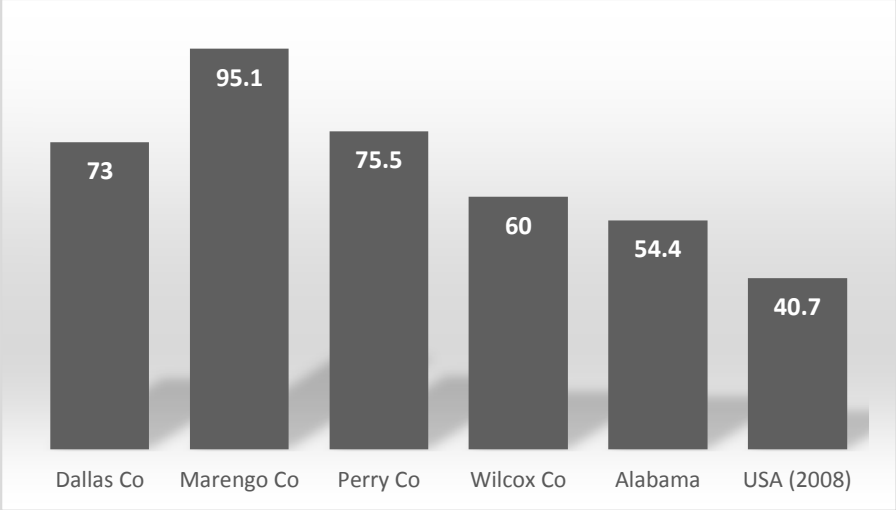

Figure 7. Stroke morbidity rates/100,000 population, 2010. Adapted from County Health Profiles, 2010 by Alabama Department of Public Health. 2011. & "Health, United States, 2013" by U.S. Centers for Disease Control. (2013). http://www.cdc.gov/nchs/data/hus/hus13.pdf.

Clinical contributors to poor health in rural areas.

Diabetes, hypertension, and obesity are among the clinical factors that contributed to mortality rates. In almost all cases, rates of diabetes, hypertension, and obesity in the subject FQHC organization's service areas were higher than the state and national rates.

Only the obesity rate for the nation was higher than the rates of two of the counties served by the subject FQHC organization.

For the year 2011, rates for diabetes were higher in the subject FQHC organization's service area than in the state of Alabama and the nation. The service area rates (Figure 8) ranged from 16.4% to almost 19.8%. In comparison, the rate for the state of Alabama was 12.7 %, and the national rate was 6.9% for the nation (CDC, 2014). There are direct relationships between diabetes and heart problems, stroke, kidney disease, and blindness. Duncan and Memon (2012) found that rural Alabamians need to be more literate about diabetes. Salanitro et al. (2011) observed that the cost of self-test kits and inability to keep appointments prevent rural patients from controlling diabetes.

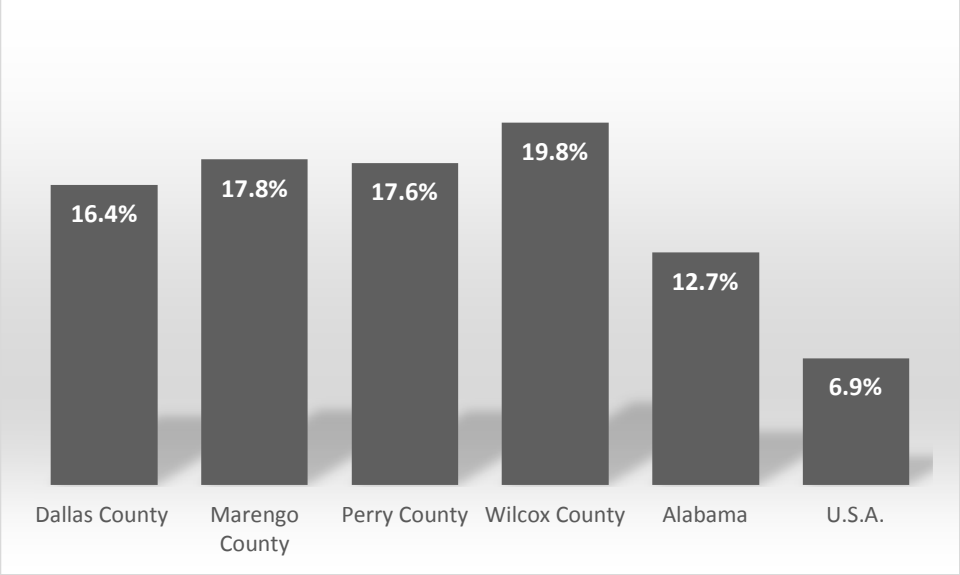

Figure 8. Diabetes rate comparison, 2011. Adapted from "Diabetes data and trends" by U.S. Centers for Disease Control. (2014). http://www.cdc.gov/diabetes/atlas/countydata/atlas.html.

Salintro et al. (2011) observed that patient complexity influences the performance ratings of physicians who serve rural diabetic patients. Due to sociodemographic, clinical, and patient behavior patterns, the physicians who serve rural diabetic patients

tend to receive lower performance ratings than the physicians who serve urban patients. Many rural patients are poor with limited transportation. They cannot afford the cost of the glucose self-test kits that are necessary to control diabetes, and the patients find it difficult to keep medical appointments, thereby negatively affecting the physician's performance rating. In addition to diabetes, rural doctors also have a hard time controlling hypertension.

Controlled hypertension is a quality measure established by HRSA for its grantees. The goal is for each person diagnosed with high blood pressure to demonstrate a blood pressure level that is less than 140/90 on their subsequent visits to clinics (HRSA, 2013). In 2013, controlled hypertension rates for patients of the subject FQHC organization were lower than the rates for other state and national grantees (Figure 9). Rigsby (2011) found that changes in lifestyle could improve hypertension in African American adults. Hypertension and obesity, which is prevalent among rural populations, are directly related.

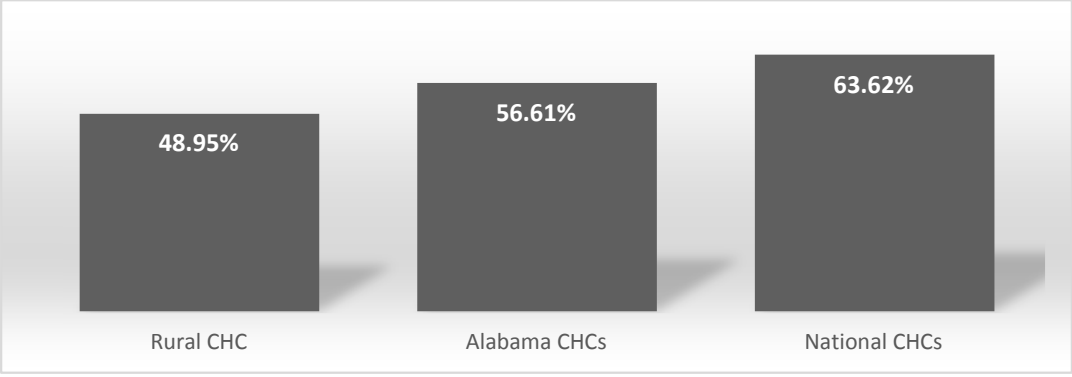

Figure 9. Percentages of controlled hypertension, 2013. Adapted from "Universal Data System, 2013" by U. S. Health Resources and Services Administration. (2013). https://grants2.hrsa.gov.html.

Obesity has become a serious health problem throughout the U.S. and is more of a problem in rural areas than in urban areas. Seal and Chandler (2010) found that obesity,

diet, and nutrition problems have worsened over the past twenty years. The CDC ranked heart disease and obesity as the leading causes of death in the U.S. Patients in rural areas have higher obesity rates than those in urban areas, and numerous elderly rural patients suffer from dietary problems. Non-Hispanic Blacks have the highest rate of obesity and adults with higher incomes are more obese than those with lower incomes (CDC, 2012). Seal and Chandler also noted that obese patients miss more time from work and require more medical attention than patients who are not obese. Hospital spending on obesity is increasing, and obesity-related health care is costing the nation more than $100 billion annually.

Seal and Chandler (2010) identified several causes of high obesity levels in rural areas. Rural residents consume more fats and calories than urban residents, and rural youth are less active than urban youth. People who watch television tend to snack more, see commercials that encourage the consumption of unhealthy foods, and are less physically active. Other barriers to rural weight management include the lack of exercise, nutritional education, and access to nutritional services. Massey et al. (2010) found that lower levels of physical activities and higher levels of physical isolation contribute to higher rates of obesity amongst rural residents than with urban residents.

Americans are spending less time participating in physical activities and more time watching television, which may be influencing American children to make poor food choices. A content analysis showed that food is the most advertised product during children's television programs (Davison, Jurkowski, Li, Kranz, & Lawson, 2013). Most of these advertisements promoted fast food and highly sweetened products. Davison et al. (2013) found positive correlations between the amount of time that children watch

television, the frequency of children's food requests, and the amount of those specific foods found in the house. As mothers watch more television, they are more likely to comply with her children's request for advertised foods (Davison et al., 2013).

In 2014, Alabama had the eighth highest adult obesity rate in the nation (Trust for America's Health, 2014). Data from the Robert Wood Johnson Foundation showed that for the year 2014, the counties served by the subject FQHC organization had obesity rates that were even higher than that of Alabama (Figure 10). Just as patients served by the subject rural FQHC organization are experiencing higher rates of mortality, diabetes, hypertension, and obesity, they are also facing more non-clinical health challenges than urban patients.

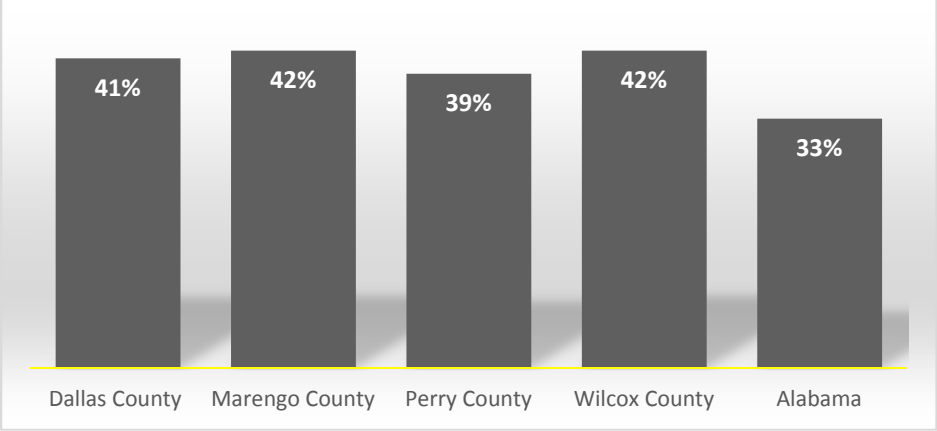

Figure 10. Obesity rate comparison, 2014. Adapted from "County health rankings and roadmaps" by Robert Wood Johnson Foundation. (2014). http://www.countyhealthrankings.org/app/alabama/2014.

Non-clinical contributors to poor health among rural patients.

In addition to the clinical contributors to poor health, nonclinical factors, such as environment, health education, poverty levels, culture, and access to health care, also affect patient health. Health education is a measurement of the patients' overall level of knowledge and awareness about the factors that impact their health. Poverty levels are

determined by using the latest U.S. Federal Poverty guidelines. Culture includes the beliefs, behaviors, and practices of rural patients. Access includes the number of medical and dental providers in the target area, as well as the patients' ability to travel to and from the providers' locations (Jackson, 2012).

The number of people per provider is an indicator of access to health care in each service area. Except for primary care providers in Dallas County, the counties served by the subject FQHC organization have higher population per provider rates than that of the state of Alabama (Table 1). Limited public transportation along with relatively fewer households with automobiles make it difficult for rural residents to get to the doctor. In 2000, 8.5% of Alabama's rural households lacked automobiles, compared to 8.1% of the state's urban households (Office of Primary Care and Rural Health, 2007).

Table 1

Population per Provider Comparison, 2014

Provider Classification	Dallas County	Marengo County	Perry County	Wilcox County	Alabama
Primary Care	1,494:1	2,587:1	5,187:1	2,871:1	1,612:1
Dental	3,062:1	4,080:1	3,394:1	5,716:1	2,308:1
Mental Health	3,897:1	20,401:1	10,181:1	11,431:1	1,827:1

Notes: From "County health rankings and roadmaps" by Robert Wood Johnson Foundation. (2014). http://www.countyhealthrankings.org/app/alabama/2014.

Relatively high unemployment, high poverty, and low education levels contribute to health disparities in the target area served by the subject FQHC organization (Robert Wood Johnson Foundation, 2015). In 2014, the unemployment rate in Wilcox County was more than twice the rate for Alabama, while the percentage of children living in poverty in Dallas County was more than twice the state rate. In three of the four counties served by the subject FQHC organization, the percentages of people with some college

education were less than the state rate (Table 2). Washington (2010) found that the lack of health education and awareness amongst African-American women in Alabama has contributed to their having the highest cardiovascular death rate of all demographic groups in the state. Most of the women were unaware that diabetes and cholesterol are predictors of hypertension.

Table 2

Unemployment, Poverty, and Education Comparison, 2014

	Dallas County	Marengo County	Perry County	Wilcox County	Alabama
Unemployment Rate	13.7%	9.4%	12.9%	16.4%	7.3%
Children in Poverty	60.0%	36.0%	51.6%	51.2%	28.0%
Some College Education	43.4%	55.0%	36.2%	32.9%	57.4%

Notes: From "County Health Rankings and Roadmaps" by Robert Wood Johnson Foundation. (2014). http://www.countyhealthrankings.org/app/alabama/2014.

Improving FQHC Performance

The literature on FQHC organizations addresses a broad range of performance issues, some of which directly impact financial performance. In a review of 51 articles on FQHC organizations, I found that collaborative outreach, technology, and Medicaid policies account for 72.5% of the factors that affect FQHC performance (Figure 11). Other factors include Patient Centered Medical Homes (PCMH), economics and financial principles and ratios, human resource management (HRM), environmental factors, governing boards, and the federal universal data system (UDS).

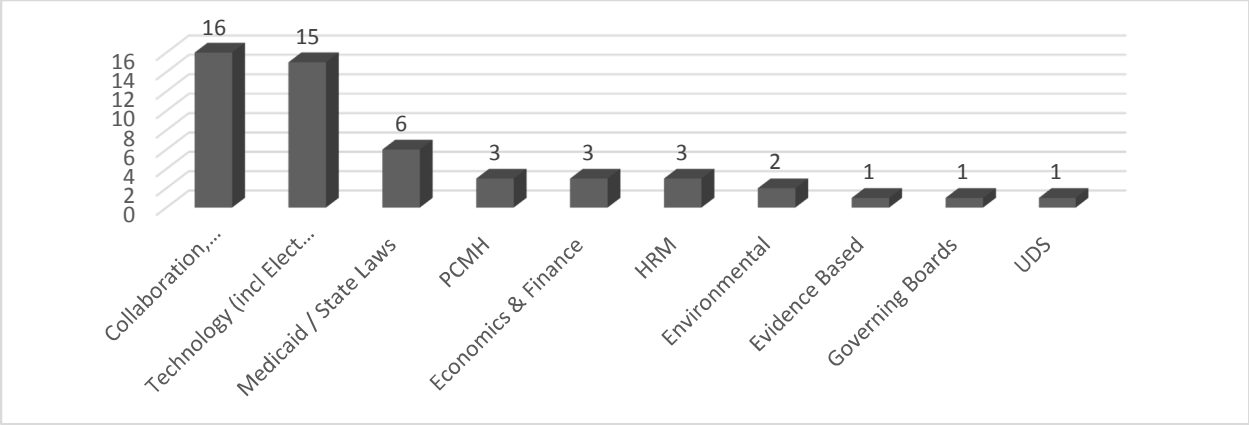

Figure 11. Things that affect FQHC performance.
Based on the analysis of 51 studies; PCMH is an acronym for Patient Centered Medical Home; HRM is an acronym for Human Resource Management

Collaboration, and community outreach.

Health care networks enable FQHC organizations to expand their scope of services, with little or no incremental spending. Alliances with hospitals, colleges, universities, specialty medical providers, key community-based and faith-based organizations, and other FQHCs allow participating organizations to do more with less, while offering a more holistic array of services to patients. Santilli, Carroll-Scott, and Ikovics (2016) used an effective community organizing effort to complete a reliable, comprehensive health needs assessment in New Haven, CT. Jones and Ku (2015) found that many health centers located near each other would better serve patients through integration of services. McNeill et al. (2014) used a community-based approach to increase treatment adherence and awareness amongst a high risk African American population in Mississippi. Isringhausen, Van Derweilen, and Vanderbilt (2014) found that collaborations between FQHC organizations and dental colleges have the potential for improving patient access and dental health outcomes, and for enhancing the education of dental students. Frieden (2014) found that organizations and coalitions should use

evidence-based innovation, a technical package of evidence-based interventions, real-time performance management, partnerships and coalitions between private and public organizations, effective communication between decision makers, and political support to help ensure effective public health programs. Ely (2015) observed that nurse-managed clinics improved the quality of health outcomes and reduced the costs associated with serving patients with complex diseases. Stipelman, Dinkins, Pruhs, Serr, and Young (2014), found that collaboration between AmeriCorps case workers and an FQHC helped to improve access to health services for children who qualified for Medicaid/CHIP coverage.

There are several examples of collaborative efforts between FQHC organizations and specialty providers to improve access to cancer and diabetes treatment services. Allen et al. (2014) determined that FQHC collaborations with external organizations help to eliminate barriers to cancer prevention. Rodriguez (2012) found that community support groups in Tallahassee, FL developed a program called WeCare to help uninsured patients meet the cost of specialty health care. Gold et al. (2012) developed a collaborative initiative to translate a diabetes improvement program developed in a Health Management Organization (HMO) to an FQHC setting. Ramirez-Zoefeld, Jean-Jacques, Sanserino, Buchanan, and Baker (2012) recommended that FQHCs should make renewed efforts to reach diabetes patients who have fallen out of diabetes care. Outreach efforts should include more frequent follow-up calls, texting, and use of social media. Friedman et al. (2012) highlighted a partnership between the South Carolina Cancer Prevention and Control Research Network, the South Carolina Primary Health Care Association, and FQHC organizations, using evidence-based approaches to help cancer

patients. FQHC organizations provide primary care services to a wide economic range of patients; can coordinate the services of healthcare networks; and are in a position to initiate community partnerships. FQHC organization must be vigilant in outreach efforts that will build support networks, improve access for patients, and improve profitability.

Technology.

Organizations use technology to execute critical work in a manner that is fast, efficient, secure, and accurate. Although technology represents a huge, dynamic body of knowledge, I will briefly discuss networks, infrastructure, and applications as they pertain to healthcare. A network is a closed-loop, restricted communication system that allows users to analyze, store, and share information with others who have access to the network (Technopedia, 2016). The information can move via copper, fiber optic cabling, and through space. To have access to a network, a user must have connectivity and user privileges. Infrastructure refers to the highway that information travels along from one location or user to another. One user may be able to access information stored on a central server via a copper link from his personal computer to the server. A different user in a remote location from the server may have to access information on the server via a fiber optic connection or via a satellite. Applications are software packages that perform specifics tasks, such as inventory management, accounting functions, patient record functions, or even diagnostic functions. Applications can be either server-based or web-based. Server-based applications are stored on a central server, while web-based applications are stored on a web-site. In either case, the user must have access privileges or user privileges, usually in the form of a password, to be able to access and use the application.

High-tech medical devices, such as electrocardiograms, echo ultrasound devices, and surgical robots may connect to the infrastructure as parts of the technology architecture. In addition to these impressive devices, several key health care applications and technology concepts have evolved over the past 15 or 20 years. Electronic Health Records (EHR), Telemedicine, and Health Information Exchanges (HIE) make up a group of applications and capabilities referred to collectively as health information technology (HIT). These applications, along with the previously designed distance learning technologies and digital medical and dental devices, have opened many opportunities for health care organizations to improve their operational quality and efficiency. Using HIT, health care providers can collect, analyze, and share large amounts of clinical and business information, enabling fast, accurate, and cost-effective diagnoses, treatment, and medical management decisions. These applications also make it possible for patients to have immediate electronic access to their patient records and information.

Through the Health Information Technology for Economic and Clinical Health Act of 2009, FQHC organizations and other providers received financial incentives for adopting approved EHR systems. As providers met implementation phase goals, they received incentives through Medicare/Medicaid (Hsiao, Hing, Socey, & Cai, 2012). The EHR systems generally included two major modules; one for clinical records and the other for related business records. Many physicians, especially the older ones, were resistant to migration away from paper charts to the use of electronic records, which required training and the development of new skills throughout the organizations. As expected, during the transition period, productivity decreased as clinical and administrative personnel struggled to master the new technology. The federal incentive

payments were intended to offset the productivity losses associated with transitioning to the new electronic systems.

Despite the pains of change, EHR systems provide several benefits. Jones and Furukawa (2014) found that FQHC use of EHR systems increased substantially between 2010 and 2012. Hsiao et al. observed that financial incentives were influencing higher rates of adoption of EHR systems by older physicians and FQHC organizations. They recommend that policies should be put in place to help FQHC organizations that are relatively slow in EHR adoption and implementation. Baker et al. (2015) used EHR data to measure colorectal cancer screening rates at FQHC organizations. Btoush, Brown, Fogarty, and Carmody (2015) used data from EHR systems to determine papillomavirus vaccination rates for more than 3,000 low-income, urban adolescent patients. The FQHC organization involved was then able to use the data to initiate a campaign to improve the vaccination rate amongst patients. EHR systems allow for fast analyses of both clinical and business data at FQHC organizations.

Telemedicine is gaining in popularity because it allows for remote, real-time diagnoses and treatment of patients (Gregg, 2014). In Boston, MA, congestive heart failure patients monitored their own weight and blood pressure from home, sending the results electronically to their doctors, who then identified necessary treatments and interventions. Using this program, four nurses could care for 250 patients, reduce readmissions by 44%, and save $10 million dollars per year. Rather than see every patient face-to-face, dermatologists at Kaiser Permanente in San Diego, CA used secured servers to review patient referral information, increasing their productivity by 60% per month. At the University of Massachusetts Memorial Medical Center in Worcester, MA, providers

who remotely support the intensive care unit (ICU) reduced mortality by 20%, decreased time spent in the ICU by 30%, and reduced cost of care (Gregg, 2014). Fortney et al. (2013) found that a collaborative, telemedicine strategy produced more reliable results than the use of local staff when screening for depression at a rural FQHC organization. Although migration to telemedicine requires an initial investment in equipment and provider training, the returns may be more than just financial.

HIEs involve a central server or web site that various providers and organizations can access, primarily for sharing clinical or operational data. A typical HIE may involve a primary care provider, a pharmacy, a lab, one or more specialty providers, and a hospital. Pre-approved patient information can be posted on the exchange and the appropriate providers or organizations with access privileges can then review the information as required. McCullough, Zimmerman, Bell, and Rodriguez (2014) used interviews with providers, staff, and administrators to identify barriers to HIE implementation. Regional barriers include the lack of area exchanges and the ability to find and engage partner organizations within a given geography. Inter-organizational barriers include the lack of strong relationships with other organizations and the inability to achieving the critical mass of users necessary to make the exchange affordable. Intra-organizational barriers include the lack of a technologically compatible EHR system and the inability to integrate the HIE into the organization's workflow.

Providers are using various forms of HIT to improve patient access, quality of services, and to reduce costs. Anker et al. (2011) found that in a network of FQHC organizations serving New York City and surrounding counties, of the more than 74,000 patients, seen between 2008 and 2010, 16% could remotely access their own electronic

patient files. Of the patients with codes, 60% activated the account, and almost half of the patients were regular users. Frimpong et al. (2013) found that although FQHC organizations using HIT achieve higher quality of care results than do the organizations that do not use HIT, FQHC organizations are not using the technology to its full capacity. FQHC implementation efforts should include comprehensive and advanced functionalities, in addition to the basic meaningful use functions.

Medicaid and state laws.

The Affordable Care Act (ACA) was signed into law on March 23, 2010. One of the components of the ACA is a provision that uninsured, low-income populations who cannot afford the premiums quoted by insurance companies listed in the federal or state exchanges would be able to receive Medicaid coverage. Several states, however, elected to not expand their Medicaid programs, with the likelihood that uninsured populations would remain uninsured. In states that did expand Medicaid, FQHC organizations have benefited. Polsky et al. (2015) found that the ACA increased compensation levels for selected Medicaid services and providers to support Medicaid expansion. Although the higher compensation rates ended in 2014, FQHCs could improve appointment availability without increasing patient wait times. Saloner, Polsky, Kenny, Hempstead, and Rhodes (2015) used a ten-state telephone interview process to determine that although physicians accepted new uninsured patients for primary care services prior to the ACA, fees charged to those patients were relatively high. In states that expanded Medicaid eligibility, the ACA decreased the cost of primary health care for low-income adults.

Other factors that affect FQHC performance.

Patient-Centered Medical Home (PCMH) compliance; financial policies; human resource management (HRM); and governing boards are among the other factors that affect the performance of FQHC organizations. In the PCMH, primary care physicians lead teams of service providers who work together to ensure that each patient receives a full array of coordinated care. After interviewing 17 primary facilities in South Eastern Pennsylvania, Cronholm et al. (2013) found that providers struggle to change individual perspectives and organizational culture to one in which the practice sees itself as a proactive partner with patients, rather than a high-volume, patient processing machine. They also found that practices had to redefine roles and responsibilities to support the team-based care concept. Nutting et al. (2009) found that transformation from a traditional healthcare organization to a PCMH involves substantial time and capital investment. The results of the transformation include improved quality of care, however, the financial benefits to the organization are more long term.

HRM involves staffing and other policies and practices that affect people in organizations. Since people are involved throughout heath care and other systems, the quality of HRM affects outcomes in all critical areas. Vermeeren et al. (2014) found that HRM practices directly or indirectly affect an organization's profit margin, the level of patient satisfaction, and employee attendance. Employee attitudes are a critical link between HRM and organizational performance. In a study to understand FQHC staffing strategies, Ku, Frogner, Steinmetz, and Pittman (2015) found that FQHC staffing is determined by the number of providers in a given area, laws that govern nurse practitioners, and patient insurance coverage. Depending upon practice location and types of patients served, FQHC organizations might be able to rely more on nurse practitioners

and other non-physician staff without sacrificing productivity and thus profitability. Fiscella and Geiger (2014) observed that due to the dynamic environment in which FQHC organizations operate, their long-term success is dependent upon their ability to adapt and transform as needed. FQHC organizations must, therefore, engage in effective recruiting and retention tactics.

HRSA holds governing boards directly responsible for the overall clinical, programmatic, and financial results of FQHC organizations. In addition to other requirements, the boards should be staffed to reflect the demographics of the patient population and include professional talent required for the successful operation of the board and overall performance of the FQHC organization (HRSA Nineteen Objectives, 2015). In a study on health care organizations in New York, NY, Mason, Keepnews, Holmberg, and Murray (2013) found that although hospitals had an overrepresentation of physicians and nurses on their boards; clinical professionals were underrepresented on the boards of FQHCs, homecare agencies, and nursing homes. Due to their extensive knowledge of clinical problems, best practices, and quality of care, healthcare professionals could add significant value to governing boards.

As highlighted in the problem statement, FQHC costs for treating patients have been increasing at a higher rate than the compensation that FQHC organizations receive from HRSA. FQHC organizations must, therefore, generate revenues from patient services and other sources to achieve and maintain profitable operations. Sedivich-Fons (2014) found that financial information should be used to compliment quality information in FQHC organizations, and recommended that quality management systems (QMS) should integrate financial indicators and financial data into healthcare quality programs.

Islam, Semeen, and Farah (2013) found that the use of liquidity and profitability ratios differentiate profitable enterprises from those that suffer losses. Faello (2015) warns, however, that financial ratios are indicators of past performance, and that accounting people should take the time to understand the causes and impacts of outliers when analyzing financial ratio data. Overall, FQHC organizations must include people with strong business analysis and planning skills to help improve profitability.

HRSA Nineteen Program Objectives

FQHC organizations provide health services to designated, underserved populations and geographic areas (HRSA, 2014). To govern FQHC organizations, HRSA uses 19 program objectives, which address needs, services, management, finance, and governance. The program objectives are based on the Health Center Program Statute—Section 330 of the Public Health Service (PHS) Act, as well as program and grant regulations for community and migrant health centers. The program objectives are designed to ensure successful execution of the health center programs. Ongoing HRSA funding is contingent upon compliance with the program objectives, all of which are designed to help underserved populations. Several of the program requirements also have implications for profitability.

HRSA requires FQHC organizations to complete a needs assessment, which enables the FQHC organizations to understand and document the needs of the populations they serve. The needs assessment should include information on the number of primary care doctors available to the total population; percentages of uninsured patients and patients below 200% of poverty; the population's access to providers who accept Medicaid; and the rates at which key conditions and diseases exist within the

population. The needs assessment helps organizations to design programs that meet the needs of its target population. Depending upon how well and frequently it is done, the needs assessment can have a positive impact on profitability.

FQHC organizations must either provide or arrange for patients to receive certain required services. The organizations may also provide additional services that help the target population. These required and additional services affect profitability because they affect both cost and revenues. FQHC organizations are required to provide preventive health screenings and disease management services to all patients, regardless of the patients' economic status. Since HRSA does not provide adequate compensation for the delivery of these services, the impact to profitability may be negative. FQHC organizations can, however, provide other services that may generate more revenues and profits than the standard required services.

Staffing has a strong impact on profitability. FQHC organizations must maintain a fully staffed, affordable management team to meet needs of the organization. The management team might include a CEO, chief medical officer (CMO), chief financial officer (CFO), chief operations officer (COO) and other key positions. The management staff's effectiveness directly impacts the FQHC organization's profitability and other performance areas. Considering the cost of clinical and professional personnel, effective staffing, either through direct hires or through outsourcing, directly impacts both spending and revenues. Effective utilization of nurse practitioners as well as technology and accounting consultants can improve profitability. Overstaffing can result in higher than necessary expenses, while understaffing can impact the organization's ability to deliver patient services.

FQHC organizations must provide services during the hours and at locations that meet the needs of the populations they serve. If the hours of operation and locations of the centers are aligned with the needs of the target population, the FQHC organization will be accessible to a relatively large number of patients. If the organization's hours and locations are not aligned with patient needs, however, they will have fewer patients and patient visits, and may not generate adequate revenues to cover the operational expenses.

To ensure continuity of care, FQHC doctors must be able to admit patients to referral hospitals. The FQHC organizations must arrange for hospitalization, discharge, and patient tracking. The admitting physician may use a hospitalist to review the patient's progress during hospitalization. This requirement is an opportunity to increase revenues and profitability.

FQHC organizations must exercise appropriate authority over all contracted services, insuring that the performance of sub-contractors meets the organization's requirements. Sub-contractor performance directly impacts profitability through the amount of value that it provides to the FQHC organization. The relative cost, value, and impact of the services can help or hurt profitability.

FQHC organizations should work with other health care providers in the local service area, ensuring continuity of care for all patients. To obtain grant funding, HRSA requires FQHC organizations to obtain letters of support from other FQHC organizations. Collaborative relationships have a positive impact on profitability because they increase the number of patients served and the related revenues.

FQHC organizations must maintain accounting and internal control systems that are appropriate for the size and complexity of the organization. The internal control

systems have a direct impact on profitability and should include policies and procedures used by the organization to help protect the organizations' assets. The systems must reflect generally accepted accounting principles (GAAP) and ensure adequate separation of duties to protect assets and avoid conflicts of interest. Per federal audit requirements, FQHC organizations must also ensure that annual independent financial audits are properly completed, and that corrective plans are submitted to address all reported material weaknesses, findings, and conditions.

FQHC organizations must develop a detailed, annual budget, which identifies federal and non-federal revenues and expenses. The budget must be aligned with the scope of services and number of patients proposed within a given year. The budget is a key planning document, with major implications for the FQHC organization's profitability performance.

FQHC organizations must have systems in place to maximize collections and reimbursements for providing health care services. The system should include documented billing, credit, and collection policies and procedures. The system must ensure that Medicare, Medicaid, and other applicable public or private third party payers are appropriated billed and that the fees are collected.

The governing boards for FQHC organizations provide oversight of the entire organization. The board responsibilities include holding monthly meetings; approving the organization's grant applications and budgets; the selection and management of the health center CEO; approval of services and the health center's hours of operations; as well as ensuring that the organization meets annual and long term goals. The board participates in the development of the organization's strategic plan, mission, and by-laws.

The board monitors patient satisfaction, organizational assets, financial performance, and approves organizational policies.

The health center governing board represents the demographic composition of the patients served by the FQHC organization and is required to have between 9 and 25 members, depending on the complexity of the organization. The board should be composed of people with diverse, relevant backgrounds. The board is in the position to play a critical role in the FQHC organization's profitability performance.

HRSA requires FQHC organizations to provide a means for patients to speak to a live doctor or nurse during the times when the clinics are closed. This requirement has a negative impact on profitability because the FQHC organizations must pay nurses or doctors overtime or provide them with some other form of compensation. The FQHC organizations may use a medical answering service, which is also an additional expense. Typically, clinical personnel are hesitant to give advice over the phone, without actually seeing the patient, and consequently many after-hours callers are referred to hospital emergency rooms. Although this requirement represents an additional expense and negative impact to profitability, it also helps to maintain the number of current patients and could lead to growth in the number of patients served.

FQHC organizations cannot deny services to patients, even if the patients are unable to pay for those services. FQHC organizations must provide discounts to patients with annual incomes at or below 100% of the Federal poverty guidelines. For patients with incomes between 100% and 200% of poverty, a sliding fee scale is used to determine the costs of services. Although HRSA provides grant funding to help offset the costs incurred by the FQHC organizations when they treat uninsured, low-income

patients, the HRSA compensation is typically not enough to cover the cost of treatment. Although patients benefit from after-hours coverage and sliding fee discounts, these factors tend to hurt the overall profitability of FQHC organizations. Other requirements, such as the development of a quality assurance and improvement plan, program data reporting, and conflict of interest policy, also impact profitability.

UDS Report

The Bureau of Primary Health Care uses the UDS report to track, monitor, and compare the performances of all FQHC originations. The report includes information on patients, staffing, the quality of care, costs, and revenues. The number of patients and patient visits; scope of services provided; types of patients; patient insurance coverage; and other patient demographics directly impact profitability. FQHC organizations that offer more services and serve more special populations receive HRSA and Medicaid compensation at higher rates than FQHC organizations that provide relatively fewer services to fewer special populations.

The insurance status section of the UDS report identifies the number and percentages of patients who are uninsured, on Medicaid/CHIP, Medicare, and private insurance plans. This information is referred to as payer mix and has a major impact on profitability. FQHC organizations receive higher compensation for Medicare and Medicaid patients than they receive for uninsured patients. Consequently, a good payer mix has a relatively low percentage of uninsured patients, and a higher percentage of Medicare and Medicaid insured patients. Private practices typically do not accept uninsured patients, so the payer mix for private practices consists of only privately insured, Medicaid, and Medicare patients. FQHC organizations cannot turn patients

away due to their inability to pay, yet HRSA compensation for serving uninsured patients has not kept up with the cost of treating uninsured patients. FQHC organizations with a high percentage of uninsured patients are at a disadvantage when it comes to profitability performance.

Staffing is another component of the UDS report. Provider compensation, including fringe benefits, tends to be the single most expensive line item in the FQHC organizational budget and has the potential of substantially impacting profitability. To help profitability performance, some FQHC organizations use nurse practitioners, physicians' assistants, and contract physicians instead of full time doctors.

The UDS report includes critical financial indicators that can help FQHC organizations to achieve profitability. Cost per patient and cost per patient visit information can be used to identify activities that can be eliminated or reduced. Revenue per patient and revenue per patient visit performance data can prompt FQHC organizations to identify opportunities to increase revenues. From the UDS report performance in the areas of services provided, populations served, payer mix, staffing, and financial indicators are important for improving profitability in FQHC organizations. These items will be included in the profitability improvement model, along with key items from other sources.

Lean Six Sigma

In addition to ST, other performance improvement models include plan-do-study-act (PDSA), lean concepts, and six sigma. Shewhart developed the plan-do-check-act (PDCA) model, which Deming renamed to the PDSA model for organizational performance improvement (Kubis & Cicarelli, 2012). Mr. Toyoda and Dr. Ohno of

Toyota Motors developed lean manufacturing to eliminate wasteful activities from operations (Towill, 2010). Motorola Corporation developed the six sigma model to reduce defects and process variation. Six sigma evolved from the work of Dr. Shewhart, a statistician who developed statistical process control to improve process quality (Kubis & Cicarelli, 2012). The lean and six sigma models were later combined to form lean six sigma (LSS) (Assarlind et al., 2013).

Shewhart, Deming, Juran, Feigenbaum, Crosby, Ishikawa, Taguchi, and others made names for themselves in manufacturing industries. These individuals developed techniques to improve process and product quality, customer satisfaction, employee morale, and financial results (Jackson, 2010). Some contributors combined various approaches making further quality improvements in organizations. Dr. Deming combined statistical process control and empowerment to help develop self-managing, quality teams (Radziwill & Benton, 2013). Other engineers and consultants combined lean tools and concepts with six sigma to develop LSS to improve both process efficiency and quality (Assarlind, Gremyr, & Blackmon, 2013). There are numerous examples of how health care organizations are using the LSS tools to improve knowledge and information management, improve financial performance, reduce patient wait-time, and to reduce medical errors.

Towill (2010) described LSS as a combination of tools and concepts that can be used to improve process efficiency and reduce process variation. Engineers, consultants, and improvement teams use lean principles to reduce waste in a process, system, or organization (Towill, 2010). Common forms of waste include defects, overproduction, wait-time, excess inventory, motion, and misplaced talent. Defects are results that do not

meet standards or expectations, are costly, and may even pose physical threats to people. In health care, incorrect diagnoses or treatments can result in temporary and permanent harm to patients, open the door to lawsuits, and increase insurance costs. Overproduction is a form of waste that involves producing more than is necessary. Waiting time is a form of waste in health care organizations. Poor scheduling increases waiting time and can result in loss of patients and revenues, as well as inefficient use of resources. Unnecessary motion is also a form of waste. Processes and procedures that involve more steps and motion are less efficient than processes that involve fewer steps and less motion to accomplish the same results. One of the greatest forms of waste is misplaced talent within an organization. Qualified, capable people within an organization may not be properly assigned, placed, or challenged. This results in low morale, which affects employee productivity, costs, and the generation of revenues (Towill, 2010).

Assarlind et al. (2013) emphasized that six sigma focuses on process quality and encompasses numerous statistical tools for identifying and reducing process variation. The six sigma application model is called DMAIC, which is an acronym for design, measure, analyze, improve, and control. In the definition phase, a project team identifies goals, the problem or opportunity, and the entire system, and sub-systems. In the measurement phase, improvement teams determine current process performance and design a method for tracking performance as the team implements improvement steps. In the analysis phase, teams study performance data and work to determine the cause or contributors the initial problem. In the improvement phase, teams design and implement action plans to eliminate or control the sources of defects. In the control phase, teams may develop or revise processes, policies, and procedures; implement employee training;

and use statistical process improvement charts to maintain process improvements. (Assarlind et al., 2013).

LSS applications in healthcare.

The current literature on quality and process improvements in health care emphasizes LSS, along with other improvement methods. McFadden, Lee, Gowen, and Sharp (2014) found that organizations can use six sigma and continuous process improvement to acquire, share, and apply knowledge and information. Process improvement teams are applying LSS tools and concepts to key processes to improve financial performance in their organizations. Several researchers have achieved favorable results from the application of LSS in health care organizations. Toledo et al. (2013) found that healthcare organizations are using LSS tools to reduce the time that patients remain in the hospital following liver transplants. Counte, Wang, Pei, and Chang (2013) observed that health care providers in the United States and Taiwan are using LSS and other continuous improvement tools to improve clinical and operational results. Kellogg (2010) investigated the financial benefits of applying LSS methods to acute care hospitals, and Levtzow and Willis (2013) found that an academic medical center was using LSS to reduce billing errors. Mozammel and Mapa (2011) observed that LSS can be used to improve the utilization of nursing personnel in a multi-shift university hospital. Hayes, Fitzgerald, and Watt (2014) combined lean and ST to reduce processing costs in a pathology lab.

Bleich (2013) used LSS to reduce the time patients spent waiting in the emergency room. He also achieved a six sigma performance level in one of the laboratories at the University of Oklahoma. The team improved results in patient wait

time and provider utilization. Curran and Trotten (2011) studied hospitals that used LSS to improve key performance results, and Hernandez and Mustafa (2010) examined multiple uses of LSS at the Mayo Clinic.

LSS in U.S. hospitals and at the Mayo Clinic.

Curran and Trotten (2011) found that U.S. hospital staffs used LSS tools to improve quality, patient safety, and financial performance. The number of deaths from medical errors is estimated to be as many as 98,000 per year. Curran & Trotten recommended that hospital boards and staffs put more effort into measuring and improving re-admission rates and the number of infections that patients acquire during their hospital visits. Throughout the U.S., most hospitals use a fee-for-service approach, which emphasizes revenues instead of quality services (Curran & Trotten, 2011).

Hernandez and Mustafa (2010) found that clinical leaders and systems engineers at the Mayo Clinic used LSS to improve quality, eliminate waste, and improve patient cycle time. These engineers were proficient at applying LSS tools, concepts, and methods in healthcare processes. The management staff at the subject CHC organization includes a person who is trained and certified in LSS.

Global applications of LSS.

Studies completed in India, Thailand, and the U.S. demonstrate the global application of LSS. As in the U.S., economic progress in India has contributed to an increase in cardiovascular disease, diabetes, and obesity. Various nations are using LSS tools to improve health delivery processes and services, regardless of the economic status of a population. Varkey and Kollengode (2011) found that healthcare providers in India are using LSS to improve health care efficiency and quality. Varkey and Kollengode

recommended that professionally diverse teams should implement process improvement initiatives to identify improvement opportunities, assess current and optimal practices, and to close the gap between current and optimal performance. Gowen, McFadden, and Settaluri (2012) compared results from LSS and continuous improvement in U.S. hospitals. Pononake (2014) found that hospitals in the ASEAN Economic Community in Thailand are using six sigma to establish core competencies. Counte et al. (2013) found that diverse global cultures are adapting LSS principles.

Comparison of improvement models.

There are several quality improvement application models available, and organizations may have a difficult time choosing a model to use. Consequently, studies have been done that compare application models or methodologies. Vanderlip, Cerimele, and Monroe-DeVita (2013) compared the assertive community treatment (ACT) model and the patient-centered medical home model to determine which was more effective for improving patient health. Although the two models are similar, the ACT model lacks components for supervising medical care and for improving the management of chronic diseases, which the patient-centered medical home contains.

Watson (2012) analyzed the Deming Cycle, the Hewlett Packard model, ISO9000, LSS and the Kano model. Watson found that quality management has evolved to the development of a quality attitude demonstrated throughout the entire organization. Lei and Jolibert (2012) compared three models for achieving quality, satisfaction, and patient loyalty at six public hospitals in Shanghai, China. The researchers found that patient satisfaction, not simple quality improvement steps, determined patient loyalty. Lei

and Jolibert recommended soliciting feedback from patients to identify important components of health care services.

Bossmans et al. (2012) compared the results of problem-solving treatments (PST) administered by nurses to the results of usual care (UC) administered by primary care practitioners to mental health patients. Although there was no significant difference in clinical outcomes, the PST approach was more cost-effective than the UC approach. The comparison of improvement methods did not identify one superior method, but rather demonstrated the need to integrate or combine quality improvement methods.

Selection and integration of improvement methods.

Organizations are selecting and integrating various methods for quality improvement. Although some organizations prefer one single approach, other organizations are drawing from several available tools, concepts, and methods to improve results. Gershengorn, Kocher, and Factor (2014) found that intensive care units used checklists, statistics, lean tools, and Kaizen techniques to improve the quality of services.

Organizations are using quality improvement models to improve both clinical and business results. Burney (2010) observed that the U.S. State Department used ISO9000 to improve the quality of health services at U.S. embassies around the world. The State Department monitored improvement progress using quality of care indicators such as obesity levels, diabetes care, hypertension, cancer screening results, immunization results.

Polk (2011) recommended a combination of LSS and innovation to improve health care processes. Management should use LSS to simplify and standardize processes. For progress and competitive advantage, management should later use

innovation to disrupt the standard processes and achieve break-through results. When considering long-term process improvement, the two approaches are complimentary. Organizations must be able to identify when it is appropriate to disrupt the operations that they worked so hard to stabilize. The proliferation of computing technology is a good example. The personal computer process disrupted the mini-computer process, which had disrupted the mainframe computer process. In health care, The Ottawa ankle rules disrupted x-ray technology for treating ankle sprains (Polk, 2011).

Another example of an integrated approach for quality improvement involves the Malcolm Baldrige award criteria and LSS. Murphree and Vath (2011) found some health care organizations that used LSS to improve clinical procedures and outcomes had also used the Baldrige award assessment methodology to sustain good performance results after completing the improvement project. Organizations select, integrate, and apply various methods and models to improve quality results and financial performance.

Improving financial performance in health care.

Clinical and operational activities impact revenues, expenses, and profits. The application of LSS quality principles can lead to financial improvements in the health care industry. Poor quality is costly, resulting in lawsuits and loss of patients. Carlson, Amirahmadi, and Hernandez (2012) found that pathology labs were using LSS and industrial engineering to reduce costs and improve quality. They observed that quality improvement initiatives and financial performance were connected, estimating that a dissatisfied patient will tell seven other people while a satisfied patient will tell three others about his or her experience. Hospitals are using LSS to improve financial results.

Levtzow and Willis (2013) used LSS principles to reduce the cost of laboratory billing defects from $10,431 to $3,485 per month at a university hospital. Plonien (2013) studied a rural hospital that used LSS to increase its collections of Medicare charges. Kellogg (2010) found that acute care hospitals were discovering the financial benefits of using quality teams to implement LSS. Although the financial impact studies took place in hospitals, the subject CHC organization may be able to use some of the same tools, concepts, and models to improve financial results.

Literature Review Summary

In this literature review, I examined ST, specific strategies that FQHC organizations are using to improve performance, the HRSA Nineteen Program Objectives, the federal UDS report, and LSS. For ST, I presented information on how FQHC organizations are using ST overall and how various countries are using ST to finance health care. I also provided information on how health care organizations are using ST to address complexity within their respective organizations and between the organization and its environment. I then examined HRSA and rural patients, two major groups in the environment that affect the subject FQHC organization.

Through the examination of strategies that FQHC organizations are using to improve performance, I found that the organizations are relying on collaboration and community outreach to build necessary support networks. I also found that FQHCs are using technology specifically EHR and various telemedicine applications to improve clinical and financial results.

The examination of LSS included several different applications of LSS in health care. I presented information on studies performed in hospitals and at the Mayo Clinic. I

also provided information on studies that span various nations. I compared various quality improvement models, including LSS, and presented information on how some organizations are integrating or combining different approaches to achieve better results.

The literature review highlighted a substantial amount of information on what health care providers, including FQHC organizations, are doing to improve performance. There is a gap, however, on how an FQHC organization can overcome a history of financial losses and achieve profitability. The literature review is a key source of information that I later used to develop the FQHC profitability model. In Chapter 3, I describe the research design to determine opportunities for improving profitability at the subject FQHC organization.

Chapter 3: Research Method

Introduction

The purpose of this qualitative case study was to discover opportunities to improve financial performance at the subject FQHC organization. To help achieve the purpose, I proposed a profitability model consisting of factors that are critical for the financial success of FQHC organizations. I then assessed the subject FQHC organization's performance using the profitability model. This chapter includes information on the research design and rationale, the role of the researcher, the methodology, issues of trustworthiness, and a summary.

Research Design and Rationale

The primary research question was: What are the opportunities for improving profitability at the subject FQHC organization? Since profitability is a function of revenues and expenses, additional related questions were: What are the items that impact revenues and expenses and What can be done to optimize the balance between revenues and expenses in the subject FQHC organization? In this study, I used a qualitative case study approach because it facilitated the assessment of a bounded system with interactive components. After consolidating information from various data sources, I proposed a model for improving profitability. I then assessed the subject FQHC organization's performance per the proposed model and identified opportunities for profitability improvement. For example, the profitability model includes the use of an effective EHR system as a critical element for FQHC profitability. However, since the comparison revealed that the subject FQHC organization did not have an effective EHR system in

place, the implementation of an effective EHR system was identified as a means of improving profitability.

Profitability Model

To identify factors that affect profitability in FQHC organizations, I used information from the literature review, relevant responses to an employee survey, and feedback gathered from interviews with four CEOs. Information in journal articles addressed improving clinical outcomes, leveraging technology, improving organizational culture, and reducing operational expenses. There were no comprehensive recommendations on how a FQHC organization experiencing financial losses could recover and become profitable. The literature included The HRSA Nineteen Objectives. This document contains a section on management and finance, which is designed to help FQHC organizations achieve and maintain profitability (HRSA, 2014). Specific requirements in the section include maintaining a management staff that is capable of handling the operation, maintaining appropriate oversight over all contractual services, establishing and maintaining effective relationships with other healthcare providers, maintaining effective accounting and internal controls, maintaining a system to effectively execute billings and collections of revenues, developing and using an approved budget, and maintaining effective performance reporting systems. Overall, the journal articles and the HRSA Nineteen Objectives were good sources of information from which the profitability model was developed.

In addition to the literature, I used information from employees and other CEOs to develop the profitability model. The subject FQHC organization performed annual employee surveys, designed to solicit ideas for improving the subject FQHC

organization's general operations and culture. I did not question any employees to obtain their feedback; however, when I reviewed the archived survey results for 2012, I found that several employees provided information that was helpful to profitability improvement. In 2015, I used unstructured interviews to obtain additional information for the profitability model from the CEOs of four FQHC organizations in the state of Alabama. The scope of the literature review encompassed national FQHC organizations. The CEO feedback represents profitability improvement ideas from a sample of four of the FQHC organizations located in the state of Alabama. The employee feedback represented a local organization perspective on how to improve profitability. Consequently, the profitability model was based on national, state-level, and local ideas, strategies, and perspectives.

Subject FQHC Organization's Performance

To determine the subject FQHC organization's performance, I reviewed archived documents, prepared by people both internal and external to the subject FQHC organization. The internally prepared documents included board meeting minutes, staff meeting minutes, quality team minutes, monthly financial reports, annual UDS reports, monthly EHR reports, and my research observations. The external documents include annual reports from independent financial auditors, reports from HRSA technical assistants, and the annual UDS reports.

Independent financial auditors completed annual assessments of the subject FQHC organization's financial system, financial performance, and patient files. The auditors released reports based on generally accepted accounting practices, highlighting material weaknesses that directly impact financial performance. HRSA Technical

assistance auditors assessed the FQHC organization's policies, procedures, and compliance with the HRSA Nineteen Program Objectives. I used information from both the independent audit reports and the HRSA technical assistant reports to identify opportunities to help improve the subject FQHC organization's profitability performance.

The federal UDS report is published annually and compares the subject FQHC organization to the aggregate of all state and national FQHC organizations. The report tracks patient demographics, services provided, staffing, clinical outcomes, and chronic disease management performance. The report also tracks cost and revenue per patient and uses financial ratios to help monitor financial performance. I used the UDS report to identify relationships between profitability and other performance areas, such as staffing, payer mix, and patient demographics.

I summarized and analyzed information and data from the internally and externally prepared documents to gain a more accurate understanding of the subject FQHC organization's actual performance. I used several data sources to help establish the internal validity of the information. I found one major inconsistency between data sources for the year 2014. For the category of profit per patient, the amount listed in the UDS report was substantially higher than the amounts calculated from the annual financial reports and EHR reports. Further analysis revealed that a new employee had submitted inaccurate data into the UDS system. I also found cause and effect relationships between some data sources.

Setting and Organization

I selected the subject FQHC organization because of its rural setting, its relatively poor financial performance (UDS, 2013), and because of the accessibility of its

operational and financial performance data. Rural FQHC organizations face challenges that urban centers do not face. These challenges include low population densities, higher levels of poverty and percentages of uninsured patients, more complex patient diseases, as well as limited access to providers, transportation, and technology. Although the subject FQHC organization was not randomly selected from FQHC organizations throughout the nation or even from those in the state of Alabama, the subject organization's profile makes it a good choice for a study site. The complexity and degree of problems faced by rural FQHC organizations strengthened the external validity of the study.

To conduct this study, I considered two approaches, one based on breadth and the other based on depth. The breadth approach would have involved the review of several different FQHC organizations. As the name implies, the depth approach involved a more thorough look at a single organization, including the systems, processes, culture, and interactions that impact revenues, costs, and overall profitability. Although they serve different geographic areas, FQHC organizations compete for federal, state, local grants, and certain patient populations. A breadth analysis would have required a substantial amount of time, effort, and money to gain approval from several different, highly competitive FQHC organizations to participate in the study. I would have found it difficult to gain access to their financial performance data, interview their employees, review their key processes, and analyze the impacts of improvement applications.

The subject FQHC organizational setting presented a degree of complexity that contributed to the significance of this study. The organization was small and rural with a limited patient flow. The patients were relatively poor, suffered from complex diseases,

had limited access to providers, and limited health awareness. The organization included five clinics, located in areas that experienced information technology connectivity problems, especially during times of severe weather conditions. The complexity of the organization, more than its relative size or type of healthcare facility, strengthened the external validity of this study.

The organization employed approximately 50 people, several of whom performed multiple roles. The management team consisted of a CEO, CMO, CFO, director of operations, and director of corporate services. The organization used clinical, operational, financial, corporate services, and administrative functional groups, as well as a cross-functional quality team, to help monitor and improve overall performance.

Role of the Researcher

Although I am a former employee of the subject FQHC organization, my role for this study was that of an observer. The performance data that I used in this study was based on federal and organizational performance reports, meeting minutes, interviews, and observations that I made during my 4 years of employment at the subject FQHC organization. I used these various data sources, including professional, nonbiased auditors and technical assistance consultants, to help mitigate any personal bias that I may have harbored for the organization's employees who supported me or against the governing board that terminated my employment.

Methodology

Population and Sample

This study involved no human subjects. I chose the subject FQHC organization because of its relative poor financial performance and because performance data was

accessible during my employment with the subject FQHC organization. This study involved a sample of one bounded system from a population of 14 FQHC organizations in the state of Alabama and a universe of more than 1,278 FQHC organizations throughout the United States. In this case study, I included comparisons of performance between the subject FQHC organization, the aggregate performance of 14 FQHC organizations in the state of Alabama, and the aggregate performance of all 1,278 FQHC organizations throughout the United States.

The FQHC organizations in the state of Alabama were subject to the same highly conservative policies and attitudes towards safety-net programs, including the ACA. In Alabama, legislators took a very aggressive stand against the ACA and refused to expand Medicare. Consequently, millions of low-income Alabamians remained uninsured or underinsured, many healthcare providers considered relocating to states that were more Medicaid-friendly, and Alabama's Medicaid program was grossly underfunded (Lyman, 2016). Consequently, all FQHC organizations in Alabama faced economic challenges from the state's healthcare policies.

To help develop a profitability model, I used feedback from the CEOs of four of the 14 FQHC organizations in the state of Alabama. This 28.9% sample size helped to strengthen the statistical validity of the CEO feedback on how to ensure FQHC profitability. I used unstructured interviews to collect the CEO feedback, which I used to supplement information gathered from the literature review and from employees.

Despite the political and economic challenges at the state level, several FQHC organizations throughout the state performed relatively well during the 2011-2014 period. To provide a better perspective of the subject FQHC organization's financial

performance, I compared the subject FQHC organization's performance to that of the aggregate performance of all 14 FQHC organizations in the state of Alabama. This comparison included the number of patient visits, revenues, expenses, payer mix, and services provided. From 2011 through 2014, the number of patients and patient visits increased for state FQHC organizations; however, the numbers decreased for the subject FQHC organization. The subject FQHC organization offered fewer services, had a smaller percentage of child patients, and had a much higher percentage of uninsured patients than other state FQHC organizations. Due to the relatively high percentage of uninsured patients, the subject FQHC organization received a higher amount of HRSA funding per patient, and the resulting revenue per patient at the subject FQHC was higher than that for Alabama FQHC organizations. Due to relatively higher operating costs and the lack of alternative revenue sources, however, the subject FQHC organization was still unable to achieve the levels of profitability that state FQHC organizations achieved.

Data Collection

To complete this study, I collected two sets of data. I used the first set of data to develop a profitability model and I used the second set of data to determine the subject FQHC organization's performance per the model. To develop the profitability model, I used information from the literature review, employee feedback, and feedback from the CEOs of four FQHC organizations in the state of Alabama. To determine the subject FQHC organization's performance, I used information from organizational documents, records, and archived data, as well as information from the federal UDS report, independent financial auditors, HRSA administrators and technical assistants, and my own observation notes.

For the profitability model, data collection instruments (Annum, 2016) included reviews of journal articles and the HRSA Nineteen Objectives. I also reviewed an employee SWOT analysis report and an employee survey summary report. To gather information from the CEOs, I used unstructured interviews, which were more time consuming, but facilitated more relaxed conversations and more flexible questioning of interviewees. From the literature review, employee feedback, and CEO feedback, I compiled a list of the profitability factors, which were then classified into components of the profitability model.

To determine the organization's performance, the data collection instruments included reviews the organization's monthly performance reports, the federal UDS report, independent auditors' reports, HRSA administrators' reports, and technical assistants' reports (Table 3). I also used unstructured researcher's observations to collect performance data. I performed in the roles of researcher and employee in the subject FQHC organization, with the flexibility to move about in a natural manner, making field jottings when necessary. Since the potential for bias was high in this dual role, I used data from several from existing organizational records, documents, and archived documents to improve the internal validity of this study. For each data source, I compiled a list of performance results or indicators for further analysis. Collectively, these performance lists represented the overall performance of the subject FQHC organization.

Internal organizational reports included minutes of board meetings, staff meetings, and quality team meetings. The internal organizational reports also included monthly financial, IT, EHR, and reports from the subject's FQHC organization's CEO to the board of directors. The CEO report was a comprehensive document that included all

pertinent performance information from the various functions, such as finance and accounting, information technology, human resources, and the EHR system.

The UDS report is a compilation of each FQHC organization's profile and annual performance in key areas. The report provides information for individual FQHC organizations, state FQHC organizations, and national FQHC organizations. The UDS report contains information on patient demographics, clinical results, financial results, and other data. Data collection involved reviewing the UDS reports for the years 2011-2014, highlighting the relevant information, and compiling the information for the subject and state FQHC organizations. The UDS report for year 2015 was not available during my tenure at the subject FQHC organization.

The independent, financial audit reports validated or determined the organization's financial position, identified material weaknesses in the organization's financial system, and highlighted areas of management concerns. The audit reports also compared the organization's financial performance results between the most recent year and the previous year. After reviewing and clarifying the information contained in the financial audit reports, I compiled a list of material weaknesses, which represented performance results.

HRSA used both TA assessments and operational site visits (OSVs) to monitor and help FQHC organizations improve performance. The TA reports were based on compliance audits to determine to what extent the subject FQHC organization was following the HRSA Nineteen Program objectives. Whereas the TA audit involved a one-day visit, the OSV involved a more extensive, three-day visit to determine the level of

compliance with the HRSA Nineteen Program Objectives. I reviewed both the TA report and the OSV report, then listed the findings highlighted in each report.

Table 3

Data Collection Summary

Data Source	Use of Data	Data Period/Date	Instrumentation	Data Collector
Literature Review	Develop Profitability Model	85% from 2013 - 2016	Review of Journal Articles and Archived Data	Researcher
Employee Feedback	Develop Profitability Model	2011 2013	▪ Reading of Archived Data ▪ Structured Questionnaire	Researcher
Feedback from CEOs	Develop Profitability Model	2015	Unstructured interview	Researcher
Board Meeting Minutes	Determine Subject FQHC performance	1/2014 – 10/2015	Review of Archived Data	Researcher
Staff Meeting Minutes	Determine Subject FQHC performance	1/2014 – 10/2015	Review of Archived Data	Researcher
Quality Team Meeting Minutes	Determine Subject FQHC performance	1/2014 – 10/2015	Review of Archived Data	Researcher
Monthly Financial Reports	Determine Subject FQHC performance	7/2012 – 10/2015	Review of Archived Data	Researcher
Monthly EHR Reports	Determine Subject FQHC performance	1/2014 – 10/2015	Review of Archived Data	Researcher
Monthly CEO Reports	Determine Subject FQHC performance	1/2014 – 10/2015	Review of Archived Data	Researcher
Researcher Observations	Determine Subject FQHC performance	6/2011 – 10-2015	Review of Archived Data	Researcher
Federal, Annual UDS Reports	Determine Subject FQHC performance	2011- 2014	Review of Electronic Database Reports	Researcher
Annual Financial Audit Reports	Determine Subject FQHC performance	FY 2012, 13, 14, & 15	Review of Electronic Database Reports	Researcher
HRSA Administration Feedback	Determine Subject FQHC performance	2012 -2015	Review of Archived Data	Researcher
Technical Assistance Reports	Determine Subject FQHC performance	2011-2015	Review of Archived Data	Researcher

Data Analysis

As mentioned above, I collected two sets of data. I used the first data set to develop the FQHC profitability model and I used the second set of data to determine the subject FQHC organization's performance per the model. I used two different approaches to analyze the two different sets of data.

To analyze the model development data, I listed, then compared the profitability factors from each of the data sources. From this analysis, I developed a comprehensive list of 24 different profitability factors. Since some of the factors were related, I then classified the entire list of 24 into five major groups or components: people, policies and procedures, planning, capabilities, and performance. Each of the five groups became components of the profitability model.

To analyze the performance data, I developed a list of performance results or outcomes from each of the performance data sources. I then reviewed each performance result or outcome, by data source, to determine if the outcome was people-related, policy-related, planning-related, capability-related, performance related, or related to multiple categories. I also determined if the outcome was favorable or unfavorable for profitability. A summary sheet was developed for each data source, indicating the number of outcomes that were related to people, policies, planning, capabilities, and performance. I then consolidated the data source summary sheets into a total performance summary for the subject FQHC organization, which I then compared to the profitability model to identify opportunities for profitability improvement.

Issues of Trustworthiness

Internal Validity

Internal validity addresses measurement accuracy, comparing what is intended to be measured to what is measured (Singleton & Straights, 2010). High internal validity means that most random and systemic errors have been removed, leaving the true value of the measurement, which best captures reality. For this study, I established internal validity by using various data sources to determine both the components of FQHC profitability model and the actual performance of the subject FQHC organization. Since I served in the role of researcher while an employee of the subject organization, my observations may have been biased. Consequently, I used reviews of existing documents, records, and archived data, along with my own observations, to establish the internal validity of this study. For the year 2013, I found that the revenue per patient performance reported by the independent auditors did not agree the amount identified in the UDS report. Further research revealed that a new financial person had submitted inaccurate data into the UDS system. Overall, by using different performance data sources, I was able to mitigate my researcher's personal bias as well as detect inconsistencies in reported performance data.

External Validity

External validity addresses "generalizability or the potential for applying results of the study to other organizations" (Singleton & Straits, 2010, p. 200). The subject FQHC organization's performance results may be limited to that organization. However, since the model developed in this study was based on information that pertains to state and national FQHC organizations, the profitability model itself may be generalizable to

FQHC organizations throughout the state of Alabama and the nation. The profitability model developed in this study was based largely on the literature review, which included information on national FQHC organizations. The literature review also included information from the HRSA Nineteen Objectives, which applies to all FQHC organizations in the United States.

As indicated in the problem statement, inadequate federal funding is a systemic issue faced by national FQHC organizations. The literature review highlights that the ACA is helping both patients and providers in the states that did expand Medicaid coverage. Since Alabama was one of the states that chose not to expand Medicaid coverage, the subject FQHC organization, like all other FQHC organizations in Alabama, had to continue providing services to many uninsured patients, without additional Medicare compensation. Consequently, I used unstructured interviews (Annum, 2016) with CEOs from four FQHC organization in Alabama to capture their unique perspectives and recommendations on profitability. The profitability model may therefore be generalizable to other FQHC organizations in Alabama, which are all subject to the same state laws, policies, and attitudes regarding affordable health care.

Dependability

I used diverse data sources to help improve the dependability of the information used to define the proposed model for profitability improvement, as well as for the data used to determine the subject FQHC organization's performance. Some of the data sources were external to the subject FQHC organization, including the HRSA Nineteen Objectives, federal UDS reports, independent professional auditors' reports, and HRSA technical assistants' reports. Other data sources were internal to the organization,

including both server-based and web-based software databases, written reports, meeting minutes, and direct observations. I used multiple triangulations to help ensure the dependability of this study.

Confirmability

I was the only researcher involved in this study. To support confirmability, I used peer-reviewed articles, many of which were written by multiple authors and researchers who confirmed each other's research. In this study, I used various data sources, which not only supported internal validity and dependability, but also provided reflexive elements that could be used for confirmation. Results from one data source were reflected in and confirmed by similar results from other data sources.

Institutional Review Board Application Status

The Institutional Review Board approved both the original and revised versions of this proposal.

Summary

In Chapter 3, I addressed the research design and rationale, the setting and the organization, my role as the researcher, the methodology, and issues of trustworthiness. For this study, I used a qualitative case study approach to determine opportunities for improving profitability at the subject FQHC organization. The subject FQHC organization consisted of five clinics and approximately 50 employees, serving patients in three low-income, rural counties of Alabama. The subject FQHC organization was one of the fourteen FQHC organizations in the state of Alabama and one of 1,278 FQHC organizations in the U.S. For this study. I performed in the role of the researcher, and collected modeling and performance assessment data from various sources, both internal

and external to the organization. I then analyzed the data, addressing the key issues of trustworthiness, including internal validity, external validity, dependability, and confirmability. The IRB approved my request to conduct this study.

Chapter 4 includes the description of an FQHC profitability model, based on profitability factors identified in the literature review, employee feedback, and CEO feedback. Chapter 4 also includes my assessment of the subject organization's performance, using the profitability model to identify performance improvement opportunities. Chapter 5 includes my summary and interpretation of case study findings.

Chapter 4: Data Collection and Analysis

Introduction

The purpose of this study was to identify opportunities to improve profitability at the subject FQHC organization, which demonstrated financial losses from FY 2011 through FY 2014. The primary research question was: What are the opportunities for improving profitability at the subject FQHC organization? Other related questions included: What are the items that impact revenues and expenses and What can be done to optimize the difference between revenues and expenses in the subject FQHC organization?

To answer these research questions, I designed a profitability model and then compared the subject FQHC organization's performance to the model. The resulting performance gaps represented opportunities for improvement. To identify the components of the profitability model, I used information from the literature review, employee feedback, and recommendations from the CEOs of 4 of the FQHC organizations in the state of Alabama. To determine the subject FQHC organization's performance per the profitability model, I extracted relevant information from the federal UDS report, independent financial audit reports, employee feedback reports, monthly performance reports, HRSA technical assistance reports, and my own observations. This chapter also includes information on the background and setting of the study, a description of the organization, data collection, data analysis, evidence of trustworthiness, and a chapter summary.

The Subject FQHC Organization

The subject FQHC organization was established in 1977 to provide primary and preventive health care services to underserved populations in some of Alabama's rural, Black Belt counties. With clinics in different geographic locations, the subject FQHC organization was comprised of a governing board of directors and approximately 50 staff-level, clinical, and operational employees. The subject FQHC organization provided full-time services in primary adult medical and dental care. The subject organization also provided services in pediatrics, podiatry, women's health, dental, and affordable health care enrollment on a part-time basis. In 2015, services in accounting and information technology were sub-contracted to external agencies. For the year-ended December 2014, 77% of the patients served by the organization were uninsured (UDS, 2014). The remaining patients had Medicare, Medicaid, or private insurance coverage.

Development of the Profitability Model

The profitability model was based on information from the above literature review, employee feedback, and information provided by the CEOs of 4 FQHC organizations in the state of Alabama. From these data sources, I identified a total of 24 factors that affect profitability. I then coded or classified the factors into five categories: people-related, policies and procedures, planning, capabilities, and performance metrics. Although the literature review provided a substantial amount of information from which I extracted profitability factors, feedback from employees and a sample of CEOs of FQHC organizations in Alabama helped to validate some of the information highlighted in the literature review.

Employee Feedback

For this study, employee feedback was obtained by reviewing existing documents, records, and archived data from a quality improvement initiative, a strategic planning initiative, staff meetings, and an employee survey. I did not directly question any employees to obtain information on profitability; however, when I reviewed archived reports I found that some of the information provided by employees was relevant to profitability.

The strategic planning initiative included an analysis of strengths, weaknesses, opportunities, and threats (SWOT). On November 18, 2011, the CEO of the subject FQHC hired a consulting firm to complete a SWOT analysis as part of a strategic planning initiative. To complete the analysis, one consultant worked with the management staff, while the other consultant worked with the remaining clinical and operational employees, or non-management staff. Although expected to participate in the management staff group, no board members were present.

Sections of the SWOT analysis contained information that was included in the profitability model. From the strengths section, staffing, scheduling, and community relationships were included. From the weaknesses section, outreach, marketing, image, and advertising, clinic level billing and coding, scope of services, team relationships, technology availability and utilization, asset utilization, professional development, and training were included. Opportunities included many of the items identified as weaknesses, as well as partnerships, hours of operation, number of patients, and number of patient visits.

The employee survey was designed to solicit ideas for improving the organizational culture and operations. Some of the employees provided information that was relevant to profitability improvement. Examples included references to the need for better marketing and more accurate billing and coding.

CEO Feedback

In addition to my own observations of the subject FQHC organization, in 2015, I conducted unstructured interviews with the CEOs of 4 other FQHC organizations located in the state of Alabama to identify factors that were important for profitability. Collectively, the CEO group identified payer mix, niche marketing, provider productivity, Medicaid optimization, an economic balance of providers and mid-levels, collections, grant writing, and an innovative staff. The CEO group also mentioned the importance of relationships with colleges, universities, and other health care providers; services in diagnostic imaging, obstetrics and gynecology, and behavioral health care; as well as community relations and fundraising activities, understanding of laws as they pertain to Medicaid, a reliable EHR system, and a progressive, supportive governing board.

Payer mix describes the percentage of uninsured, publicly insured, and privately insured patients that FHC organizations serve. Provider productivity is a measurement of the number of patient visits a provider processes periodically. FQHC organizations can save money by optimizing the ratio of physicians to mid-level providers. Nurse practitioners and physician assistants, sometimes referred to as mid-level providers, can work under the collaborative agreements of primary care physicians, earn less money, and can see patients without the physician being present.

Summary of Profitability Factors

I used information from the literature review, employee feedback, and CEO feedback to identify specific factors that impact profitability (Table 4). As mentioned above, the data sources include the literature review, employee feedback, and CEO feedback. The literature review included the HRSA Nineteen Program Objectives and the federal UDS report, as well as relevant journal articles and books. From the three data sources, I found a total of 24 factors that affect profitability. Of the 24 profitability factors, 18 were mentioned in the literature review, 13 were mentioned in employee feedback reports, and 22 were mentioned in the CEO group feedback report. Data from certain sources validated data from at least one other source. Of the 24 profitability factors, nine factors were reported in all three data sources, 13 factors were reported in two data sources, and only 2 factors, PCMH and HRM, were reported in one data source. Although two profitability factors, PCMH and HRM, were reported only in the literature review, they were mentioned in several articles or reports in the literature review.

Table 4

Profitability Factors by Source

Profitability Factor	Literature Review	Employee Feedback	CEO Group Feedback	Total
1. Collaboration	X	X	X	3
2. Technology	X	X	X	3
3. Medicaid & State Laws	X		X	2
4. PCMH	X			1
5. Financial Policies	X		X	2
6. HRM	X			1
7. Staffing, Culture	X	X	X	3
8. Governing Board	X		X	2
9. Needs Assessment	X		X	2
10. Scope of Services	X	X	X	3
11. Hours of Operation & Locations	X	X	X	3
12. Billing, Coding, & Collections	X	X	X	3
13. Budgeting	X		X	2
14. Program Data Reporting	X		X	3

15. Quality Assurance	X	X	X	3
16. Payer Mix	X		X	2
17. Compliance			X	
18. Financial Indicators	X	X	X	3
19. Outreach, Marketing, Image		X	X	2
20. Asset Utilization		X	X	2
21. Professional Development & Training		X	X	2
22. Number of Patients & Patient Visits		X	X	2
23. Provider Productivity	X		X	2
24. Fundraising		X	X	2
Total	18	13	22	

Classification of Profitability Factors

From the literature review, employee feedback, and CEO feedback, I identified a total of 24 different factors that affect profitability. To simplify and understand the 24 factors, I characterized and classified them into five separate groups, including people, policies and procedures, planning, capabilities, and performance (Table 5). Of the 24 profitability factors, four are classified as people-related; four are policy-related; four are planning related; four are related to capabilities; and eight are related to performance metrics.

Table 5

Classification of Profitability Factors

Profitability Factor	People	Policies & Procedures	Planning	Capabilities	Performance
1. Collaboration	X				
2. Technology				X	
3. Medicaid & State Laws		X			
4. PCMH				X	
5. Financial Policies		X			
6. HRM		X			
7. Staff, Culture	X				
8. Governing Board	X				
9. By-Laws, Mission		X			
10. Needs Assessment			X		

11. Scope of Services				X	
12. Hours of Operation & Locations				X	
13. Billing, Coding, & Collections					X
14. Budgeting			X		
15. Program Data Reporting					X
16. Quality Assurance			X		
17. Payer Mix					X
18. Financial Indicators					X
19. Outreach, Marketing, Image			X		
20. Asset Utilization					X
21. Professional Development & Training	X				
22. Number of Patients & Number of Patient Visits					X
23. Provider Productivity					X
24. Fundraising					X
Total	4	4	4	4	8

The Profitability Model

Because I could characterize each of the 24 profitability factors as either people-related, policy-related, planning-related, capability-related, or performance-related, I used these five groups to represent the major components of the profitability model (PM) for FQHC organizations. Each of the 24 profitability factors was represented in one of the PM components (Figure 12). The people component included the FQHC staff, governing board, culture, and collaborative relationships. The policies and procedures component included by-laws, financial policies and procedures, and HR policies and procedures. The

planning component included the needs assessment, strategic plan, budget, marketing plan, operations plan, and the quality assurance plan. The capabilities component included technology, problem solving and innovation, scope of services, hours of services, and location of clinics. The performance component included collections, cost and revenue per patient, payer mix, provider productivity, asset utilization, number of patients, and number of patient visits. These five profitability components, and the profitability factors they encompass, were interactive and dynamic. Changes in one component could cause results in other components. For example, an FQHC organization may choose to improve its staff by hiring over-qualified doctors. This decision, however, would have a negative impact on cost performance. The FQHC governing board and staff should seek to optimize the entire system, avoiding the tendency to focus on one component, profitability factor, or group of factors.

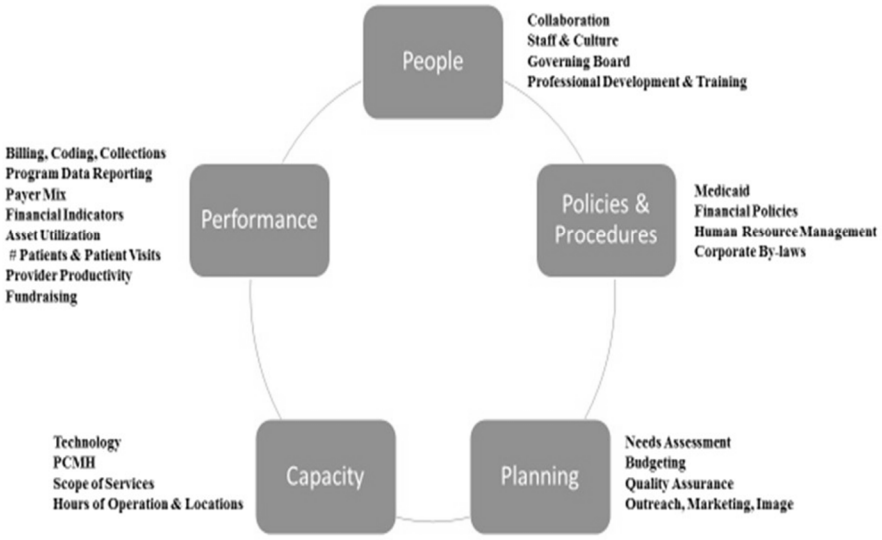

Figure 12. Profitability model for FQHC organizations.

Subject FQHC Organization's Performance per the Profitability Model

In this part of the study, I assessed the subject FQHC organization's performance per the profitability model. I obtained some of the performance data by reviewing the archived reports written by HRSA TAs following training sessions and following a HRSA OSV. Additional data was obtained by reviewing the archived reports of independent financial auditors, an employee SWOT analysis, and the federal UDS publications. Still other data was obtained by reviewing my research observation notes. I allocated the performance feedback from these various data sources to the appropriate component of the profitability model.

HRSA TA Site Visit Findings

At the request of the new CEO, in October 2011, HRSA dispatched a TA consultant to assess the subject FQHC organization's performance against the HRSA Nineteen Program Objectives and to provide training as necessary. The TA consultant based his findings (Table 6) on reviews of policies and procedures, meetings with the management staff, and a training session with the board of directors. Most of the TA findings were in the areas of the board of directors, the staff, and policies and procedures.

Table 6.

Classification of TA Consultant Findings, 2011

Findings	People Related	Policies & Procedures	Planning	Capabilities	Performance vs Metrics
The grantee does not have a clinic located in Selma, the site of their Administrative Office and is the most heavily populated city in their service area.				X	X
The grantee is not financially sound principally due to a lack of collections.					X
Management Team reports to the Board do not include enough pertinent	X	X	X		

information regarding patient satisfaction, organizational assets, and performance to assist the Board members in making more informed decisions.						
The grantee does not currently have a Health Plan and a Business Plan but efforts are currently underway to create and implement both as soon as possible.			X			
Due to financial restraints, the grantee does not have clerical support staff and each Management Team Member wears several hats as necessary to get the job done.	X			X		
The Board and current CEO were not aware that the grantee is being promoted as a "Free Clinic" on the internet. This is probably contributing to extremely low collectables and other issues. The CEO plans to address this issue immediately		X		X		X
Board members currently have a lifetime tenure which prevents rotation and influx of new and innovative ideas.	X			X		
The CEO, Board, and Staff have not been evaluated annually.		X				X
The grantee does not have a COO due to lack of funds. This position is desperately needed to provide relief for the CEO to perform other necessary functions and responsibilities.	X			X		
Job Descriptions have not been regularly updated.	X	X				
There is currently no Patient Grievance or Patient Satisfaction Survey Form available; therefore, the Board does not receive information relative to patient satisfaction.		X				
There is currently no formalized Staff Grievance Procedure available	X	X				
The Board Finance Committee does not meet monthly as scheduled	X	X				X
The Board and some Board Members have interfered in day-to-day operations, and otherwise, not acted appropriately in some instances. This is mainly due to a lack of training and understanding of their respective rights, roles, and responsibilities.	X	X				X
Board minutes do not accurately document information given, issues and actions taken by the Board.		X	X			
The Board has not approved and documented in Board minutes policies and documents used by the grantee.		X				

The grantee does not have a Corporate Compliance Officer, Corporate Compliance Committee, or combination of the two. Incident Reports are not made to the Board.	X			X	X
The Board does not approve and document in Board minutes required and additional services provided by the grantee.		X		X	X
The grantee currently has no CEO Recruitment and Retention Plan			X		
The grantee currently has no Succession Plan in case of a CEO vacancy	X		X		
The grantee currently has no Salary Scale.		X	X		
The Board currently has no Recruitment and Retention Plan	X		X	X	
The Board currently has no formal orientation plan but it employs the "buddy system" to orient new members	X	X	X		
Board members do not sign a Conflict of Interest Statement annually	X	X			
Total Occurrences	14	12	8	7	8

HRSA Operational Site Visit Findings

To help ensure adequate oversight of FQHC organizations, HRSA sponsors OSVs to the service locations of each of their grantees. HRSA uses the OSVs to assess each FQHC organization's compliance with the regulatory requirements and to review the organization's clinical and financial performance. When appropriate, HRSA may use site visits to provide technical assistance to FQHC organizations, address issues of non-compliance, and to implement best practices (HRSA, 2015). In January 2013, HRSA conducted an OSV at the subject FQHC organization. Due to inclement weather during the OSV, the auditors restricted their visit to the policies and procedures and other data gathered at the corporate office (Table 7). The results of this abridged OSV indicated problems with the board of directors and the management staff.

Table 7

OSV Findings, 2013

OSV Findings	People	Policies & Procedures	Planning	Capabilities	Performance vs Metrics
The governing board failed to maintain effective oversight of the organization in seven areas	X				X
Conflict of interest provisions were not established or revised per program requirements	X	X			
No up-to-date board-approved plan covering all required primary, preventive, enabling, and additional services either directly or through referrals	X		X		
Number of patients served is more than 25% below projected level. Provide improvement plan/ explanation/prepare for decreased funding from HRSA			X		X
Lack of defined processes that ensure all providers are appropriately licensed, credentialed, and privileged to perform the activities and procedures in project scope		X			
Lack of board-approved after-hours coverage plan	X	X	X		
Lack of performance contracts for the Medical Director and other providers	X	X			
Total	5	2	3	0	1

Feedback from Financial Auditors

The subject FQHC organization generated monthly financial performance reports that management and the governing board used to make both operational and strategic management decisions. Since federal dollars were used to fund FQHC organizations, the organizations had to engage professional, independent auditors to help ensure adequate oversight of federally sponsored programs. As with all non-profit and for-profit entities, independent audit reports provided important information on an organization's financial performance.

For the subject FQHC organization, the audit report for fiscal year 2011-2012 listed poor collections, lack of clear policies and procedures, lack of employee financial

awareness, and lack of monthly reconciliations as material findings. In the financial report for fiscal year 2012-2013 (Table 8), the auditors identified four material findings, including the failure to prepare and gain approval for bank reconciliations, non-segregation of duties, failure to safeguard collections, and failure to appropriately maintain patient files (Sheppard-Harris, 2014). The audit findings indicated problems in the categories of people, policies and procedures, and performance. For the fiscal year 2013-2014, there was only one finding, which was the failure to complete reconciliations in a timely manner. This finding was also identified in the two previous years.

Table 8

Financial Audit Findings, 2012-2013

Audit Findings	People	Policies & Procedures	Planning	Capabilities	Performance
RECONCILIATIONS Monthly bank reconciliations not prepared accurately and timely, with no indication of approval. Some deposits were recorded to the general ledger twice. No reconciliation of the bank statements and general ledger to the bank statements. No resolution of outstanding reconciling items. The bank reconciliation function on the accounting software is not adequately configured and effectively used.	X	X		X	X
SEGREGATION OF DUTIES No controls in place for segregation of duties. Person who prepares bank reconciliations is also the custodian of checks, approves disbursements, prepares checks, and maintains the general ledger. The organization is more susceptible to fraudulent activities.	X	X			
SAFEGUARDING UNDEPOSITED COLLECTIONS Collections are not properly secured, risk of theft or misappropriation. Internal controls are inadequate to prevent or detect the misappropriation of collections.		X			X

PATIENT FILES In several instances, no documentation of insurance and proof of income in a timely manner. Front desk procedures were not properly monitored.	X				X
Total Occurrences	3	3	0	1	3

Feedback from Employees

Employee feedback was collected from archived documents, including a SWOT analysis conducted in 2011 and an employee survey conducted in 2012. Both management staff and non-management staff participated in the SWOT analysis (Table 9). The employees identified 19 weaknesses that were relevant to the profitability model. Most of the organizational weaknesses that the employees identified pertained to people and capabilities.

Table 9

Weaknesses from SWOT Analysis, 2011

Employee-identified Weaknesses	People	Policies & Procedures	Planning	Capabilities	Performance vs Metrics
1. Understaffing	X			X	
2. Lack of training & professional development	X		X	X	
3. Low compensation	X		X		
4. Marketing, advertising, image	X	X	X	X	
5. Patient transportation				X	
6. Equipment				X	
7. Poor billing and coding	X			X	X
8. Lack of specialty services	X			X	
9. Lack of follow-through	X				
10. Poor communications	X			X	
11. Low revenues					X
12. Lack of seamless workflow			X	X	
13. Motivational effort	X				
14. Teamwork	X				
15. Skills imbalance	X		X		
16. Sinergy & coordination	X		X		
17. Technology			X	X	
18. Research				X	
19. Asset utilization			X		X

Total Occurrences	11	1	8	11	3

In 2012, the CEO and Director of Human Resources administered an employee survey, to which 25 of 43 employees responded. Part one of the three-part survey included questions on employee demographics. Part two of the survey included Likert-scale, multiple choice questions on overall job satisfaction; compensation and benefits; leadership and supervision; organizational culture; as well as fair and equitable treatment. Part three of the survey included questions on the CEO's performance and the overall performance of the subject FQHC organization (Table 10). When asked to identify areas of the organization that need improvement, most of the responses involved people and capabilities.

Table 10

Employee Survey Results: Organizational Improvements Needed, 2011

Areas of the Organization that Need Improvement	People	Policies & Procedures	Planning	Capabilities	Performance
Better technology: EHR, phones, computers				X	
Wages	X			X	
Front Desk operations	X				
Billing					X
Communication & respect	X				
Back-up coverage for clinical people			X	X	
Facility				X	
All areas				X	
Dental services	X			X	
Board members: Younger, business backgrounds, rotation every few years	X				
Responsible Medical Director with leadership skills	X				
Central Office	X			X	
Unity	X				
TV for waiting area	X		X		
Total Occurrences	9	0	2	7	1

Researcher's Observations

From 2011 through 2015, I served as CEO of the subject FQHC organization, and had the opportunity to observe the internal, day-to-day operations of the organization (Table 11). Since I was removed from my position as CEO and I was also the researcher for this study, my observations may have been biased. Consequently, I used additional data sources to help establish the profitability model and to assess the subject FQHC organization's performance relative to the profitability model. As the researcher, I made the following observations related to the people, policies and procedures, planning, capabilities, and performance against metrics for the subject FQHC organization.

People.

Due to the remote rural locations of the clinics, it was difficult to recruit new clinical and administrative employees to the organization. In addition to a few long-tenured providers who had retired or settled in the area, medical and dental needs were filled through part-time, contractual agreements. The board of directors and employees were native to the local area, and their employment tenure was, on the average, longer than that of employees and board members at other FQHC organizations (UDS, 2014). Services for technology and financial support were provided through contractual agreements with external organizations.

Policies, procedures, and plans.

HRSA provided clear guidance on the policies and procedures necessary to govern the subject FQHC organization. From 2012 through 2015, the CEO personally wrote more than thirty policies and procedures, per HRSA requirements. Due to an

ongoing shortage of key staff members, however, the policies, procedures, and plans were not consistently maintained, implemented, and enforced.

Capabilities.

Technology represented one of the greatest limitations to capabilities. There were major problems with the information technology infrastructure and with the EHR system. Due to their remote rural locations, two of the five clinics lost internet access as frequently as twice a month, which impacted email, EHR operability, and telephone service. These periods of downtime would last for two or three days before service was restored. As part of a joint effort to save money, the subject FQHC organization was one of a four-member consortium that purchased an EHR system in 2010. This system was re-configured to serve a wide-area of users, and several components were added, which contributed to higher cost, greater complexity, and lower system reliability. As the smallest member of the consortium, the subject FQHC organization had little influence over management and technical decisions that affected the system's policies and functionality. Consequently, the subject FQHC organization was paying a high price for an EHR system that had technical limitations and was managed by someone else. Most health care organizations that invested in EHR systems experienced lower productivity, initially, as older clinicians struggled to improve their technological proficiency and to effectively use the new systems. After five years of effort, however, the subject FQHC organization was still experiencing problems with the system they purchased. The result was lower productivity at a higher cost of ownership.

Other capability limitations included a lack of specialty providers, such as dental, obstetrics-gynecology, diagnostic imaging, and behavioral health specialists. Although

telemedicine offers major productivity and profitability advantages, the subject FQHC organization did not have this capability in place. Also, the subject FQHC organization had no diagnostic imaging service capability, missing further opportunities to increase the number of patient visits and revenues.

Performance.

The researcher observed that the subject FQHC organization failed to meet or sustain positive performance results in the number of patients served, the number of patient visits, provider productivity, collections, and other key financial metrics. The number of patient visits directly impacted provider productivity. The relatively few patients that visited the subject organization's clinics resulted in low provider productivity. Poor collection results exacerbated the low provider productivity. From the few patients that received services, the subject FQHC organization collected less than 50% of the fees charged.

Table 11

Summary of Researcher's Observations, 2011-2015

Findings	People Related	Policies & Procedures	Planning	Capabilities	Performance
Board tenure	X				
Board influence on operations	X				
Non-Compliance with Policies & Procedures and Plans	X	X			X
Ineffective EHR system				X	
Lack of Telemedicine				X	
Lack of specialty providers & services				X	
Low number of patients					X
Low provider productivity					X
Poor, inconsistent collections performance					X
Total	3	1	0	3	4

Universal Data System Report

In the UDS report, HRSA compiles information that highlights the operation and performance of FQHC organizations. The data are collected and reviewed annually, helping to ensure regulatory compliance, improve performance and operations, and track program accomplishments. The report includes information on patients, services, staffing, and financial performance. Several areas of the UDS report impact the profitability of FQHC organizations. These key areas include the number of patients and patient visits, the number and types of services provided, the insurance status of patients, percentage of child patients, cost per patient, and revenue per patient. Although the UDS report is issued annually, the scope of UDS data for this study includes 2011 through 2014. The year 2015 is not included because my employment at the subject FQHC organization ended prior to the release of the 2015 UDS report.

Numbers of patients and patient visits.

Whereas the numbers of patients and patient visits for all FQHC organizations in the state and throughout the nation increased from 2011 through 2014, the patient population and number of patient visits decreased slightly during this same period at the subject FQHC organization (Table 12). In 2013, the number of patient visits at the subject FQHC organization increased over the previous year. In 2012, the number of patient visits at state FQHC organizations decreased from the previous year. The number of patient visits at national FQHC organizations increased in each successive year from 2011 through 2014.

Table 12

Comparison of Patient Visits, 2011-2014

Geography	# Patient Visits 2011	# Patient Visits 2012	# Patient Visits 2013	# Patient Visits 2014	Net Change
Subject FQHC Organization	15,549	13,509	14,192	13,641	Negative
State FQHC Organizations	1,003,634	1,000,486	1,002,538	1,019,672	Positive
National FQHC Organizations	80,027,696	83,766,153	85,641,647	90,379,441	Positive

The slower growth rate for patient visits to FQHC organizations in Alabama may be due to the governor's decision to not participate in the ACA and to not expand Medicaid coverage for Alabama citizens. The decrease in the number of patient visits to the subject FQHC organization may be due in part to the decreasing population in the rural service areas and to patient abandonment, as some patients chose to travel to neighboring FQHC organizations where they could receive more comprehensive services.

Number and types of services provided.

The subject FQHC organization provided only primary medical and dental services in 2011. For the years 2012 through 2014, the organization contracted a part-time podiatrist, who worked 16 hours per month. In 2014, the subject FQHC organization contracted an obstetrician-gynecologist for 16 hours per month. Unlike other FQHC organizations throughout the state and nation, the subject FQHC organization did not provide mental health, substance abuse, pediatrics, diagnostic imaging, vision, wellness, and case management services. The limited number and types of services provided by the subject FQHC organization contributed to the decreases in number of patients and patient visits, as some patients may have sought more comprehensive services elsewhere.

Insurance status.

Because they generated different amounts of revenue, the percentages of uninsured, Medicaid, Medicare, and privately insured patients had a significant impact on profitability (Table 13). At the subject FQHC organization, in 2014, the average revenue per Medicaid patient was $437.67, compared to $567.45 per Medicare patient, $30.63 per privately insured patient, and $67.43 per uninsured patient (UDS 2014). Although Medicare and Medicaid provided much higher revenue per patient than did uninsured and privately insured patients, Medicare patients were only 10.20% of the total population, while Medicaid and privately insured patients were 6.45% and 6.53% respectively of the total patient population. The majority, 76.82%, of patients in 2014 were uninsured. The subject FQHC had a very large percentage of low-yield patients and relatively low percentages of high-yield patients (UDS, 2014).

Although the revenue per patient for privately insured patients is less than the revenues per patient for Medicare, Medicaid, and even uninsured patients, it does not mean that private insurance companies pay less. Private insurers are very thorough when processing claims, and the low $30.63 revenue per patient in 2014 was due to the failure of the subject FQHC organization to collect the full amount of insurance revenue to which they were entitled. These poor collections may have been the result of medical coding errors or inaccurate information on insurance claims.

Table 13

Population & Revenue per Patient, by Insurance, 2014

Insurance Status	% of Population	Revenue per Patient
Medicaid	6.45%	$437.67
Medicare	10.20%	$567.45
Private	6.53%	$30.63
Uninsured	76.82%	$67.43

During a given period, the type of insurance coverage for patients can vary. At the subject FQHC organization, from 2011 through 2014, the number of uninsured patients increased by 1,275 to 76.82% of the total patient population. The number of Medicare patients decreased by 494 to 10.20% of the population. The number of Medicaid patients decreased by 426 to 6.45% of the population, and the number of privately insured patients decreased by 431, to 6.53% of the total patient population (Table 14). Overall, the number of patients decreased from 2011 through the end of 2014. For all FQHC organizations in the state of Alabama, the numbers of uninsured, Medicare, Medicaid, and privately insured patients all increased from 2011 through 2014. For all FQHC organizations in the nation, the number of uninsured patients decreased by 998,631, while the numbers of Medicare, Medicaid, and privately insured patients all increased. The substantial increase in Medicaid patients throughout the nation may have been due to the proliferation of the ACA (UDS, 2014). At the subject FQHC organization, the increase in the number of uninsured patients and decreases in the numbers of Medicare and Medicaid patients resulted in substantially lower revenues.

Table 14

Comparison of Changes in Patient Insurance Coverage, 2011-2014

Insurance Coverage 2011-2014	Subject FQHC Organization	FQHC Organizations in Alabama	FQHC Organizations in the U.S.
# of Uninsured Patients	Increased by 1,275	Increased by 7,398	Decreased by 998,631
# of Medicare Patients	Decreased by 494	Increased by 4,835	Increased by 393,818
# of Medicaid Patients	Decreased by 426	Increased by 4,387	Increased by 2,628,988
# Privately Insured Patients	Decreased by 431	Increased by 2,744	Increased by 604,310
Net Change	Decreased by 76	Increased by 19,364	Increased by 2,628,486

Percentage of child patients.

In Alabama, the All Kids health insurance program was available for children less than nineteen years old, regardless of the family income. Sponsored by the Alabama Department of Public Health (ADPH), the All Kids program adequately compensated providers who served children (ADPH, 2016). The state Medicaid program provided dental service coverage for children. For health care providers in the state of Alabama, higher percentages of child patients equated to higher revenues. From 2011 through 2014, the population of child patients at the subject FQHC organization decreased from 10.0% to 6.6% of the total patient population. FQHC organizations in the state of Alabama experienced a slight drop from 27.2% to 25.9% of the total patient population. The child patient population of all FQHC organizations in the nation decreased slightly from 32.0% to 31.3% of the total patient population. There were no pediatricians working at the subject FQHC organization, and I observed that although primary care physicians were prepared to serve child patients, the doctors, nurses, and front desk employees discouraged the parents of child patients from visiting the clinics.

Cost per patient.

For the period of 2011 through 2014, I compared the subject FQHC organization's cost per patient performance to those of other FQHC organizations in the state of Alabama and nation; to other rural FQHC organizations in the nation; and to other FQHC organizations with similar patient populations (Table 15). The average cost per patient at the subject FQHC organization was better than those of national organizations, other rural organizations, and other FQHC organizations of similar patient populations. The only group with better cost performance was the state FQHC organizations. The standard deviation and range of the cost results for the four years of

data from the subject FQHC organization, however, were extremely high for the subject FQHC organization when compared to other groups. High variance is often an indicator of less control and predictability within a process, system, or organization.

Table 15

Cost per Patient Comparison, 2011-2014

Year	Subject FQHC Organization	State FQHC Organizations	National FQHC Organizations	Other Rural FQHC Organizations	Other FQHC organizations between 5000 and 9999 Patients
2011	$ 426.65	$ 415.89	$ 653.88	$ 597.39	$ 629.79
2012	$ 532.31	$ 416.31	$ 686.68	$ 630.41	$ 660.87
2013	$ 485.47	$ 419.25	$ 720.89	$ 670.23	$ 715.75
2014	$ 683.92	$ 442.13	$ 762.62	$ 748.45	$ 769.08
Average	$ 532.09	$ 423.40	$ 706.02	$ 661.62	$ 693.87
Std. Deviation	110.1	12.6	46.6	65.1	61.5
Range	$ 257.27	$ 26.24	$ 108.74	$ 151.06	$ 139.29

Overall, from 2011 through 2014, cost increased for all categories of FQHC organizations, however, the cost per patient performance at the subject FQHC increased from 2 to 10 times more than did the costs of other FQHC organizations in the state, nation, other rural, and other FQHC organizations that served similar populations of patients (Figure 13).

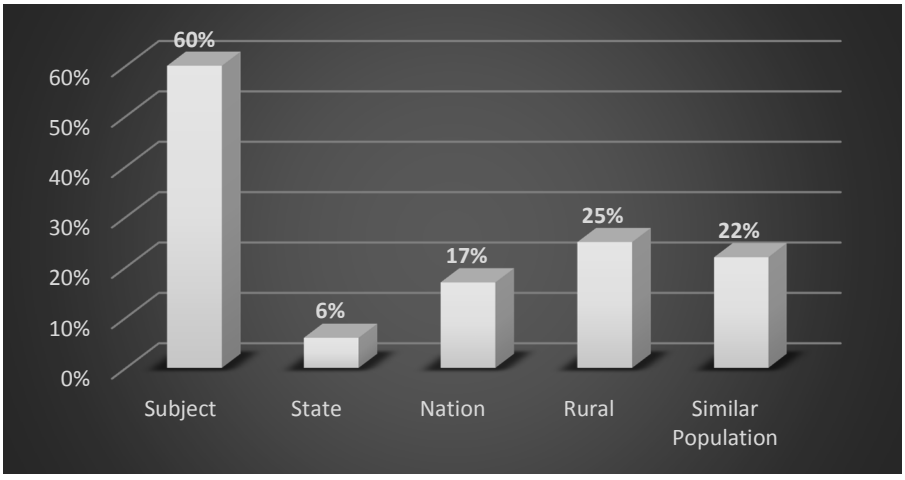

Figure 13. Comparison of cost increases, 2011-2014. Information from UDS reports for years 2011-2014.

Revenue per patient.

The average revenue per patient for the subject FQHC organization was higher than that of the FQHC organizations in the state of Alabama and for the nation. The standard deviation and range of the data for the subject FQHC organization, however, were substantially greater than those of both state and national organizations (Table 16). For the subject FQHC organization, the relatively high standard deviation was indicative of an outlier.

Table 16

Revenue per Patient Comparison, 2011-2014

Year	Subject FQHC Organization	State FQHC Organizations	National FQHC Organizations
2011	$ 460.63	$454.79	$685.63
2012	$ 522.00	$420.88	$710,84
2013	$ 734.45	$432.05	$732.88
2014	$ 613.68	$447.01	$786.38
Average	$ 582.69	$438.68	$728.93
Std. Deviation	119.1	15.2	42.9
Range	$ 273.82	$ 33.91	$100.75

I used a statistical process control chart (Figure 14) to analyze the revenue per patient data from the subject FQHC organization. The average for the data sample is $582.69. The upper control limit (UCL) was calculated by adding one standard deviation to the sample average. The lower control limit (LCL) was calculated by subtracting one standard deviation from the sample average. As indicated, the revenue per patient data for year 2013 is an outlier at one standard deviation. Further investigation determined that during 2013, a key financial employee left the organization and the UDS report for that

year was completed by an employee who was unfamiliar with the financial reporting process.

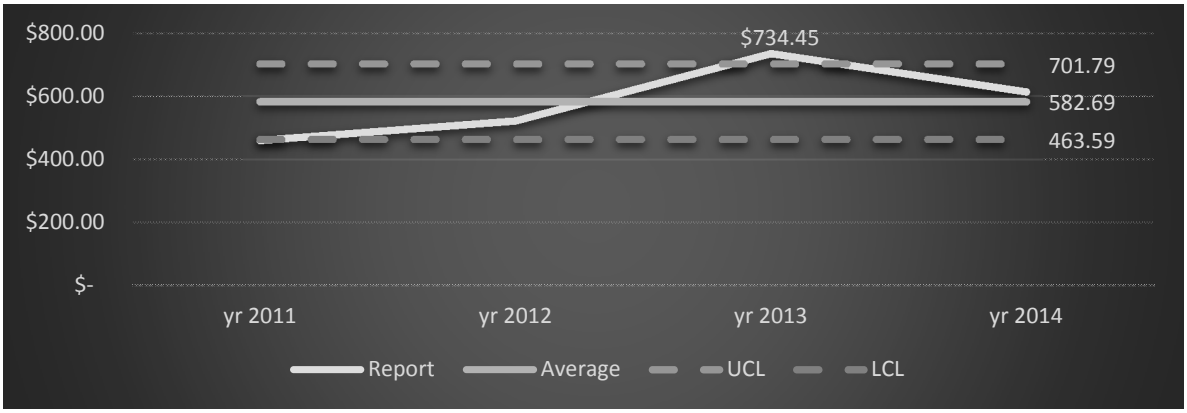

Figure 14. Statistical process chart for revenue performance at the subject FQHC organization, before removal of outlier. The blue line is the revenue performance reported in the UDS. The red line is the average revenue for all years. The green line is the upper control limit. The Purple line is the lower control limit.

The revenue per patient data for year 2013 was removed to provide a more accurate account of the subject FQHC organization's performance (Table 17). After removal of the outlier, the average revenue per patient was $50.69 lower, the standard deviation was 35% lower, and the range of the data was at the subject FQHC organization was 45% lower. The average, standard deviation, and range of data were still higher than those of the FQHC organizations in the state and nation. The greater dispersion of data from the mean indicates that the subject FQHC organization's processes and systems were less predictable and less controlled than the processes and systems of the state and national FQHC organizations.

Table 17

Adjusted Revenue per Patient Data, 2011-2014

Year	Subject FQHC Organization	State FQHC Organizations	National FQHC Organizations
2011	$ 460.63	$454.79	$685.63
2012	$ 522.00	$420.88	$710,84

2013	Outlier removed	$432.05	$732.88
2014	$ 613.68	$447.01	$786.38
Average	$ 532.10	$438.68	$728.93
Std. Deviation	77.0	15.2	42.9
Range	$ 153.05	$ 33.91	$100.75

Summary of findings from UDS report.

The UDS report summarizes the performance of each FQHC organization and compares it with that of the state and national aggregates. For the subject FQHC organization, the UDS report indicates that during the period of 2011 through 2014, there was an erosion of patient volume, relatively few services provided, a high number of uninsured patients, few child patients, and an increasing cost per patient visit (Table 18). Each of these findings had a negative impact on profitability, and collectively they contributed to a system of negative profitability factors.

Table 18

Summary of UDS Findings, 2011-2014

Finding from UDS Reports	People Related	Policies & Procedures	Planning	Capabilities	Performance
From 2011 through 2014, the number of patients decreased by 1% and the number of patient visits decreased by 12%.		X	X	X	X
Of more than 11 service categories, the organization provided a maximum of three services.		X	X	X	X
Disproportionately high number of uninsured patients and very few Medicare and Medicaid patients.		X	X	X	X
Despite good state insurance plans, the organization has relatively few child patients and the number is declining.	X	X	X	X	X
The average cost per patient increased by 60% during the four-year period covered by the study.	X		X	X	X

Relatively high level of revenue variability. Inadequate revenues to cover the period costs.	X		X	X	X
Total Findings	3	4	6	6	6

Results of the Data: Performance versus the Profitability Model

The FQHC profitability model included five major components, each comprised of elements that may impact profitability (Table 19). To determine the subject FQHC organization's performance per the profitability model, I used information from a report issued by a HRSA technical assistant in 2011, from a HRSA operational site visit that took place in 2013, from two financial audit reports for the years 2013 and 2014, from employee feedback gathered in 2011 and 2012, from my research observation notes for the period from 2011 through 2015, and the federal UDS reports for the period from 2011 to 2014. From these various data sources, a total of 160 negative findings were reported. Forty-eight negative findings were related to people, 23 were related to policies and procedures, 27 were related to planning, 35 were related to capabilities, and 27 were related to performance.

Table 19

Summary of Findings from All Data Sources

Data Source	Year Data Collected	People Related	Policies & Procedures	Planning	Capabilities	Performance	Total
HRSA TA Findings	2011	14	12	8	7	8	49
OSV Findings	2013	5	2	3	0	1	11
Financial Auditors	2014	3	3	0	1	3	10
Employee Feedback (SWOT)	2011	11	1	8	11	4	35

Employee Survey Feedback	2012	9	0	2	7	1	19
Researcher's Observations	2011-2014	3	1	0	3	4	14
UDS Reports	2014	3	4	6	6	6	25
Total Findings		48	23	27	35	27	160

While the data collected from the researcher's observations and the UDS report span the period from 2011 through 2014, the information from the HRSA TA, employee SWOT analysis, employee survey, OSV, and financial audit pertain to a single year. In 2011, the HRSA TA identified 49 problems and the employee SWOT analysis identified 35 problems. In 2012, the employee survey identified 19 problems, in 2013, the OSV identified eleven problems, and in 2014, the financial auditors listed ten problems (Figure 15). There were fewer problems reported in each successive year, however, this trend may be due to improvement initiatives, the nature of the data sources, or the trend could be coincidental.

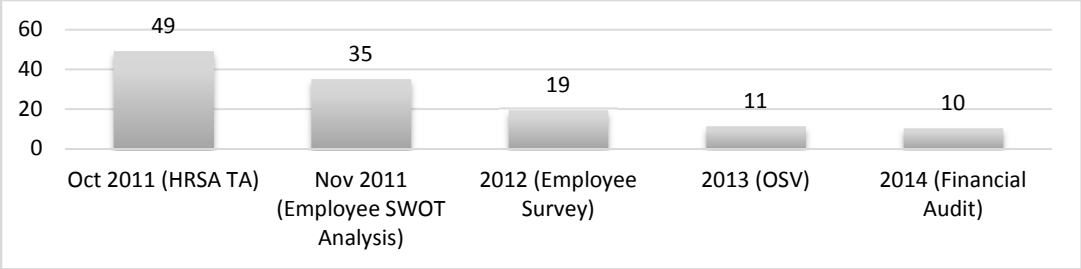

Figure 15. Number of findings by single -year data sources.

I used a Likert-based scale to complete a subjective assessment of the subject FQHC organization's performance (Table 20) against the components of the profitability model. For each profitability model component, I rated the subject FQHC organization's performance as either poor, needs improvement, fair, good, or as a best practice example.

I rated the subject FQHC organization's people-related overall performance as needing improvement. The subject FQHC organization's performance in the areas of policies and procedures and planning were also in need of improvement. The organization was rated poor in the areas of capabilities and performance against key metrics, but was rated fair in the area of collaborative relationships.

Table 20

Researcher's Assessment of Subject FQHC Organization's Overall Performance

Profitability Model Component	Subject FQHC Organization's Performance Rating
PEOPLE	Needs Improvement
Board of Directors	Needs Improvement
Staff	Needs Improvement
Culture	Needs Improvement
Collaborative Relationships	Fair
POLICIES & PROCEDURES	Needs Improvement
PLANNING	Needs Improvement
CAPABILITIES	Poor
PERFORMANCE	Poor

People-Related Component

Most of the findings were people-related. The people-related component included four factors that affected profitability: the FQHC board of directors, the staff and employees, the culture, and the collaborative relationships. To be profitable, FQHC organizations must be effective in each of these areas. The board has ultimate authority over the organization; the staff is responsible for executing the policies, procedures, and plans to meet the organization's goals and expectations. Board members, staff members, and general employees contribute to the organizational culture, which can have a predominately positive or negative impact on profitability. FQHC organizations can leverage collaborative relationships to acquire additional funding and to reduce costs.

The board of directors.

In the people-related performance area, the board of directors was rated as needs improvement due to a lack of professional diversity, the average tenure of the board members, and findings highlighted by the HRSA technical assistants. The lack of professional diversity and average tenure may have been impacted by the relatively small population of the rural environment that the organization served. Fifty percent of the board members were retired and 40% were involved in local politics. The average tenure for board members at the subject FQHC was 12 years, and one member had been in place for 20 years. The average tenure for FQHC board members in the state of Alabama was 5 years, and the average tenure for the nation was 3 years (UDS, 2014).

In 2011, a HRSA TA provided training to help the board better understand their roles and responsibilities. In a survey administered in 2012, employees stated the need for new, younger board members who understood basic business principles. Employees also expressed the need for more frequent rotations of board members. In 2013, feedback from an operational site visit by a second group of HRSA technical assistants highlighted the board's failure to maintain proper oversight of the operation in seven different areas. The researcher observed that the board then used the feedback and training sessions for self-improvement. The researcher also observed that the board relied heavily on the opinions of two board members.

The staff.

The staff was rated as needs improvement because it lacked key members and did an inadequate job of maintaining and enforcing policies, procedures, and plans. Some of the staff's deficiencies were due to the difficulty of attracting affordable, qualified, professionally skilled people to work in rural areas. Certain staff members were

accustomed to having more than one responsibility and doing extra work to maintain the operation.

Due to the remote locations of the administrative and clinical sites, along with budget constraints, the subject FQHC organization was historically unable to recruit and maintain an effective staff. The organization's inability to maintain an effective staff caused gaps in the management structure, led to lower levels of tacit knowledge, and placed unrealistic work burdens on other available employees. HRSA technical assistants' feedback identified the need for job descriptions, reports, plans, and better compliance. Employee feedback identified the need for staff training, better work ethics, and better communications between management and employees. Financial audit results indicated the need for better compliance and follow-though on tasks that affect profitability, such as financial reconciliations and collections. I observed that there was a reluctance to hire employees from outside of the target area and the need to outsource key services.

The culture.

The subject FQHC organizational culture included informal relationships between board members and the employees, a lack of follow-through on work assignments, poor communications, a lack of teamwork and unity, and the need for employee training and development. Although teamwork and accountability improved after 2011, certain members of the board of directors continued to maintain informal relationships with some employees and continued to interfere with daily operations. Although some of the staff and employees worked to make necessary improvements in the subject FQHC

organizational culture, there was a deeply-rooted resistance to change within the organization.

Collaboration.

The subject FQHC organization's performance in collaborative relationships was rated as fair. From 2011 through 2014, the subject FQHC organization increased the number and improved the quality of its collaborative relationships. The subject FQHC organization spawned relationships with a local mental health provider, the College of Dentistry at University of Alabama at Birmingham, the chambers of commerce in two counties, and the department of public housing in one county. The subject FQHC organization also developed relationships with several specialty medical providers and a hospital in one of the counties. These positive steps may lead to better community relations and more patient visits.

Policies and Procedures

In the policies and procedures area, I rated the organization's performance as needs improvement. The policies and procedures were not up-to-date, and some of the policies and procedures did not reflect the latest regulatory agency requirements. The Employee Handbook had not been revised since 2013, and there was a lack of compliance with several policies and procedures.

HRSA technical assistants and independent financial auditors found that the subject FQHC organization did not maintain a set of comprehensive, up-to-date policies and procedures. In 2011, HRSA technical assistants reported numerous findings. In response to these findings, the CEO wrote a substantial number of policies and procedures between 2012 and 2014, however, some of them were not revised in a timely

manner due to the limited number of staff members. FQHC organizations are required to maintain certain policies and procedures by HRSA, Medicaid, state Nursing Boards, the U.S. Occupational Safety and Health Administration (OSHA), as well as the Health Information Patient Accountability Act (HIPAA), and other regulatory agencies. The organizations' policies and procedures must be aligned with agency requirements. With limited staff, the CEO and the remaining staff members did not keep up with the agencies' change requirements and did not reflect those changes in the appropriate organizational policies and procedures.

Planning

In the planning area, the subject FQHC organization's performance was rated as needs improvement. Budgets were performed annually. A needs assessment and strategic plan were revised in 2013 and 2014. Both the quality and marketing plans were revised in 2014, however the operations plan had not been revised since 2013.

Although the subject FQHC organization's staff improved its planning activities from 2011 through 2014, the board of directors did not use an effective, formal planning process. The board conducted its meetings per Robert's Rules of Order, however, due to a lack of professional members, the informal planning process that the board used did not integrate adequate feedback from the CEO and staff.

Capabilities

In the capabilities area, the subject FQHC organization's performance was poor. The inadequate technology infrastructure, problematic EHR system, lack of telemedicine capabilities, and limited scope of services negatively impacted profitability. Also, three of

the five clinics in the subject FQHC organization did not serve patients a full eight hours per day.

Findings related to capabilities comprised the second highest group of problems. Limited staff, technology, and patient services offerings restricted the subject FQHC organization's capabilities, which directly impacted the numbers of patients and patient visits, as well as the amount of patient service revenues generated. The financial auditors cited how the lack of an effective accounting software system contributed to the organization's financial instability.

Performance versus Key Indicators

The subject organization's performance against key metrics was poor. Collection amounts were low, costs per patient were rising, provider productivity was low, and the number of patients and patient visits were decreasing. The organization had a high percentage of uninsured patients, which generated low revenues per patient. The organization also had relatively low percentages of Medicare, Medicaid, and child patients, which would have generated higher revenues.

All the information sources that provided feedback on the subject CHC organization's performance cited specific issues that directly affected profitability. The HRSA technical assistant cited poor collections, and the consultants who conducted the HRSA operational site visit found that the number of patients served was low and that the board did not exercise appropriate authority over the subject CHC organization's financial performance. I observed poor compliance with financial policies and procedures; low numbers of patients and patient visits; low provider productivity; and poor, inconsistent collection of receivables. The federal UDS reports reflected poor

performance in the number of patients, patient visits, and scope of services provided. The UDS report also highlighted a relatively high percentage of uninsured patients; a small percentage of child patients; a high cost per patient visit; and an insufficient amount of revenue per patient visit. Many of these performance results were interrelated and all represented opportunities to improve profitability performance at the subject CHC organization.

Evidence of Trustworthiness

I used diverse data sources to help establish internal validity, external validity, dependability, and confirmability for the study. As mentioned above, some of the data sources were subjective, while others were objective. Some of the sources were internal to the organization, while others were external to the organization. Collectively, the various data sources contributed to trustworthiness of the study results.

Internal and External Validity

To establish internal validity, I used various data sources to develop the profitability model and to evaluate the subject FQHC organization's performance against the model. The performance evaluation data included objective data, from sources such as the federal UDS report, and subject data from sources such as employee survey reports. To establish external validity for this study, I used a broadly scope literature review, which included journal articles on national FQHC organizations. The literature review also included information from the HRSA Nineteen Objectives, with requirements for all FQHC organizations in the nation.

Dependability

To establish a dependable profitability model, I used information from the literary review, the HRSA Nineteen Objectives, employee feedback, and CEO interview sessions. Each of these data sources identified factors that affect profitability, some of which were consistent across various sources, strengthening the dependability of the model. To establish dependability, I was able to triangulate information from the various data sources. For example, the literature review, HRSA Nineteen Objectives, SWOT analysis, and CEOs all identified an effective, professional staff as a major profitability factor. Some data sources, however, identified factors that were unique, yet important for profitability. The CEO group alone emphasized the importance of provider productivity for profitability performance. The entire collection of both common and unique factors supported the dependability of the profitability model.

To complete a dependable assessment of the subject FQHC organization's performance, I used information from HRSA technical assistance and OSV consultants, a professional financial audit group, employees, the UDS report, and the researcher's observations. Each of these data sources provided information related to people; policies & procedures; planning; capabilities; and performance. Collectively, the data sources enhanced the dependability of my assessment of the subject FQHC organization's overall performance.

Confirmability

Although I was the only researcher involved in this study, I used peer-reviewed articles by groups of authors and researchers who confirmed each other's contributions. Also, each of the various data sources that I used included information that is reflected in

other data sources. For example, the financial auditors highlighted problems with collections, which was also reflected in the feedback received from the HRSA technical assistant, employees, and from the researcher.

Summary

I designed a FQHC profitability model, to which I then compared the performance of the subject FQHC organization. From this comparison, I identified performance gaps that represented opportunities for improvement. To develop the model, I used information from the literature review, the HRSA 19 Objectives, the UDS report, employee feedback, and recommendations from CEOs of four FQHC organizations in the state of Alabama. Data from these sources were analyzed and grouped into the five components that comprise the profitability model, which are people-related, policies and procedures, planning, capabilities, and performance.

To assess the subject FQHC organization's performance, I collected and analyzed data from a HRSA technical assistant, a HRSA-sponsored operational site visit, reports from a professional financial audit group, feedback from employees, and four years of performance data from the federal universal data system. In the components related to people, policies and procedures, and planning, I rated the subject FQHC organization as needing improvement. In the components dealing with capabilities and performance against metrics, I rated the organization as poor. The people-related component includes the board of directors, the staff, the organizational culture, and collaborative relationships. The board of directors, staff, and the organizational culture were rated as needing improvement. Collaborative relationships were rated as fair. To establish trustworthiness and mitigate the potential for bias in this study, I used several different

data sources. Internal and external validity, dependability, and confirmability were addressed by using subjective and objective information from both internal and external sources. Chapter 5 includes an interpretation of the study findings; limitations of the research; recommendations for further research; implications; and the study conclusion.

Chapter 5

Introduction

The purpose of this study was to identify opportunities to improve profitability at the subject FQHC organization, which had financial losses from FY 2011 through FY 2014. To accomplish this, I compared the subject FQHC organization's performance by using a profitability model. Findings discussed in Chapter 4 included the five components that comprise the profitability model: people, policies and procedures, planning, capabilities, and performance.

In the category of people, the board of directors needed members who were more professionally diverse, had a better understanding of their roles and responsibilities, and who exercised better oversight of the organization's financial performance. There was a shortage of key staff members, which made it difficult for the remaining staff members to do an adequate job of maintaining and enforcing policies, procedures, and plans. The subject FQHC organizational culture included informal relationships between some board members and employees, as well as the need for better follow-through on work assignments, better communications, teamwork, and training. From 2011 through 2014, the subject FQHC organization increased the number of collaborative relationships and improved the quality of its existing collaborative relationships.

The policies and procedures were not up-to-date, and some of the policies and procedures did not reflect the latest regulatory agency requirements. Although the subject FQHC organization's staff improved its planning activities from 2011 through 2014, the board of directors did not use an effective, formal planning process. Limited staff, technology, and patient services offerings restricted the subject FQHC organization's capabilities, which directly impacted the number of patients, patient visits, and patient

service revenues. Collections were low, cost per patient was increasing, provider productivity was low, and the numbers of patients and patient visits were decreasing. The organization had a high percentage of uninsured patients, which generated low revenues per patient. The organization also had relatively low percentages of Medicare, Medicaid, and child patients, which would have generated higher revenues per patient visit.

Interpreting the Findings

The findings in this study confirmed information found in various sections of the literature review in Chapter 2. In the category of people, I found a shortage of effective board and staff members, as well as organizational cultural deficiencies. The organization was making progress, however, in the development of collaborative relationships. Due to a shortage of effective staff members, policies and procedures at the subject FQHC organization were not kept up-to-date and plans were not well executed. The capabilities of subject FQHC organization were impacted by the limited staff, deficient technology infrastructure, and relatively low number of patient services. Poor performance in key areas, such as the number of patient visits, low collections percentage, a high percentage of low revenue patients, and a low percentage of high revenue patients also contributed to the poor financial performance of the subject FQHC organization. Together, these findings reinforced each other and contributed to a dynamic system of financially instability.

People

The HRSA Nineteen Objectives state that FQHC governing boards should include members with the professional talent required for the successful operation of the FQHC. Mason et al (2013) found that the inclusion of healthcare professionals can enhance the

effectiveness of governing boards. At the subject FQHC organization, the ineffective board was a key contributor to the poor financial performance, confirming the need for better board staffing. The HRSA Nineteen Objectives also require the governing board to maintain corporate by-laws that clearly specify a policy on board tenure. At the subject FQHC organization, the board allowed some members to remain in place for long periods of time, which restricted the performance of the governing board.

Another people-related finding was the shortage of effective staff members, which forced some of the remaining staff to perform multiple job functions, reducing the overall efficiency and effectiveness of those staff members. This finding confirmed the work of Vermeeren et al. (2014) who found that human resource management policies and practices are linked to profitability. The finding also confirmed a study completed by Fiscella and Geiger (2014), who emphasized that successful FQHC organizations must be able to recruit and retain effective clinical and non-clinical staffs.

Findings of deficiencies in the organizational culture also confirmed information in the literature review. Towill (2010) found that organizational cultural deficiencies cause low morale, which in turn affects employee productivity, costs, and revenue generation. Flood (2013) observed that individuals and functions within organizations tend to reinforce each other and that interactions can have either a positive or a negative effect on the organization's overall performance.

Policies, Procedures, and Planning

In this study, I found that although the CEO had rewritten numerous policies and procedures, they had not been revised in a timely manner. I also found that plans from the staff were poorly executed and that there was a lack of formal planning on the part of the

board of directors. Some board members interacted directly with staff members and employees in the organization. These findings confirmed information presented in the HRSA Nineteen Objectives and in the national UDS Report, which highlight the need for up-to-date policies and procedures, as well as clear responsibilities for the board and staff.

Capabilities and Performance

I found that the subject FQHC organization had limited capabilities and poor performance in key areas. The limited capabilities were due to an inadequate number professional staff, lack of a telemedicine program, an inadequate EHR system, and a narrow scope of patient services. These findings confirmed information presented in the literature review, which highlights the importance of telemedicine (Gregg, 2014), an effective EHR program (Jones and Furukawa, 2014), and a broad scope of relevant patient services (HRSA 19 Objectives, 2015).

I found poor performance in the number of patient visits, collections, the high percentage of uninsured patients, and the low percentage of Medicare, Medicaid, and child patients. These findings confirmed information presented in the literature review, which states that quality management systems should integrate financial performance data into healthcare quality programs (Sedivich-Fons, 2014). The literature review also highlighted the need for FQHC organizations to measure their collections performance and the financial impact of their patient population (UDS, 2015).

Limitations of the Study

This study was based on a literature review that included journal articles on FQHC profitability and the HRSA Nineteen Objectives, which also contains information

for helping FQHC organizations to achieve and maintain profitability. Consequently, the profitability model developed in this study may be limited to other FQHC organizations throughout the United States, and may not be applicable to other types of health care providers, such as hospitals and private care providers. The actual financial performance of the subject FQHC organization and the contributors to that performance are limited to the subject FQHC organization. The specific combination of factors, including the impact of the specific rural service area on people, capabilities, and patient demographics, may be unique to the subject FQHC organization. Also, the decisions and actions of the board and staff in guiding the organization may also be limited. Although the profitability model may be applicable to other FQHC organizations, the findings and recommendations pertaining to the subject FQHC organization are limited to that organization.

Recommendations for Further Research

Further research should be done to better understand the relationships between the components of the profitability model, or system, and between the profitability components and the environment. In this study, there was evidence that the rural environment directly impacted the subject FQHC organization's ability to recruit enough skilled people, which in turn, impacted policies and procedures, planning, capabilities, and performance. At different FQHC organizations, what are the relationships between the profitability model components and what are the environmental factors that seem to make a major difference in overall profitability?

Additional research on the external factors, such as the rural environment, state and federal government, and the macro economy might also enhance a future study. If

FQHC organizations understand how and to what degree internal and external factors impact profitability, then the organizations might be able to set more realistic improvement goals. Another recommendation for future research is the completion of quantitative analysis to determine the relative strengths of impact that each of the internal and external factors have on profitability.

Implications for Positive Social Change

This study is important because it provides a profitability model, as well as a detailed assessment of a FQHC organization, that national FQHC organizations may be able to use to identify opportunities for improving their own financial sustainability. FQHC organizations serving rural, geographically isolated, relatively low volumes of patients, may face similar challenges as those faced by the subject FQHC organization. These organizations with profiles that are similar to that of the subject FQHC organization may be able to identify interactions between the factors that affect profitability in their own organizations and design effective strategies for improving profitability. Although 72% of the U.S. land area is classified as rural, only 18% of the population, or approximately 43 million people, live in the rural areas as baby boomers are moving to urban areas for economic reasons (Yen & Dreier, 2013). Many of the low-income people remaining in the rural areas seek health care services from FQHC organizations. Although HRSA provides limited federal funds to FQHC organizations to help address the health outcomes of underserved populations, the FQHC organizations must be good stewards of those funds. Management at the subject FQHC organization and at other health care organizations may be able to use the findings of this study to improve financial stability.

Conclusion

Although HRSA funding for FQHC organizations has not kept up with the rising cost of health care, the subject FQHC organization has a unique opportunity and responsibility to provide quality services to underserved patients. In this case study, I used a literature review, information from sources internal to the organization, and information from sources external to the organization to develop a profitability model for FQHC organizations. I then compared the subject FQHC organization by using that model, and I found generally poor performance in all the components or factors that affect FQHC profitability. Senge (1990) highlighted the relationships and interactions of system components, and Flood (2010) stressed that system analysis leads to the discovery of hidden factors and influences, good and bad, that are active within systems. In the subject FQHC organization, I found that the factors that affect profitability are interconnected and interactive. As mentioned above, these factors include people, policies, planning, capabilities, and performance. People influenced policies, developed plans, as well as determined the organization's capabilities and performance. Policies influenced behavior, as well as impacted plans, capabilities, and performance. Planning should specify how people will utilize the organization's policies and capabilities to solve problems and improve performance. Capabilities and performance were results of the policies and plans that the management of the subject FQHC organization developed and implemented.

The findings from this study indicated an interactive system of problems, spanning people, policies and procedures, planning, capabilities, and performance. Based on my analysis of feedback from several internal and external sources, I found that the

primary cause of the system of problems, including the poor financial performance, was the 100% rural environment in which the subject FQHC organization operated. This rural environment was isolated far enough away from large urban centers to restrict its access to adequate pools of professional, skilled people. Although most the board, staff, and employees were committed to providing quality services, there simply were not enough highly skilled people to effectively execute the programs and it was difficult to recruit key talent. The subject FQHC organization was located within an 80-mile radius of four large urban centers that had more attractive employment, educational, and social opportunities for job seekers. The limited staffing affected the maintenance of policies and procedures, the execution of plans, and overall operational and financial performance.

The rural environment made it difficult for the subject FQHC organization to fully implement a reliable technology infrastructure and cost-efficient technology applications. There was no broadband fiber connectivity and satellite service was inconsistent. The organization was unable to capitalize on the EHR system, telemedicine, and other health information technology.

The rural environment also contributed to the population shift from the rural area to more urban areas (Yen & Dreier, 2013). Not only did the shift impact the availability of professional skills, it also contributed to the increase in the number and proportion of uninsured patients at the subject FQHC organization. Some of the reduction in the number of Medicare and Medicaid patients was because some patients chose to travel to the larger urban FQHC organizations, which offered more extensive services, were comprised of more clinics, and were open to the public for longer periods of time.

In 2015, five of the 14 FQHC organizations in Alabama were 100% rural, and the remaining nine organizations were comprised of both urban and rural clinics. Urban-based organizations had the economic advantages of higher patient volumes, better technology infrastructures, and better public transportation. Even those urban-based centers with rural satellites had the economic advantage of better economies of scale and better access to human and technology resources. The financial losses or marginal performances of the rural satellites were absorbed or offset by the performance of the large, robust urban centers. The subject FQHC organization was rural and faced greater clinical and environmental challenges than did urban-based FQHC organizations.

Possible Solutions

To address the subject FQHC organization's profitability problem, I propose three possible strategies: a partnership strategy, a resource reallocation strategy, and continued reliance on the HRSA competitive strategy. With the partnership strategy, the subject FQHC organization would form and strengthen alliances and partnerships with key complimentary organizations. With the resource reallocation strategy, the subject FQHC organization would be dissolved and its five clinics would be reallocated amongst the surrounding, more capable FQHC organizations. The HRSA competitive strategy is based on the Service Area Competitive grant process that HRSA currently uses to identify which organization will receive the finds necessary to manage service areas.

Partnership strategy.

With the partnership strategy, the subject FQHC organization would continue to manage the service area, and would use the findings from this study to identify potential partners to address organizational deficiencies. The subject FQHC organization might

even take the initiative to consolidate its operations with those of larger, more capable, neighboring FQHC organizations. I found that the rural environment negatively impacted the availability of adequate numbers of professional people, which in turn affected capabilities, policies and procedures, planning, and performance. The rural environment also had an adverse effect on technology infrastructure. For each of the counties in which the subject FQHC organization operates, sources for professional people and technology support should be identified.

Periodically, the University of Alabama and other colleges and universities approached the subject FQHC organization to serve as an internship and training site for medical and dental residents. These programs can be expanded to include business, accounting, technology, and project management disciplines, in addition to the clinical internship programs. Using these multi-disciplined internship programs, the subject FQHC organization would have access to college students at no or low cost, some of whom might choose to work for the organization following graduation.

Resource-sharing between the subject FQHC organization and other organizations could also help to address the shortage of professional skills in the rural areas. Non-competing, complimentary organizations might be willing to share and more fully utilized key people and technology capabilities. For example, a publicly funded mental health organization had clinics in each of the counties where the subject FQHC organization had clinics. Case workers, policy writers, and grant writers could be shared. Network infrastructures in vulnerable areas could also be shared.

As with all strategies, the partnership strategy has both risks and benefits. The benefits include the potential for lower cost, access to more professional skills, and

access to a more reliable technology infrastructure. The risks include threats to organizational brands, system security threats, threats to employees' rights, role clarity and performance evaluations for employees, potential policy conflicts between organizations, and compliance with federal and state labor laws. The organizations involved might have to contract professional firms to identify potential partners, then complete the necessary legal, financial, and programmatic analyses required to define the detailed working relationships and partnership agreements. The cost of completing the due diligence activities would have to be part of a cost-benefit analysis and feasibility study.

Reallocation strategy.

Whereas the partnership strategy would enable the subject FQHC organization to maintain control of the funding and some of the resources required to operate the program, the reallocation strategy would involve dissolving the subject FQHC organization and then reallocating the patients, funding, and other resources to other near-by FQHC organizations. In 2014, there were four large FQHC organizations, serving between 30 thousand and 50 thousand patients each annually, with extensive service areas that bordered the subject FQHC organization's service area (UDS, 2014). Although these large FQHC organizations had headquarters in urban centers, they operated remote, rural clinics and they used mobile medical units to reach remote patients.

The restructuring or reallocation of the subject FQHC organization's clinics might reduce costs, without compromising quality of patient services. The cost reduction would be the result of reducing or eliminating the number of board members, administrative, and non-clinical employees at the subject FQHC organization. In 2014, the subject

FQHC organization received approximately three million dollars in HRSA funding to serve approximately 6,000 patients. By reallocating the patients and related funding, HRSA might be able to continue serving the patients for less than three million dollars. The clinical employees at each of the subject FQHC clinics could be maintained to help guarantee continuity of patient care. In 2014, almost 80%, or almost 5,000 of the approximately 6,000 patients at the subject FQHC organization, were uninsured (UDS, 2014). With the population migration from the rural counties in Alabama, the percentage of uninsured patients might increase.

Rather than allow so many uninsured patients to be concentrated at one small FQHC organization, those uninsured patients could be shared amongst other larger, more capable FQHC organizations. Rather than one understaffed FQHC organization struggling to resolve rural technology, collections, and cost per patient issues, the reallocation strategy might help to ensure that the approximately 6,000 patients in the subject FQHC organization's service area receive continued or even better support from more financially stable organizations. Although this reallocation of patients and funding would cause the loss of jobs for some people at the subject FQHC organization, failure to reallocate patients and resources could lead to eventual bankruptcy of the organization. Bankruptcy might cause all of the employees at the subject FQHC organization to lose their jobs and jeopardize the continuity of quality health services to the approximately 6,000 underserved patients in the service area.

HRSA service area competitive process.

HRSA uses a competitive process for awarding funds to FQHC organizations that are in turn responsible for operating the health care programs. Every three and ½ years,

HRSA allows qualifying organizations to apply for the Service Area Competitive Grants necessary to operate the centers and clinics in each service area. Since the process is competitive, there are no guarantees that incumbent organizations will be automatically awarded the funds to operate during the upcoming three and ½ year period. This means that if the subject FQHC organization continues to perform poorly, and if a different FQHC organization submits a stronger proposal, then the subject FQHC organization will lose the opportunity to serve the patients in its service area. Organizations can also collaborate and submit joint proposals for the funding and authorization to manage service areas. In effect, this competitive process could result in the replacement of the existing organization, along with its board of directors and staff, with a different FQHC organization or group of FQHC organizations. HRSA uses the competitive process to encourage FQHC organizations to continuously improve performance and to help ensure quality, affordable healthcare services to patients.

Due to the rural environment, the subject FQHC organization is challenged to attract and retain enough skilled people. This shortage of skilled people limits the organization's ability to effectively maintain policies and procedures, to implement effective operational improvement plans, and provide an adequate of services to patients. The rural environment also impacts the organization's information technology infrastructure and the number of adequately insured patients.

Since it is not feasible to change the rural environment in which the subject FQHC organization functions, I recommend the above three possible strategies for addressing the subject FQHC organization's financial problem. The first strategy involves the development of key partnerships with other organizations. Although this

strategy might allow the subject FQHC organization to continue management of the operation, with minimal job losses, it would require substantial effort to identify potential partners, determine how resources would be shared, and develop effective partnership agreements. The second strategy involves the dissolution of the subject FQHC organization and the reallocation of the clinics, patients, and support resources amongst neighboring FQHC organizations. Although this strategy might result in the loss of a substantial number of non-clinical jobs at the subject FQHC organization, the strategy might provide a safer haven for patients and better utilization of the HRSA funds required to support those patients. If the subject FQHC organization takes no deliberate action, then HRSA will use the competitive process, the third strategy, to determine which organization will manage the service area. With this strategy, there is no guarantee that the organization submitting the winning grant proposal would be able to better manage the service area.

The subject FQHC organization may be able to use the results of this study to improve profitability, as well as continue and possibly expand services to underserved patients in rural Alabama. Other FQHC organizations throughout the U.S. may be able to use the profitability model as guidance for self-assessment and as a basis for additional research to improve profitability.

References

Aczel, A., & Sounderpandian, J. (2009). *Complete business statistics*. New York, NY: McGraw Hill Irwin.

Adesola, S., & Baines, T. (2005). Developing and evaluating a methodology for business process improvement. *Business Process Management Journal*, *1*, 37-46. doi: 10.1108/14637150510578719

Alabama Black Belt Heritage. (2014). About the Alabama black belt heritage area. Retrieved from http://www.alblackbeltheritage.org/about-alabama-black-belt-heritage-area

Alabama Department of Public Health. (2011). County health profiles, 2010. Retrieved from http://www.adph.org/healthstats/assets/C2013.pdf

Alabama Department of Public Health. (2016). All Kids children's health insurance program. Retrieved from http://www.adph.org/allkids/

Alabama Office of Primary Care and Rural Health. (2013). Selected indicators of health status in Alabama. Retrieved from http://www.arhaonline.org/data/health-status-reports/indicators-of-health-status-reports/

Aldridge Borden & Company, Certified Public Accounts (2011*). Financial statements 2011 and 2010: Rural Health Medical Program, Inc.* Montgomery, AL: Aldridge Borden & Company, P.C.

Allen, C. L., Harris, J. R., Hannon, P. A., Parrish, A. T., Hammerback, K., Craft, J., & Gray, B.(2014). Opportunities for improving cancer prevention at federally qualified health centers. *Journal of Cancer Education, 29*(1), 30-37. doi:10.1007/s13187-013-0535-4

Alvarez, K., Marroquin, Y. A, Sandoval, L., & Carlson, C. I. (2014). Integrated health care best practices and culturally and linguistically competent care: Practitioner perspectives. *Journal of Mental Health Counseling, 36*(2), 99-114.

Ancker, J. S., Barrón, Y., Rockoff, M. L., Hauser, D., Pichardo, M., Szerencsy, A., & Calman, N. (2011). Use of an electronic patient portal among disadvantaged populations. *Journal of General Internal Medicine, 26*(10), 1117-23. doi:10.1007/s11606-011-1749-y

Anderson, D.R., & Olayiwala, J.N. (2012). Community health centers and the patient centered medical home: Challenges and opportunities to reduce health disparities in America. *Journal of Health Care for the Poor and Underserved, 23*, 949-957. doi: 10.1353/hpu.2012.0099

Annum, G. (2016). Research instruments for data collection. Retrieved from http://campus.educadium.com/newmediart/file.php/1/giilmadstore/UgradResearch/ThesisWrit4all/files/notes/resInstr.pdf

Assarlind, M., Gremyr, I., & Backmon, K. (2013). Multi-faceted views on a lean six sigma application. *International Journal of Quality and Reliability Management, 30*(4), 387-402. doi: 10.1108/02656711311308385

Baker, D.W., Liss, D.T., Bichell, K.A., Brown, T., Carroll, J. E., Crawford, P., … Ritner, S.S. (2015). Colorectal cancer screening rates at community health centers that use electronic health records: A cross sectional study. *Journal of Health Care for the Poor and Underserved, 26*(2), 377-390. Retrieved from https://search-proquest-com.ezp.waldenulibrary.org/docview/1679411691?accountid=14872

Bauer, E. (2010). Rural health: The startling statistics. *Health Progress, Journal of the Catholic Health Association of the United States 3*, 6-8.

Berlinger, N., Gusmano, M. K., & Turbiner, E. (2014). Revisiting 'The Clinic': ethical and policy challenges in US community health centers. Health Economics, Policy and Law, 9(4), 425-34. doi:10.1017/S1744133114000140

Bilimoria, K.Y., Cohen, M.E., Merkow, R.P., Wang, X., Bentrem, D.J., Ingraham, A.M., . . .Ko, C.Y. (2010). Comparison of outlier identification methods in hospital surgical quality improvement programs. *Journal of Gastrointestinal Surgery, 14*, 1600-1607. doi: 10.1007/s11605-010-1316-6

Bleich, M.R. (2014). Developing leaders as systems thinkers – part two. *Journal of Continuing Education in Nursing, 45*(5), 246-248. doi: 10.3928/00220124-20140327-13

Böhme, T., Williams, S., Childerhouse, P., Deakins, E., & Towill, D. (2014). Squaring the circle of healthcare supplies. *Journal of Health Organization and Management, 28*(2), 247-65.doi: 10.1108/JHOM-01-2013-001

Bosmans, J.E., Schreuders, B., van Marwijk, H.W.J., Smit, J.H., van Oppen, P., & van Tulder, M.W.(2012). Cost-effectiveness of problem-solving treatment in comparison with usual care for primary care patients with mental health problems: A randomized trial. *BioMed Central Family Practice, 13*(98). doi: 10.1186/1471-2296-13-98.

Burke, B.T., Miller, B.F., Prosser, M., Petterson, S.M., Bazemore, A.W., Goplerud, E., & Phillips, R.L. (2013). A needs-based method for estimating behavioral health staff

needs of community health centers. *BioMed Central Health Services Research, 13*, 245-257. Retrieved from http://www.biomedcentral.com/1472-6963/13/245

Burney, R. (2010). Quality in a global healthcare system. *Journal for Quality and Participation, 33*, 19-22. Retrieved from http://: asq.org/quality-participation/2010/07/global-quality-in-a-global-healthcare-system.html

Bruen, B.K., Xiaoxiao, L., Ku, L., & Shin, P. (2013). No evidence that primary care physicians offer less care to Medicaid, community health center, or uninsured patients. *Health Affairs*, *32*(9), 1624-1630. doi:10.1377/hlthaff.2012.1300

Carlson, R.O., Amirahmadi, F., & Hernandez, J.S. (2012). A primer on the cost of quality for improvement of laboratory and pathology specimen processes. *American Society for Clinical Pathology, 138*, 347-354. doi: 10.1309/ajcpsmqyaf6x1hut

Chassin, M. R. (2013). Improving the quality of health care: What's taking so long? *Health Affairs, 32* (10) 1761-1765. doi: 10.1377/hlthaff.2013.0809

Counte, M.A., Wang, B., Pai, J.Y., & Chang, L. (2013). Globalization of performance improvement approaches and methods in health organizations: Implications for health management education and practice in the United States and Taiwan. *The Journal of Health Administration and Education, 30*(4), 251-265.

Cronholm, P. F., Shea, J. A., Werner, R. M., Miller-Day, M., Tufano, J., Crabtree, B. F., & Gabbay, R. (2013). The patient centered medical home: Mental models and practice culture driving the transformation process. *Journal of General Internal Medicine, 28*(9), 1195-1201. doi: http://dx.doi.org/10.1007/s11606-013-2415-3

Curran, C. R., & Totten, M. K. (2011). Governing for improved quality and patient safety. *Nursing Economics*, *29*, 38-41. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21469489

Davison, K. K., Jurkowski, J. M., Li, K., Kranz, S., & Lawson, H. A. (2013). A childhood obesity intervention developed by families for families: Results from a pilot study. *International Journal of Behavioral Nutrition and Physical Activity.* Retrieved from http://search.proquest.com/docview/1270328068?accountid=14872

Dincer, B., & Dincer, C. (2013). Corporate social responsibility decisions: A dilemma for SME executives. *Social Responsibility Journal, 9*(2)*,* 177-187. doi: 10.1108/SRJ-07-2011-0028.

Duncan, R., & Memon, S. (2011). *Creating an educational model for diabetes health literacy in rural Alabama.* Tuscaloosa, AL: University of Alabama. Retrieved from http://www.bama.ua.edu/~joshua/archive/aug05/Duncan%20and%20Memon.pdf

Dutta, A. (2001). Business planning for network services: A systems thinking approach. *Information Systems Research, 12*(3), 260-285. Retrieved from http://search.proquest.com/docview/208163321?accountid=14872

Ely, L. T. (2015). Nurse-managed clinics: Barriers and benefits toward financial sustainability when integrating primary care and mental health. *Nursing Economics, 33*(4), 193-203.

Emerson, J. F., Welch, M., Rossman, W. E., Carek, S., Ludden, T., Templin, M., …McWilliams, A. (2016). A multidisciplinary intervention utilizing virtual

communication tools to reduce health disparities: A pilot randomized controlled trial. *International Journal of Environmental Research and Public Health*, *13*(1), 1-14. doi:10.3390/ijerph13010031

Faello, J. (2015). Understanding the limitations of financial ratios. *Academy of Accounting and Financial Studies Journal, 19*(3), 75-85.

Fifield, J., Forrest, D. D., Burleson, J. A., Martin-Peele, M., & Gillespie, W. (2013). Quality and efficiency in small practices transitioning to patient centered medical homes: A randomized trial. *Journal of General Internal Medicine, 28*(6), 778 86. doi:10.1007/s11606-013-2386-4

Fiscella, K., & Geiger, H. J. (2014). Caring for the poor in the 21st century: Enabling community health centers for a new era. *Journal of Health Care for the Poor and Underserved, 25*(4), 2044-52. Retrieved from https://search-proquest-com.ezp.waldenulibrary.org/docview/1630024902?accountid=14872

Flood, R. (2010). The relationship of systems thinking to action research. *Systems Practice Action Research, 23*, 269-284. doi: 10.1007/s11213-010-9169-1

Fortney, J. C., Pyne, J. M., Mouden, S. B., Mittal, D., Hudson, T. J., Schroeder, G. W., … Rost, K. M. (2013). Practice-based versus telemedicine-based collaborative care for depression in rural federally qualified health centers: A pragmatic randomized comparative effectiveness trial. *The American Journal of Psychiatry, 170*(4), 414-25.

Frankfort-Nachmias, C., & Nachmias, D. (2008). *Research methods in the social sciences.* Dallas, TX: Worth Publishers.

Frieden, T. R. (2014). Six components necessary for effective public health program implementation. *American Journal of Public Health, 104*(1), 17-22.

Friedman, D. B., Young, V. M., Freedman, D. A., Adams, S. A., Brandt, H. M., Xirasagar, S., …Hébert, J. R. (2012). Reducing cancer disparities through innovative partnerships: A collaboration of the South Carolina cancer prevention and control research network and federally qualified health centers. Journal of Cancer Education, 27(1), 59-61 doi: 10.1007/s13187-011-0272-5

Frimpong, J. A., Jackson, B. E., Stewart, L. M., Singh, K. P., Rivers, P. A., & Bae, S. (2013). Health information technology capacity at federally qualified health centers: a mechanism for improving quality of care. *BMC Health Services Research, 13*. doi: 10.1186/1472-6963-13-35

Garg, S. K., Lyles, C. R., Ackerman, S., Handley, M. A., Schillinger, D., Gourley, G., … Urmimala, S. (2016). Qualitative analysis of programmatic initiatives to text patients with mobile devices in resource-limited health systems. *BMC Medical Informatics and Decision Making 16,* 16. doi: 10.11186/s12911-016-0258-7

Garrett, L., Chowdhury, A., Mushtaque, R., & Pablos-Mandez, A. (2009). All for universal health coverage. *The Lancet, 374*, 1294-9. doi: 10.1016/s0140-6736(09)61503-8

Gershengorn, H. B., Kocher, R., & Factor, P. (2014). Management strategies to effect change in intensive care units: Lessons from the world of business. *Annals of the American Thoracic Society, 11*(3), 444-453. doi: 10.1513/annalsats.201311-392as

Gibson, J.W., Chen, W., Henry, E., Humphries, J., & Lian, Y. (2013). Examining the work of Mary Parker Follett through the lens of critical biography. *Journal of Management History, 19*(4), 441-458. doi: 10.1108/jmh-05-2012-0044

Gitlow, H.S., & Gitlow, A.L. (2013). Deming-based lean six sigma management as an answer to escalating hospital costs. *The Quality Management Journal, 20*(3), 6-9. Retrieved from http://search.proquest.com/openview/73082f0ddf1d0ccf1dbcf8cdb3cc6466/1?pq-origsite=gscholar

Gold, R., Muench, J., Hill, C., Turner, A., Mital, M., Milano, C., Shah, A., …Nichols, G. A. (2012). Collaborative development of a randomized study to adapt a diabetes quality improvement initiative for federally qualified health centers. *Journal of Health Care for the Poor and Underserved, 23*(3), 236-246.

Gowen, C.R., McFadden, K.L., & Settaluri, S. (2012). Contrasting continuous quality improvement, six sigma, and lean management for enhanced outcomes in U.S. hospitals. *American Journal of Business, 27*(2), 133-153. doi: 10.1108/19355181211274442

Grachev, M., & Rakitsky, B. (2013). Historic horizons of Frederick Taylor's scientific management. *Journal of Management History, 19*(4), 512-527. doi: 10.1108/jmh-05-2012-0043

Gregg, H. (2014). Five examples of effective use of telemedicine. *Becker's Hospital Review.* Retrieved from http://www.beckershospitalreview.com/healthcare-information-technology/5-examples-of-effective-uses-of-telemedicine.html

Haggsfrom, D.A., Taplin, S.H., Monahan, P.D., & Clausers, S. (2012). Chronic care model implementation for cancer screening and follow-up in community health centers. *Journal of Health Care for the Poor and Underserved, 23*(3), 49-66. doi: 10.1353/hpu.2012.0131

Handy, C., Ma, S., Block, L., de la Torre, D., Langley, A., & Cook, B. (2013). Identifying patient, community, and program specific barriers to free specialty care utilization by uninsured patients in East Baltimore. *Journal of Health Care for the Poor and Underserved, 24*(2), 688-96.

Hayes, K. J., Reed, N., Fitzgerald, A., & Watt, V. (2014). Applying lean flows in pathology laboratory remodeling. *Journal of Health Organization and Management, 28*(2), 229-46. doi: 10.1108/JHOM-03-2013-0064

Hernandez, J.S., & Mustapha, M. (2010). Systems engineers working with physician leaders. *Physician Executive Journal, November-December 2010*, 44-49. Retrieved from http://search.proquest.com/openview/215fc0cd892c9a2c70d306c6a7568e24/1?pq-origsite=gscholar

Highfield, L., Ottenweller, C., Pfanz, A., & Hanks, J. (2014). Interactive web-based portals to improve patient navigation and connect patients with primary care and specialty services in underserved communities. *Perspectives in Health Information Management*, 1e-13e.

Horowitz, A. M., Maybury, C., Kleinman, D. V., Radice, S.D., Wang, M.Q., Child, W., & Rudd, R. E. (2014). Health literacy environmental scans of community-based dental clinics in Maryland. *American Journal of Public Health, 104*(8), e85-93.

Hsiao, C., Jha, A. K., King, J., Patel, V., Furukawa, M. F., & Mostashari, F. (2013). Office-based physicians are responding to incentives and assistance by adopting and using electronic health records. *Health Affairs, 32*(8), 1470-7.

Islam, M. S., Semeen, H., & Farah, N. (2013). The effects of financial ratios on bankruptcy. *Independent Business Review, 6*(2), 52-67.

Isringhausen, K.T., VanderWielen, L. M., & Vanderbilt, A. A. (2014). Addressing health care disparities and access to dental care while improving education: Schools of dentistry and federally qualified health centers. *Journal of Health Care for the Poor and Underserved, 25*(2), 670-4.

Jackson, R. (2010). *Principles and social systems: Systems and organizational soul* (Unpublished manuscript). College of Management & Technology, Walden University, Minneapolis, MN.

Jones, E. B., & Furukawa, M. F. (2014). Adoption and use of electronic health records among federally qualified health centers grew substantially during 2010-12. *Health Affairs, 33*(7), 1254-61.

Jones, E. B., & Ku, L. (2015). Sharing a playbook: Integrated care in community health centers in the United States. *American Journal of Public Health, 105*(10), 2028-2034.

Kellogg, A. (2010). *Hospital lean and six sigma: Is there a financial benefit?* Long Beach, CA: California State University.

Kirby, B. (2014). Governor Bentley offers unapologetic defense of decision to reject Medicaid expansion. *AL.com.* Retrieved from http://blog.al.com/wire/2014/01/governor_bentley_offers_unapol .html

Ku, L., Frogner, B.K., Steinmetz, E., & Pittman, P. (2015). Community health centers employ diverse staffing patterns, which can provide productivity lessons for medical practices. *Health Affairs, 34*(1), 95-103. doi:10.1377/hlthaff.2014.0098

Kubis, A., & Cicarelli, J. (2012). Revisiting the leading economic indicators. *Research in Applied Economics, 4*(4*),* 1-11. doi: 10.5296/rae.v4i4.2877

Lei, P., & Jolibert, A. (2012). A three-model comparison of the relationship between quality, satisfaction, and loyalty: An empirical study of the Chinese healthcare system*. Biomedical Central Health Services Research.* doi: 10.1186/1472-6963-12-436

Leither, M., & Onthrop, N. (2012). Improving diabetes care in the uninsured: The success of the access to care program in Cook County, Illinois. *Journal of Health Care for the Poor and Underserved*, *23*, 460–473. doi: 10.1353/hpu.2012.0014

Levtzow, C.B., & Willis, M.S. (2013). Reducing laboratory billing defects using six sigma principles. *Labmedicine, 44*(4), 358-371. doi: 10.1309/lmcvv5ox4f5xafjy

Lyman, B. (2016). Alabama Medicaid budget worries healthcare providers. *Montgomery Advertiser*. Retrieved from http://www.montgomeryadvertiser.com/story/news/politics/southunionstreet/2016/04/15/health-care-providers-fear-restrictions-medicaid-budget/83091638/

MacCoby, M. (2010). Learn change leadership from two great teachers. *Research Technology Management, 53*(2), 58-59. Retrieved from https://www.questia.com/library/journal/1G1-221655289/learn-change-leadership-from-two-great-teachers

McCullough, J. M., Zimmerman, F. J., Bell, D. S., & Rodriguez, H. P. (2014). Electronic health information exchange in underserved settings: examining initiatives in small physician practices & community health centers. *BMC Health Services Research,14*, 415. doi: 10.1186/1472-6963-14-415

Mahdi, O., & Almsafir, M. (2012). Diagnosing of sustainable competitive advantage using six sigma methodology. *International Journal of Business and Management*, *7*, 94-109. doi: 10.5539/ijbm.v7n7p94

Malik, A.U., Willis, C.D., Hamid, S., Ulikpan, A., & Hill, P.S. (2014). Advancing the application of systems thinking in health: advice seeking behavior among primary health care physicians in Pakistan. *Health Research Policy and Systems, 12.* doi: 10.1186/1478-4505-12-43

Mason, D. J., Keepnews, D., Holmberg, J., & Murray, E. (2013). The representation of health professionals on governing boards of health care organizations in New York City. *Journal of Urban Health, 90*(5), 888-901. doi: 10.1007/s11524-012-9772-9

Massey, C.N., Appel, S.J., Buchanan, K.L., & Cherrington, A.L. (2010). Improving diabetes care in rural communities: An overview of current initiatives and a call for renewed efforts. *Clinical Diabetes, 28*(1*)*, 20-27. doi: 10.2337/diaclin.28.1.20

McCullough, J.M., Zimmerman, F.J., Bell, D.S., & Rodriguez, H.P. (2014). Electronic health information exchange in underserved settings: Examining initiatives in small physician practices and community health centers. *Biomedic Central Health Services Research*. doi: 10.1186/1472-6963-14-415

McNeill, T. P., Shirley, A., Orey, E.S., Shahbazi, M., Hayes, S. C., & Ramsey, L. (2014). A community-based approach to address health disparities Among African American Medicare beneficiaries in Mississippi. *Generations, 38*(4), 52-59. Retrieved from https://search-proquest-com.ezp.waldenulibrary.org/docview/1683506520?accountid=14872

Mehrjerdi, Y.Z., (2011). Quality function deployment and its profitability engagement: A systems thinking perspective. *The International Journal of Quality and Reliability Management, 28*(9), 910-928. Doi: 10.1108/02656711111172513

Mowles, C. (2011). Planning to innovate. Designing change or caught up in a game? *Perspectives on Public Health, 131*, 119-123. doi: 10.1177/1757913911400142

Mozammel, A., & Mapa, L. (2011). Application of lean six sigma in healthcare - nursing shift directors process improvement. *Journal of Management and Engineering Integration, 4*(2), 58-65. Retrieved from http://search.proquest.com/openview/5f00c568debfa51344d4e8a1986d6de8/1?pq-origsite=gscholar

Murphree, P., Vath, R., & Daigle, L. (2011). Sustaining lean six sigma projects in healthcare. *Physicians Educational Journal, January-February, 2011,* 44-48. Retrieved from http://search.proquest.com/openview/613e1a3da2d4127397c1f06c95be707c/1?pq-origsite=gscholar

National Association of Community Health Centers. (2015). About our health centers. Retrieved from http://www.nachc.com/membership.cfm.html

Neuhausen, K., Grumbach, K., Bazemore, A., & Phillips, R.L. (2012). Integrating community health centers into organized delivery systems can improve access to subspecialty care. *Health Affairs,* 31(8), 1708-1716. doi: 10.1377/hlthaff.2011.1261

Ogunnaike, B.A., & Ray, W. H. (1994). *Process dynamics, modeling, and control*. New York, NY: Oxford University Press, Inc.

Owens, O. L., Jackson, D. D., Thomas, T. L., Friedman, D. B., & Hébert, J. R. (2013). African American men's and women's perceptions of clinical trials research: Focusing on prostate cancer among a high-risk population in the south. *Journal of Health Care for the Poor and Underserved, 24*(4), 1784-1800. doi: 10.1353/hpu.2013.0187

Patel, K.K., Frausto, K.A., Staunton, A.D., Souffront, J, & Derose, K.P. (2012). Exploring community health center and faith-based partnerships: Community residents' perspectives. *Journal of Health Care for the Poor and Underserved, 24*, 262-274. doi: 10.1353/hpu.2013.0016

Ping, L., & Jolibert, A. (2012). A three-model comparison of the relationship between quality, satisfaction and loyalty: An empirical study of the Chinese healthcare system. *Biomedic Central Health Services Research, 12*, 436-448. doi: 10.1186/1472-6963-12-436

Polk, J.D. (2011). Lean six sigma, innovation, and the change acceleration process can work together. *Physician Executive Journal*, *37*, 38-42. Retrieved from http://search.proquest.com/openview/c0add40bfc71685fd7ab4f950e39901b/1?pq-origsite=gscholar

Polsky, D., Richards, M., Basseyn, S., Wissoker, D., Kenney, G. M., Zuckerman, S., & Rhodes, K. V. (2015). Appointment availability after increases in Medicaid payments for primary care. *The New England Journal of Medicine, 372*(6), 537-545. Retrieved from est-com.ezp.waldenulibrary.org/docview/1651910695?accountid=14872

Ramirez-Zohfeld, V., Jean-Jacques, M., Sanserino, K., Buchanan, D., & Baker, D. (2012). Effectiveness of outreach to patients with diabetes who have fallen out of regular care at a federally qualified health center. *Journal of Health Care for the Poor and Underserved, 23*(3), 1036-47.

Radziwill, N.M., & Benton, M.C. (2013). Burning man: Quality and innovation in the spirit of Deming. *The Journal for Quality and Participation, 36*(1), 7-11. Retrieved from http://search.proquest.com/openview/000722c873cd795f497365443453dc03/1?pq-origsite=gscholar

Ritzwoller, D.P, Glasgow, R.E., Sukhanova, A.Y., Bennett, G.G., Warner, E.T., Greaney, M.L, . . .Colditz, G.A. (2013). Economic analyses of the Be Fit Be Well Program: A weight loss Program for community health centers. *Journal of General Internal Medicine, 28*(12), 1581-1588. doi: 10.1007/s11606-013-2492-3

Rodríguez, J. E. (2012). Communities committed to underserved care. *Journal of Health Care for the Poor and Underserved, 23*(4), 1492-6.

Rothkopf, J. Brookler, K. Wadha, S., & Sajovetz, M. (2011). Medicaid patients seen at federally qualified health centers use hospital services less than those seen by private providers. *Health Affairs, 30,* 1335-42. doi: 10.1377/hlthaff.2011.0066

Robert Wood Johnson Foundation. (2014). County health rankings and roadmaps. Retrieved from http://www.countyhealthrankings.org/app/alabama/2014

Roux, A. (2011). Complex systems thinking and current impasses in health disparities research. *American Journal of Public Health, 101*, 1627-34. doi: 10.2105/ajph.2011.300149

Salanitro, A., Safford, M., Houston, T., Williams, J., Ovalle, F., Payne-Foster, . . .Estrada, C. (2011). Patient complexity and diabetes quality of care in rural settings. *Journal of the National Medical Association*, *103*, 233-240. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3156053/

Saloner, B., Polsky, D., Kenney, G. M., Hempstead, K., & Rhodes, K.V. (2015). Most uninsured adults could schedule primary care appointments before the ACA, but average price was $160. Health Affairs, 34(5), 773-780. doi:10.1377/hlthaff.2014.1258

Santilli, A., Carroll-Scott, A., & Ickovics, J. (2016). Applying community organizing principles to assess health needs in New Haven, Connecticut. *American Journal of Public Health, 106*(5), 841-847. doi: 10.2105/AJPH.2016.303050

Sedevich-Fons, L. (2014). Financial indicators in healthcare quality management systems. *TQM Journal, 26*(4), 312-328. doi: 10.1108/TQM-01-2014-0009

Senge, P. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday/Currency.

Shi, L., Lebrun-Harris, L.A., Daly, C.A., Sharma, R., Sripipatana, A., Hayashi, A.S., & Ngo-Metzger, Q. (2013). Reducing disparities in access to primary care and

patient satisfaction with care: The role of health centers. *Journal of Healthcare for the Poor and Underserved, 24*, 56-66. doi: 10.1353/hpu.2013.0022

Sheppard-Harris & Associates, (2014). *Rural Health Medical Program, Inc. Selma, AL: Audit report June 30, 2014 and 2013.* Birmingham, AL: Sheppard-Harris & Associates, P.C.

Singleton, R.A., & Straits, B.C. (2010). *Approaches to social research*. New York, NY: Oxford University Press.

Skarzauskiene, A. (2010). Managing complexity: Systems thinking as a catalyst of the organization performance. *Measuring Business Excellence*, *14*, 49-64. doi: 10.1108/13683041011093758

Stipelman, C., Dinkins, C.P., Pruhs, A., Serr, R., & Young, P. (2014). AmeriCorps members increase enrollment in Medicaid/CHIP and preventive care utilization at a community health center. Journal of Health Care for the Poor and Underserved, 25(2), 890-900.

Tai-Seals, T., & Chandler, L. (2010). Nutrition and overweight concerns in rural areas: A literary review. *Rural Healthy People*, 115-130. Retrieved from http://sph.tanhsc.edu/srhrc/rhp2010.html

Techopedia. (2016). Technical dictionary. Retrieved from https://www.techopedia.com/dictionary

Thakarar, K., Jake, R. M., Jessie, M. G., Hohl, C., & Mari-Lynn D. (2015). *Predictors of frequent emergency room visits among a homeless population.* PLoS One, 10(4) doi: http://dx.doi.org/10.1371/journal.pone.0124552

Thunhurst, C. (2012). Public health system analysis-the transfer of learning between developed and developing countries. *Healthcare Management Science, 15*, 283-291. doi: 10.1007/s10729-012-9192-c

Toledo, A.H., Carroll, T., Arnold, E., Tulu, Z., Caffey, T., Kearns, L.E., & Gerber, D.A. (2013). Reducing liver transplant length of stay: A lean six sigma approach. *Progress in Transplantation, 23*(4), 350-364. doi: 10.7182/pit2013226

Towill, R. (2010). Industrial engineering the Toyota Production System. *Journal of Management History*, *16*, 327-325. doi: 10.1108/17511341011051234

Trbovich, P. (2014). Five ways to incorporate systems thinking into healthcare organizations. *Biomedical Instrumentation & Technology, 48*(2), 31-4, 36. Retrieved from http://search.proquest.com/docview/1566919058?accountid=14872

Trust for America's Health. (2014). The state of obesity: Better policies for a healthier America. Retrieved from http://healthyamericans.org/reports/obesity2014/?stateid=AL

U.S. Centers for Disease Control and Prevention. (2011). National diabetes fact sheet: National estimates and general information on diabetes and pre-diabetes in the United States, 2011. Retrieved from http://www.cdc.gov/diabetes and prediabetes

U.S. Centers for Disease Control and Prevention. (2012). Overweight and obesity control. Retrieved from http://www.cdc.gov/obesity

U.S. Centers for Disease Control and Prevention. (2013). Health, United States, 2013: With special feature on prescription drugs. Hyattsville, MD. Retrieved from http://www.cdc.gov/nchs/data/hus/hus13.pdf

U.S. Centers for Disease Control and Prevention. (2014). Diabetes data and trends. Retrieved from http://www.cdc.gov/diabetes/atlas/countydata/atlas.html

U.S. Department of Health and Human Services. (2010). Affordable health care act. Retrieved from http://www.hhs.gov/healthcare/rights/law/index.html

U.S. Health Resources and Services Administration. (2011). Universal data system summary report-2011: Grantee, state, and national-universal. Retrieved fromhttps://grants2.hrsa.gov.html

U.S. Health Resources and Services Administration. (2012). Sliding fee scale discount policy. Retrieved from http://www.bphc.hrsa.gov/technicalassistance/taresources/slidingrequirements.html

U.S. Health Resources and Services Administration. (2013). Universal data system summary report-2013: Grantee, state, and national-universal. Retrieved from https://grants2.hrsa.gov.html

U.S. Health Resources and Services Administration. (2015). Health center program site visit guide. Retrieved from http://bphc.hrsa.gov/archive/administration/visitguidepdf.pdf

U.S. Health Resources and Services Administration. (2017). Summary of program requirements. https://bphc.hrsa.gov/programrequirements/summary.html

U.S. Health Resources and Services Administration Office of Rural Health Policy. (2012). Rural guide to federal health professions funding. Retrieved from http://www.hrsa.gov/ruralhealth/pdf/ruralhealthprofessionsguidance.pdf

Vanderlip, E.R., Cerimele, J.M., & Monroe-DeVita, T. (2013). A comparison of assertive community treatment fidelity measures and patient-centered medical home standards. *Psychiatric Services, 64*, 1127-1133. doi: 10.1176/appi.ps.201200469

Van der Wees, P., Friedburg, M.W., Guzman, E.A., Ayanian, J.Z., & Rodriguez, H.P. (2014). Comparing the implementation of team approaches for improving diabetes care in community health centers. *Biomedic Central Health Services Research*. doi: 10.1186/s12913-014-0608-z.

Vermeeren, B., Steijn, B., Tummers, L., Lankhaar, M., Poerstamper, R., & Van Beek, S. (2014). HRM and its effect on employee, organizational and financial outcomes in health care organizations. *Human Resources for Health, 12*. doi:10.1186/1478-4491-12-35

Vitale, M., & Bailey, C. (2012). Assessing barriers to health care services for Hispanic residents in rural Georgia. *Journal of Rural Social Services, 27*(3), 17-45. Retrieved from http://www.ag.auburn.edu/auxiliary/srsa/pages/Articles/JRSS%202012%2027/3/JRSS%202012%2027%203%2017-45.pdf

Washington, M. (2011). Hypertension study has finger on community's pulse. *The University of Alabama Research Magazine.* Retrieved from http://research.ua.edu/2011/05/hypertension-study-has-finger-on-communitys-pulse

Watson, G.H. (2012). A comprehensive approach to quality aims at inclusive growth. *The Journal for Quality and Participation, 35*(1), 33-37. Retrieved from

http://search.proquest.com/openview/f6771e68584375354e878992cf040709/1?pq-origsite=gscholar

Wright, B., & Graham, M.P. (2014). Mission, margin, and the role of consumer governance in decision-making at community health centers. *Journal of Health Care for the Poor and Underserved,* 25(2), 930-947. Retrieved from http://search.proquest.com/docview/1534012193?accountid=14872

Wright, B., & Ricketts, T.C. (2013). When patients govern: Federal grant funding and uncompensated care at federally qualified health centers. *Journal of Health Care for the Poor and Underserved,* 24, 954-967. doi: 10.1353/hpu.2013.0068

White, D., & Fortune, J. (2012). Using systems thinking to evaluate a major project. *Engineering, Construction, and Architectural Management, 19*(2), 205-228. doi: 10.1108/09699981211206124

Yen, H., & Dreier, H. (2013). Census: rural U.S. loses population for the first time. Associated Press. Retrieved from https://www.yahoo.com/news/census-rural-us-loses-population-first-time-040425697.html?ref=gs

Zhang, F., Wagner, A.K., & Ross-Degnan, D. (2011). Simulation-based power calculation for designing interrupted time series analyses of health policy interventions. *Journal of Clinical Epidemiology, 64,* 1252-1261. doi: 10.1016/j.jclinepi.2011.02.007