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Running Head: DEPLOYING CARE MANAGERS INTO PRIMARY CARE

Deploying Care Managers From Care Management Agencies Into Primary Care:

A Pilot Study

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DEPLOYING CARE MANAGERS INTO PRIMARY CARE

Abstract

Background: As the nation shifts to value based payment programs (VBP), financial incentives drive primary care providers (PCPs) to improve outcomes and reduce costs. One method to drive physicians to focus their practices and to increase time working at the top of their licenses is the use of care management (CM) services to meet these goals but the resources needed to implement CM are a barrier. In the Hudson Valley, PCPs embedded local CM staff to provide CM services. This study assesses the provider and care manager perceived patient outcomes from CM, barriers to successful implementation, resources required, total cost of this integration and the sustainability of subcontracting for CM. Methods: In 2017, care managers were embedded in six PCP practices. Using an exploratory sequential study, Care Managers and PCPs received open ended surveys. Themes were coded. Resources were identified to calculate the total cost with additional cost data. The threshold of patients to cover the total cost was calculated and a sensitivity analysis was performed. Results: The perceived impact of CM on the health of patients was mixed. Barriers to the implementation included: staff not understanding the role of the care manager, lack of relationship between the care manager and PCP, lack of patient trust and PCP time constraints. Resources identified included items such as computers. The cost for the first year of CM was \$64,307. Practices require 1072 patients with a \$5PMPM CM reimbursement. Conclusion: Results of this study are aligned with the literature. This study suggests CM impact on outcomes is mixed. Training practice staff would mitigate barriers care managers face. Subcontracted CM is a potentially sustainable model with enough patients in a VBP arrangement. Subcontracting for part time CM may be a model for smaller practices.

Keywords: Care management, Sustainability, Subcontracting, Implementation Cost

DEPLOYING CARE MANAGERS INTO PRIMARY CARE

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Deploying Care Managers From Care Management Agencies Into Primary Care:

A Pilot Study

CHAPTER I

INTRODUCTION

Background of the Study

The United States spends 18 percent of the country's Gross Domestic Product (GDP) on healthcare (Centers for Medicare and Medicaid Services, 2017). The US also spends more per capita and more as a share of GDP on healthcare than any other country (OECD, 2018). For all the money spent on health care in the US, however, Americans have a shorter life expectancy than people in almost all of their peer countries (Woolf & Aron, 2013). Mortality before age 50 is responsible for about two thirds of the difference in life expectancy between males in the United States and peer countries and one-third of the difference for females (Woolf & Aron, 2013). This is largely driven by Americans experiencing greater morbidity and mortality from chronic diseases (Woolf & Aron, 2013).

As a result of the high healthcare spend and poor health outcomes, policy makers over the last decade have been searching for new methods to improve outcomes while lowering cost of care in order to slow the increases in health care spend. Until the early 2000s, up to 95% of payments in the US were paid on a "fee for service" system which contributes to increasing costs because providers are reimbursed on the quantity of services they perform without regard to the health of their patients (Green, 2017). Consequently, the federal government funded the trials of new provider payment models through the Affordable Care Act (Centers for Medicare &

Medicaid Services, 2019). These models contain “value based payment” methods of reimbursement. In models with value based payments, providers are reimbursed partially on their patients’ performance on quality measures in order to incentivize improvements in quality and outcomes as opposed to volume (James, 2012).

As a result, value based payment contracts between providers and payers have continued to grow in the last 10 years. In 2016, payers reported 38% of their business was in value-based payments (The Health Care Transformation Task Force, 2016).

In concert with the payment changes at the national level, New York State is actively working to shift at least eighty percent of its Medicaid payments paid through a value based contract by 2020 (New York State Department of Health, 2016). The changes at the federal and local level in New York are resulting in a disruption in traditional physician payment models. Primary care providers will now need to focus on outcomes and reducing cost of care in order to be fully reimbursed for the services they are providing.

Recent studies, however, have found that the quality of medical care and an individual’s ability to access medical care only accounts for 20% of the modifiable factors that impact health. Thus, the remaining 80% of modifiable factors that impact health are unrelated to medical care received. Forty percent of an individual’s health is a result of social and economic factors such as community safety, employment, and social support; 30% is a result of health behaviors such as tobacco use and diet, and 10% is due to physical environmental factors such as housing status (Hood, Gennuso, Swain & Catlin, 2016). Without the ability to control for these modifiable factors, providers may find it challenging to have an impact on patient health outcomes in a value based payment contract.

To adapt to this new payment methodology providers have been utilizing care managers in their practices to provide additional coordination of care services for their patients in hopes that this additional support will help meet the quality goals in their value based payment contracts (Kangovi, Grande & Trinh-Shevrin, 2015). Care managers can serve a vital role in a medical practice by coordinating patients' care with other providers, communicating needed information and connecting patients to community based programs such as housing and food services to address their nonmedical needs that can have an impact on their health (Fries Taylor, Machta, Meyers, Genevro & Peikes, 2011). The care manager's role is to help link patients and families to services that will optimize outcomes (Antonelli, McAllister & Popp, 2009). Care managers can have diverse backgrounds such as clergy, unlicensed health coaches, child and family advocates, and peer support specialists (Farrell, et al. 2015).

New York State provides a care management benefit for individuals enrolled in Medicaid with two or more chronic diseases. The eligible chronic conditions can include medical as well as mental illness conditions. Patients that meet this criteria are enrolled into a program call a "Health Home" (Scharf et al, 2014). The Health Home is a network of care management agencies that provide outreach and care coordination from care managers to eligible patients (Scharf et al, 2014). This benefit can be a useful resource for providers whose patients qualify for Health Home services in order to better manage their care.

While Health Home care management is a covered service that benefits the provider practices and their eligible patients, practices also care for patients who are non-Medicaid recipients or receive Medicaid benefits but have fewer than two chronic diseases and are

ineligible to receive Health Home services. Any care management services for these populations would need to be provided by the practice.

For larger practices with enough resources, implementing care management for their other patients and hiring new staff might be a relatively small lift financially. However, small or solo practices, which still make up 38% of the primary care providers across the nation, may find the resources needed to implement care management and other practice transformation changes prohibitive (Liaw, Jetty, Petterson, Peterson, & Bazemore, 2016; Lieberthal, Payton Sarfaty, and Valko, 2017, Kane, 2016). There is also a dearth of literature on the actual cost of implementing care management and how practices can sustain funding for these services. The evidence that is available suggests that hiring a care manager in a small or solo practice can be a costly undertaking (Viswanathan et al., 2010).

The Westchester Medical Center Performing Provider System (PPS), part of the Delivery System Reform Incentive Payment Program (DSRIP), in the Hudson Valley, NY funded a pilot where six small PCP locations embedded local Health Home care management agency (CMA) staff into their practices. The purpose of this pilot was to test a new business model of delivering care management in New York in preparation for provider transition to value based payment reimbursement. These embedded care managers were employed by the Health Home CMA organizations but provided care management for non-Health Home eligible patients at the practice. In this pilot many of the care managers had a peer support specialist background and extensive training but no clinical degree. Some might also refer to this kind of professional as a “community health worker.”

This model of subcontracted care management has not been studied previously in New York. Evidence of a similar model of care can be found in the Medicare population where third party companies provide chronic care management to Medicare beneficiaries but even the literature on this model is limited (O'Malley, et al., 2017).

In this pilot, the care manager works at a single practice and manages care for the patients the practice identifies. This differs from the Health Home care management where the care managers work across multiple practices depending on their patient enrollment. This pilot was intended to be for Medicaid patients but the care managers ultimately saw patients for all payers.

By subcontracting for care management services, as opposed to hiring their own care manager, the practices potentially gain the benefit of an experienced care manager employed with an agency that specializes in care management as well as the ability to vary staff time needed based on their patient population. The CMA is also responsible for the HR role and training of the embedded care manager, potentially reducing the staff time needed from the practice to recruit and onboard their own care manager. Subcontracting for services with a CMA also supports these existing CMA organizations and creates the possibility of a more sustainable model for both groups where each benefit.

In the first phase of this study we assess the perceived health outcomes impact of a subcontracted care management model for non-Health Home eligible patients and describe the barriers to care management implementation in a practice. By assessing if the participants found this model to have a positive impact on patients' health outcomes, it will help inform the physician practices if there is potential value in embedding care managers in their practices. Also, as this is a new model of delivering care management in New York, understanding the

challenges to success are beneficial to practices interested in implementing this model of care.

Knowing the barriers will allow future implementers of this model the ability to anticipate and adjust their implementations to avoid potential barriers.

The second phase of this study includes a cost analysis to determine if the total cost of subcontracting and implementing care management services and if cost of subcontracting for care management services can be sustainable under care coordination reimbursement payments. While there is literature regarding potential return on investment of care management, there is limited literature on the actual cost of implementing it (Viswanathan et al., 2010). What has been published provides little and varying detail on the costs included in implementing care management. Additionally, there is nearly no literature regarding how practices can sustain paying for care management if they are small practices. Many of the articles cite grants that have supported paying for care management but not how they could fund care management without them.

Problem Statement

Provider practices are moving toward a model of care that utilizes care managers in order to better manage patients' nonmedical needs to improve their health. This transition has been caused by a disruption to the payment models in health care and the understanding that medical care only has a small impact on health. Yet, providing care management services can be a significant investment, particularly for small practices. Additionally, the literature on the benefits of care management services are mixed (Jack, Arabadjis, Sun, Sullivan & Phillips, 2016). Before providers implement care management at their practice, it is valuable to know if

care management had a positive impact on the health outcomes of the patients they managed to ensure it is worth their investment.

Furthermore, there is limited information on the challenges faced when implementing care management services in a PCP practice and, in particular, the challenges faced when implementing subcontracted care management services. Without a full understanding of what the potential barriers are to implementing subcontracted service, providers newly implementing this model cannot plan for those challenges or create a plan to mitigate them.

Additionally, care management effectiveness studies often report their return on investment in care management or community health worker programs but report very few details on the investment needed for a care management implementation. Those that do report on the cost of a care management implementation are inconsistent in what they include in their cost analysis calculations (Viswanathan et al., 2010). This is a problem for providers because they require an understanding of the entire cost of a care management implementation prior to implementing these services at their practice.

Finally, there is limited literature on how providers can sustainably fund services, like care management, other than applying for grants (Morgan, et al., 2016). This is a challenge for small practices interested in providing care management because it is difficult to foresee how they will have the resources to continue to fund a care manager in the long term.

Purpose of the Study

The purpose of this study is twofold. First, through the use of qualitative survey data, this study aims to explore the potential impact on patient outcomes and describe the barriers to implementation from a subcontracted care management model through a qualitative survey.

Survey data will also provide insights to resources required for implementation of this program as well as the number of patients managed by the care managers. For phase two of the study, a cost analysis will be performed to understand the total costs needed to implement subcontracted care management services. Next, we will analyze the sustainability of sub-contracting for care management services for smaller practices and describe the circumstances needed to make paying for care management sustainable. We hypothesize that by subcontracting for care management services providers and care managers will find communication between them challenging (O'Malley, et al, 2016) and that their impact of care management on patients' health will vary as a result.

Research Question(s) and Hypotheses

The research questions in this study address five key areas regarding the implementation of subcontracted care management and are supportive of the study purpose. First, we ask if there were any perceived outcomes related to inpatient admissions or emergency department use among the patients who were care managed. This information will identify if the providers and care managers find the embedded program offers value to the practice and support value based payments.

Second, we qualitatively assess what the challenges are to embedding care management services into a primary care practice from both the care manager and the primary care provider perspective. This allows us to understand the barriers to implementation and provide meaningful data about the areas in which physicians and care managers thought could be improved. These challenges will be obtained via an open ended survey with care managers and physicians.

Third, we want to understand all of the costs related to embedding a subcontracted care manager into a primary care practice. By identifying all of the resources needed to embed care managers we are better able to educate providers on what the actual investment is for them to subcontract for care management. We are also able to highlight the fixed and variable costs related to this implementation, in addition to those that are one time and those that are reoccurring.

Fourth, we want to determine the total cost of subcontracted care management implementation using resources reported from the survey, resources from the literature and resources from the PPS, as they were responsible for the implementation of embedding the care managers in the practice.

Lastly, this study addresses if the subcontracted model of care management will be sustainable using physician reimbursements from care coordination payments in a value based payment contract. By identifying the threshold of patients needed to cover the cost of a full time care manager, we are able to present a model in which providers can input their own information and determine if sustainability is possible.

Theoretical Foundation

Financial incentives have likely been around for as long as people have been paying one another to perform any task. If implemented properly, financial incentives to motivate individuals to change their behavior can be effective (Kamenica, 2012). Until the last decade, healthcare had been primarily paid on a “fee for service” model which reimbursed providers on the volume of services they rendered and not on the quality of care they provided (Green, 2017). The US has some of the poorest health outcomes in the world for a developed nation and policy

makers have been testing new models of provider payments to incentivize providers to improve the quality of care with the goal of improving outcomes for their patients (Woolf & Aron, 2013; Cattel, Eijkenaar & Schut, 2018). Provider incentives are based on a theoretical framework that suggest providers will be motivated to change practice behaviors due to the incentive of a financial bonus payment or the potential risk of losing money (Asch et al, 2015). As described by Muhlestein, Saunders, Richard and McClellan (2018) payment reform provides the means to a change, but without delivery reform there won't be any impact on quality or outcomes. The providers in this study will be required to have up to 80% of their payments for Medicaid patients paid through a value based contract by 2020 due to a New York State mandate (New York State Department of Health, 2016). They have already begun to modify their practice workflow to prepare for this change by incorporating a care manager whose role it is to help the provider better manage the care of the patients. This study will qualitatively determine the perceived impact on the patients as a result of the practice embedding a care manager and will identify the challenges to successful implementation. This study presumes that care coordination of patients can have an impact on patient outcomes (Radwin, L. Castonguay, D., Keenan, C, & Hermann, C., 2015). We will also explore the ability of the providers to financially sustain this change in their practice.

Nature of the Study

To best answer the research questions of this study described above, a two phased approach was taken. In phase one, following a review of the existing care management literature, an open ended, qualitative survey was distributed to care managers and primary care providers that participated in the embedded care management pilot. This survey was adopted from

O'Malley's et al. (2017) Medicare Chronic Care Management interview study and was used to describe subcontracted care management's potential impact on patient outcomes, barriers to implementation and the resources required for implementation.

In phase two of the study, the cost variables and patient caseloads identified in the qualitative responses from phase one were integrated into a quantitative model to determine the total cost of implementing subcontracted care management. Using the total cost of subcontracted care management we were able to determine the threshold of patients needed in a physician practice to make the model sustainable in a care coordination contract by the insurers.

This study uses a mixed methods sequential approach as described by Crestwell (2009), because the second phase of the study is built using information from the prior phase. This research is exploratory in nature as there are no existing theoretical frameworks or cost models of subcontracted care management in the literature to benchmark against. In this study the cost variables are largely unknown and because the pilot is so small, the establishment of significance for care management outcomes or barriers to implementation was not expected.

Definitions

- Care managers: An individual working in a health care setting whose role is to link patients and families to community resources and social services with the goal of improving patient outcomes and addressing their social determinants of health (Antonelli, McAllister & Popp, 2009).
- Health Homes: New York State Medicaid Health Homes are integrated networks of health care providers designed to provide seamless multidisciplinary care to patients with two or more chronic diseases. Health homes are managed by lead organizations and the care for

individual patients is managed by care management agencies that have subcontracted with the lead organization to provide care coordination services (Scharf et al, 2014).

- **Patient Centered Medical Home:** Patient Centered Medical Home (PCMH) is a model of care practices can adopt that follows 7 core principles: enhanced access, continuity, comprehensiveness, team-based care, care coordination and management, a systems-based approach to quality and safety, and reimbursement structures (Arend, Tsang-Quinn, Levine & Thomas, 2012). Providers can obtain a PCMH accreditation by the National Committee for Quality Assurance (NCQA).
- **Value Based Payment (VBP):** A provider payment method defined as one that stimulates value if it offers incentives for: high-quality care, cost-conscious behavior, well-coordinated care, cost-effective innovation and cost-effective prevention (Cattel, Eijkenaar & Schut, 2018).
- **Community health worker:** Community health workers (CHWs) are lay members of the community who work in association with the local health care system. CHWs usually share ethnicity, language, socioeconomic status, and life experiences with the community members they serve (National Health Lung and Blood Institute, 2014). They serve as educators to patients and connect them to their needed health care services.
- **Delivery System Reform Incentive Payment Program (DSRIP):** DSRIP is a Medicaid waiver that seeks to transform health services. The DSRIP waiver provides Medicaid funds to hospitals and other providers if they successfully improve on an array of metrics linked to such targets as system redesign, clinical improvements, and enhancements of population health (Gusmano & Thompson, 2015).

- Performing Provider System (PPS): New York established twenty-five performing provider systems, led by public or other safety-net hospitals. The geographic boundaries of the payment systems emerged from providers in various areas banding together to submit DSRIP applications in their region that won approval. The PPSs consists of hospitals, community based organizations, mental health, primary care, long term care and other kinds health care organizations (Gusmano & Thompson, 2015).

Assumptions

The first assumption in this study is that the value based contracts with the managed care organizations will be constructed in way that will change provider behavior. We are assuming the providers are being incentivized by the upcoming value based contracts or from their existing VBP contracts to improve quality and contract with care managers to help improve those services. It is possible, however, that providers participated in the pilot to benefit from the use of a care manager while the PPS was covering the costs.

An additional assumption in this study is that there will be no changes in the Patient Centered Medical Home (PCMH) care coordination reimbursement rate. Currently, New York State will reimburse providers with PMCH recognition from \$3.50- \$7.50 per Medicaid assigned patient per month to provide care coordination services for their patients depending on the level of recognition they receive (New York State Department of Health, 2018). Research also suggests that practice incentives pay a median payment amount of \$4.90 per member per month (PMPM) (Edwards, Bitton, Hong and Landon, 2014). Five dollars per person per month was amount was used in the sustainability calculation and any changes would need to be accounted for in future models.

We also assume that one care manager for the practices are enough to meet their care management needs. It is possible that one care manager at some of the practices may not be enough or, on the contrary, one care manager may be too much. This care management to patient ratio will be discussed in more detail in chapter five.

Scope and Delimitations

The care management pilot study was located in the Hudson Valley region of New York. The Hudson Valley consists of eight counties starting immediately north of New York City and extends nearly 150 miles north. Six small primary care provider practice locations participated. Only physicians whose practices had an embedded care manager as part of this pilot program were included. Additionally, only care managers who were embedded into the Primary Care Practices as part of the pilot were surveyed.

This study has a specific focus on barriers, costs and sustainability of a subcontracted model of care management due to the urgent need of small primary care providers to begin to better manage their patients' care in order to prepare for value based contracting in New York State. Due to this, the physician and care manager perspective and experience are the focus of this study. The patients who were care managed were not part of this study as there is a wealth of patient experience and outcome research related to care management but very little data how providers are transforming their practices in anticipation of new value based payment contracts and how those transformations can be sustainable (Viswanathan et al., 2010). More research is needed in this area to inform practices as they adjust to the new payment methodology since the change to provider reimbursement is imminent (Luthi, 2019).

As the focus of this study was on the practice transformation and not on the patient, actual outcome data was not measured. Small practices without sophisticated analytical teams may have found it difficult to track outcomes. Additionally, each practice with varying medical records and risk stratification methods would have made it difficult to compare actual outcome data across the practices.

Significance of the Study

This study advances theory by contributing to the observed impact of care management from the provider side. The literature regarding the impact of care management is mixed (Jack, Arabadjis, Sun, Sullivan & Phillips, 2016). Some studies have shown it to result in a reduction in hospitalizations and in multiple 30 day readmissions (Kangovi et al., 2014) while others have not found it to make any significant difference in the health of patients (Viswanathan, 2010). While this study is qualitative and we do not report statistical proof of care management's impact on patient health, interviewing the physicians to gain their perception of the impact allows us to triangulate their feedback with the current literature on patient outcomes from care management.

This study advances practice by contributing meaningful feedback on the barriers to implementing subcontracted care management in a practice. This study can be a resource for providers who are now considering implementing care management into their own practice in preparation for value based payment. By understanding the challenges providers and care managers face prior to implementation, practices are better equipped to anticipate and manage these barriers during the implementation process. As a result, practices will be quicker mitigate any issues that arise if they understand the issues in advance.

Additionally, by defining the costs associated with care management implementation through a cost analysis, this study significantly contributes to a gap in the literature regarding actual costs to care management implementation in a practice and, more specifically, the costs to subcontract for care management services through a care management agency. Systematic reviews of care management have highlighted the insufficient number of studies regarding the cost of care management implementation (Viswanathan et al., 2010). The studies that did report on cost included different cost components in their calculations (Viswanathan et al., 2010). This study provides practices with a specific breakdown of the costs needed for implementation and includes costs reported from the providers' perspective.

This study also provides a model to calculate sustainability of funding care management. Practices are able to replicate this model based on their own data and circumstances in order to perform their own care management sustainability analysis.

This study also advances practice by highlighting a model of employing care managers. This pilot provides an insight into a model of care management that can be sustainable for the practice and also beneficial for the existing care management agencies that have a wealth of experience in care management.

One paper was identified in the literature that reviews embedding care managers from an existing agency into an established primary care practice (Gunderson et al., 2018). This study expands upon implementing this model as it discusses the costs, barriers and sustainability of care management implementation which Gunderson et al. do not address.

LITERATURE REVIEW

Literature Search Strategy

A literature review was performed using the New York Medical College PubMed and Google Scholar databases as well as the health policy journal Health Affairs. The literature review sought publications focusing on the cost and effectiveness of care management services and care management implementation research. Keywords in the search included: Care management, case management, care management cost analysis, community health worker cost analysis, peer support specialist, health care worker costs, care management technology costs, value based payments, patient centered medical home and care management effectiveness. The focus was on articles written in the last 5 years but older articles were used if they contributed significant findings in the literature. Articles not available were requested via interlibrary loan.

Literature Review

Background

Muhlestein, Saunders, Richard and McClellan (2018) note that “delivery reform is challenging; it requires health care organizations to implement fundamental reforms in their administrative and clinical operations...much work remains to identify what changes, interventions, and programs are most likely to achieve short-term improvements.” In their analyses, payment reform provides the means; without delivery reform there will be no impact on improved quality or care outcomes (Figure 1). Due to the disruption in the provider reimbursement model and the shift toward value based payments, practices have begun more frequently utilizing care management to provide additional coordination services for their

patients in hopes that this additional support will help meet the quality goals (Kangovi, Grande & Trinh-Shevrin, 2015). In New York State practices have begun testing models of subcontracted care management yet there is mixed or limited information on the impact of care management, what the barriers care to care management implementation are, the actual cost of care management implementation and how it can be sustainable (Balas, et al., 1998, Viswanathan, et al, 2010).

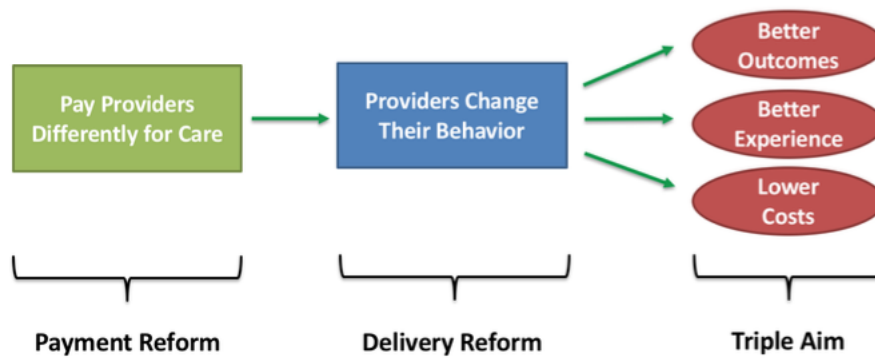


Figure 2.1 How payment reform leads to improved performance (Muhlestein, Saunders, Richards & McClellan, 2018) Permission granted to use on February 18, 2019 by Dr. David Muhlestein.

To add to the knowledge in this area, this study assessed the perceived impact of care management, describes the barriers to implementation in a practice and resources required for care management implementation through a qualitative survey. In the second phase of this study, a cost analysis was performed, using resources identified in the survey, to understand the costs needed to implement subcontracted care management services. Sustainability of sub-contracting for care management services was determined by identifying the threshold of patients needed to make paying for care management sustainable. This literature review is presented across the

three elements of Muhlestein, Saunders, Richards and McClellan's (2015) framework that includes: payment reform, delivery reform, and improved performance.

National Payment Reform

The United States spends 18 percent of the country's Gross Domestic Product (GDP), or \$10,739 per person per year, on healthcare (Centers for Medicare and Medicaid Services, 2017). The US also spends more per capita and more as a share of GDP on healthcare than any other country (OECD, 2018). In 2017, state and local governments grew 4.1 percent, an acceleration from 3.8 percent growth in 2016 (CMS, 2017). This growth was due to increases in local Medicaid spending.

While the US spends more of its GDP on health care than any other country, it is not a high spender when both health care and social services are combined. The U.S. has the lowest ratio of social service spending to health care spending in the developed countries. Countries with lower ratios on average have worse health outcomes (Bradley, Sipsma & Taylor, 2017). The literature suggests that inadequate attention to the social determinants of health or modifiable risk factors can result in extremely high health care costs and poor health outcomes (Bradley, Sipsma & Taylor, 2017).

Americans are seeing the results of this low social services spend because they have a shorter life expectancy than people in almost all of their peer countries (Woolf & Aron, 2013). Deaths before age 50 are responsible for about two thirds of the difference in life expectancy between males in the United States and peer countries and one-third of the difference for females (Woolf & Aron, 2013). This is due to people in the US facing greater morbidity and mortality from chronic diseases (Woolf & Aron, 2013).

Payment reform method

As a result of the high spend and poor health outcomes, policy makers over the last decade have been searching for new methods to improve outcomes while lowering cost of care in order to slow the increases in health care spend. Until the early 2000s, up to 95% of payments in the US were paid on a “fee for service” system which contributes to increasing costs because providers are reimbursed on the quantity of services they perform without regard to the health of their patients (Greene, 2017).

Consequently, the federal government funded the trials of new provider payment models to pay providers through the Affordable Care Act (Centers for Medicare & Medicaid Services, 2019). These models contain “value based payment” methods of reimbursement. Cattel, Eijkenaar & Schut (2018) describe a value based reimbursement arrangement as one that offers incentives for: high-quality care, cost-conscious behavior, well-coordinated care, cost-effective innovation and cost-effective prevention. In models with value based payments, providers are reimbursed partially on their patient’s performance on quality measures in order to incentivize providers to focus on quality and outcomes as opposed to volume (James, 2012).

The anticipated benefit of value based payment is that it will lead to a healthier, more satisfied patients with better control of costs (NEJM Catalyst, 2017). Additionally, Kocher and Chen (2018) find practices that succeed at making the change from fee-for-service to managing risk in a value based contract are able to increase their practice profitability by at least 25%.

Today there are a number of means which providers can participate in value based contracts with a payer. The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA), Medicare advantage plans and Accountable Care Organizations all are embracing value based

payment methodologies (Kocher & Chen, 2018). As a result of these opportunities, value based payment contracts between providers and payers have continued to grow in the last 10 years. In 2016, payers reported 38% of their business was in value-based payments (The Health Care Transformation Task Force, 2016).

Value based payment criticism

All new methods of paying providers also come with criticism and challenges. Quinn (2010) explains the major criticisms of paying providers based on value includes: poor evidence linking payment and quality; data can be unreliable; the bonus payments are disproportionate to the cost of providers; providers may avoid sick patients; benchmarks based on averages are not appropriate for all patients; incentives reward providers for what they should be doing; and providers may be penalized for patient outcomes that are completely out of their control.

Others argue that financial incentives are not enough to make a change in health care. A study by Asch et al. (2015) found that only shared financial incentives for physicians and patients together in a primary care practice, not incentives to physicians, resulted in a statistically significant improvement in health outcomes for patients. Yet, regardless of these criticisms and the mixed evidence, the federal government, states and private payers are moving toward value based care as a means of controlling costs.

New York State payment reform

In 2011, Governor Andrew Cuomo of New York convened a Medicaid Redesign Team (MRT) to reform the state's health care system and a goal of reduce costs (New York State Department of Health, 2019). New York's Medicaid costs had been rapidly rising in part due to the 2009 recession and by 2011 it was critical for the state to address costs. Medicaid spending

grew \$46 billion in April 2007 to \$53 billion by 2011. One of the strategies of the MRT initiative was to enroll all Medicaid beneficiaries into some form of care management to help reduce costs. After the Medicaid Redesign initiative was rolled out, savings were identified (New York State Department of Health, 2012).

In 2014, these savings from the MRT were permitted to be reinvested back into the state through the Medicaid 1115 waiver amendment. Part of the reinvestment was to be allocated to a Delivery System Reform Incentive Payment (DSRIP) program. These funds were intended to be allocated to organizations (mostly hospitals) to improve health care quality and outcomes (Gusmano & Thompson, 2018). The New York DSRIP program implemented a model that developed large networks of health care providers, including community based organizations that were anchored around a safety net hospital. These networks were called Performing Provider Systems (PPS) and there were 25 across New York State.

The overarching goal of the New York State DSRIP program was to reduce avoidable hospital use by 25% over 5 years and financially stabilize the State's safety net (New York State Department of Health, 2019). While the DSRIP program was underway, New York State continued to work with CMS to align New York with the goals of the federal government on value based purchasing and alternative payment methods.

At the federal level the Medicare Access and CHIP Reauthorization Act (MACRA) of 2015 was written to create a shift from fee for service payments to value based payments where physicians will be paid through either the Merit-based Incentive Payment System (MIPS) or the Alternative Payment Model (APM) payment reform tracks (Huston, 2017). In an effort to align with the MACRA legislation, New York State developed a Roadmap for Medicaid Payment

Reform in July of 2015 that was approved by CMS. This roadmap outlined the best practices needed to get to value based payment. New York State's goal for the Value Based Payment Roadmap is to have 80-90% of total Managed Care Organization (MCO) payments paid through value-based payments by 2020 (New York State Department of Health, 2015). New York's most recent survey of MCOs on their VBP activity indicates that more than 38% of MCO payments to providers are currently under VBP arrangements (Greater New York Hospital Association, 2018).

New York State has leveraged the existing DSRIP PPS networks to educate providers on value based payment as well as provide them resources to test new models of care that would support value based payment relationships. One of the models for value based payment outlined in the roadmap is Integrated Primary Care (IPC). In this model, the Managed Care Organization (MCO) can contract with a Patient Centered Medical Home (PCMH) primary care practices. These contracts can include additional payments for practice transformation and care management.

Delivery Reform

One of the requirements of the PPS' in their DSRIP implementation was to support the primary care providers in achieving PCMH recognition in order to further support the move toward value based care. The United Hospital Fund (2017) explains that the core competencies of PMCH include: coordinating and managing care, closing care gaps, improving quality, and focusing on the health of populations. These populations align with the skills required for a primary care practice to succeed under VBP.

The PCMH model was built out of both a chronic care model and the medical home concept promoted by the Institute of Medicine that called for “a personal medical home for each patient” as part of its Future of Family Medicine project in 2004 (Arend, Tsang-Quinn, Levine & Thomas, 2012). The PCMH model of care follows seven core principles: enhanced access, continuity, comprehensiveness, team-based care, care coordination and management, a systems-based approach to quality and safety, and reimbursement structures that reflect the added value of PCMH functions.

This model has shown evidence of improvement in both clinical outcomes of patients and in health care utilization. One study found an 18% reduction in hospital admissions and a 36% reduction in readmissions (Arend, Tsang-Quinn, Levine & Thomas, 2012).

Providers can obtain a PCMH recognition through the National Committee for Quality Assurance (NCQA). Establishing and sustaining the PCMH recognition is very costly to support the multidisciplinary teams and health-information technology vital to improving practice performance (Gorell 2011).

Health plans or states have PCMH initiatives that create an environment for primary care practices to transform themselves into patient-centered medical homes. Nearly all of these initiatives pay enhanced payments to practices for PCMH accreditation. A study by Edwards, Bitton, Hong and Landon (2014) finds that the initiatives pay a median payment amount of \$4.90 per member per month payment. New York State’s PCMH initiative reimburses \$7.50 for the two highest level of PCMH accreditations and \$3.00 for the next level down (NYSDOH, 2018)

Given the incentives and DSRIP support, practices have been moving toward becoming PCMH accredited in recent years. According to the United Hospital Fund as of 2017, PCMH

accreditation in New York is 25% statewide and the number of PCMH providers in the state has been increasing by an average of 12.5% yearly between 2011 and 2017. With the continued adoption of PCMH, primary care providers are better equipped to manage the care of their patients and participate in a value based payment contract with a managed care plan (United Hospital Fund, 2017).

Delivery Reform Challenges

Small or solo practices (few than 5 physicians), which still make up 38% of the primary care providers across the nation, may find the resources needed to make practice transformations, such as PCMH accreditation, prohibitive (Liaw, Jetty, Petterson, Peterson, & Bazemore, 2016, Kane, 2016). A study of small to medium primary care practices that transformed their practices to Patient Centered Medical Homes found that PCMH transformation is challenging for the smallest practices because smaller practices have a higher per provider cost to implement the transformation Lieberthal, Payton, Sarfaty, Valko (2017).

They also highlight that undertaking practice transformation will result in a significant expense for practices in the short term. Additionally, practices that transform may find that their cost of operating continues to be higher over the long term. It may only be worthwhile only for those practices that can attain significant additional revenue through participation (Lieberthal, Payton Sarfaty & Valko 2017).

Lastly, Gorell (2011) explains that current reimbursements under the terms of Resource-Based Relative-Value Scale (RBRVS)-based fee-for-service payments, the physician payment system used by CMS and most payers, are not sufficient to support the needed multidisciplinary

teams and health information technologies required for practice transformation and improving outcomes.

Ability to impact health outcomes

Five percent of the US population makes up more than 50% of the total health care spend (NIHCM, 2012). To have an impact on the 5% of high cost patients, providing the best medical care may not have a significant impact on the cost of care. Recent studies have found that the quality of medical care and an individual's ability to access medical care only accounts for 20% of the modifiable factors that impact health (Hood, Gennuso, Swain & Catlin, 2016). Modifiable risk factors are those that an individual has control over and, if minimized, will increase the probability that a person will live a long and productive life (Edington, 2001). Thus, the remaining 80% of modifiable factors that impact health are not related to the medical care they receive. Forty percent of an individual's health is a result of social and economic factors such as community safety, employment, and social support; 30% is a result of health behaviors such as tobacco use and diet, and the final 10% is due to physical environmental factors such as housing status (Hood, Gennuso, Swain & Catlin, 2016).

Providers must be able to identify populations with modifiable risks if they are to manage and coordinate care in ways that help achieve the goals of cost savings, improved quality, and enhanced patient experience (Farrell, et al. 2015). Without the ability to control for these modifiable factors, providers may find it challenging to have an impact on patient health outcomes.

Additionally, primary care providers are not seeing their patients for enough time to address these risk factors. The mean time each person spends per year in primary care in the US

is 29.7 minutes, compared to 55.5 minutes in New Zealand, and 83.4 minutes in Australia

(Bindman, Forrest, Britt, Crampton & Majeed. 2007). Of that limited time people spend with their PCP, physicians frequently are not seeing patients to address their wellbeing and overall health needs. Fifty-eight percent of visits with family physicians were for acute illness, 24% for chronic illness, and only 12% for well care (Stange, et al, 1998). This is not enough time for the physician to adequately address an individual's medical and socioeconomic needs that will contribute to improved health outcomes. Physicians require additional support in order to address all aspects of a patient's health.

In parallel to this, research tells us that the normal panel size in primary care is 1200-1900 patients per PCP but often practices can have over 2500 patients on their primary care panel. Evidence suggests that smaller panel sizes <2500 lead to better patient outcomes (Raffoul, Moore, Kamerow & Bazemore, 2016). This is aligned with evidence that more time spent with primary care providers leads to better health.

Finally, in surveys among mental health clinic providers and providers coordinating care, staff reported patients had many barriers to accessing care such as an unreliable bus service (Scharf, 2014). Given these challenges it is apparent, the work of the clinician is not enough to help improve the health of their patients.

With the limited time available to treat patients, larger patient panel sizes, and the nonmedical barriers to care that patients face, providers alone cannot make a significant an impact on patients' health outcomes. With this understanding and to prepare for value based payment, providers have begun utilizing individuals, called care managers or community health workers, who have the expertise in addressing patients' nonmedical needs and modifiable risk

factors to potentially improve their health outcomes. These individuals also provide the care coordination required in practice transformations such as PCMH.

Care management definition

The original care management model, where lay individuals help address patients nonmedical needs, was developed from the work of Sidney Kark in the 1940s in Africa and Israel then was eventually deployed in the United States (Wright, 1993). Care management can be broadly defined as an assessment or evaluation; interactive education, often using motivational interviewing skills; and collaborative patient-manager planning to facilitate healthy behaviors, to improve the health care and service coordination, and to maximize health resource utilization. Care managers do not “treat” patients. They help assure that appropriate and recommended care is being delivered by and supported for those who give it. Care managers may also serve as patient advocates and/or merely assist patients in developing self-care skills (Kathol, Lattimer, Gold, Perez & Gutteridge 2011). Additionally, the goals of care management include: helping link patients and families to services that improve outcomes and address the social, developmental, educational, and financial needs of patients and family (Antonelli, McAllister & Popp, 2009).

Care management frequently includes services that may not be covered by defined benefit packages offered in a routine managed care contract.(Antonelli, McAllister & Popp, 2009). Only recently have states and health plans begun reimbursing for care management or care coordination services through PCMH incentive payments or through value based payment contracts with a care coordination payment as part of the arrangement.

Finally, it is important to note that a care manager, which may also be referred to as a community health worker or peer support specialist, cannot be interchanged with a Case Manager. Case managers are generally clinical staff, such as a nurse or social worker, who have extensive disease specific experience and their own system of case management accreditation. This paper will use care manager and community health worker interchangeably as the literature is not consistent regarding its nomenclature. In both cases, we are referring to a nonclinical, lay or peer person who assists patients with their nonmedical needs and coordinates care for them.

Care manager role

Care managers can be responsible for a host of jobs in the practice. The responsibilities and functions of the care manager often include: receipt of referrals and identification of high risk patients, comprehensive assessment of patient barriers, facilitation of services and communication with care team, and participation in interdisciplinary case reviews and quality improvement activities (Daaleman, Hay, Prentice & Gwynne, 2014)

Evidence of this can be seen from a pilot at the Mayo Clinic where care managers were responsible for helping patients navigate the health care system, be a liaison for healthcare appointments and communication, direct patients to services and help them access community resources, and advocate for community needs. They also served as health educators, provide and reinforce basic health education on disease prevention and management of chronic disease, and gather patient self-reported health data for the clinical care team (Gunderson et al., 2018).

Care manager experience

Care managers have varied backgrounds. Care managers can be clergy, dietitians, unlicensed health coaches, child and family advocates, peer support specialist or medical assistants (Farrell,

et al. 2015). They often do not need to have any clinical or professional training. What is most important is that they have a deep understanding of the local community and the ability to navigate in it.

Care managers, however, usually receive training to improve their skill set. In a study to determine if linking hospitalized patients with chronic disease to care managers can decrease readmissions, all care managers completed an 80 hour training program designed to help them better understand and address chronic disease from a public health perspective. They were trained to use behavioral change strategies such as motivational interviewing, goal-setting, and psychosocial support (Carter, Walton, Donelan & Thorndike, 2018).

Care manager impact on outcomes

Care managers or Community Health Workers (CHW) have been deployed in the healthcare system for over fifty years. More recently, there have been studies assessing their effectiveness to improve patient outcomes due to the growing interest in providers wanting to understand their potential benefits to a practice. Some of the outcomes data to date has been mixed but generally trend toward care managers improving patient health outcomes.

Earlier studies found mixed results or positive trends but no significance but more recent studies have seen positive outcomes. For example, Viswanathan et al. (2010) performed a literature review on outcomes and cost of community health worker interventions. Some studies suggested that CHW interventions can result in improvements in patient behavior and health outcomes, but other studies suggested that CHW interventions provide no statistically different benefits (Viswanathan et al., 2010).

Similarly, Burns, Galbraith, Ross-Degnana and Balabran (2014) found community health worker phone calls to patients discharged from a hospital resulted in a lower readmission rate but these results were not statistically significant. Daaleman, Hay, Prentice and Gwynne (2014) also found an absolute decrease of 7.5 inpatient admissions per month and an absolute decrease of 8 emergency department visits per month for recipients of care management services. Yet this study does not report this decrease to be statistically significant.

The King County Asthma Program of Seattle, Washington implemented a community health worker intervention study where care managers made home visits and calls to an intervention group regarding asthma education (Campbell, 2015). They found participants in the asthma group had greater improvements in asthma symptom free days and caretakers' quality-of-life scores. Additionally, they found a decrease in nights with symptoms, days with activity limitation as days using rescue medications, as well as an increase in those with well-controlled asthma (Campbell, 2015).

More recently, Kangovi et al. (2017) found that patients with two or more chronic diseases receiving CHW support for six months showed greater improvements in mental health ($P=.008$) and reported higher quality primary care that was comprehensive ($P=.010$) and were supportive of disease self-management ($P<.001$) compared to a similar population without CHW support.

In a longer study period, Kangovi et al (2018) also found patients who received the Individualized Management for Patient-Centered Targets (IMPACT) model delivered by care managers had lower odds of repeat hospitalizations, including 30-day readmissions. This study

found that patients in the intervention arm had a shorter length of stay and lower number of hospitalizations but the results were not statistically significant ($p=.06$ and $p=.07$ respectively).

Lastly, the pilot at the Mayo Clinic Employee and Community Health found a significant decrease in outpatient visits ($P < .01$) and emergency department utilization ($P = .01$) among adults who were engaged by care managers (Gunderson et al., 2018). These results contrary to what we might expect for outpatient utilization since we might anticipate more frequent visits to the primary care physician as a result of care management.

While not all care management implementations were statistically significant many did approach significance. Prior to utilizing a care manager, a practice might select a studied model of care management interventions, such as the IMPaCT model, that has been shown to improve the health outcomes of patients.

It is clear from the variety of studies on care management that there are a number of points across the health care continuum a care manager can be deployed. Radwin, Coastonguay, Keenan and Herman (2015) illustrate an expanded theoretical model for care management where care coordination before, during and after a patient transition from the hospital can have an impact on patient outcomes.

Delivery reform implementation

There has been research to assess care management implementation in primary care practices. These findings help us understand what the major challenges are in practice when a care manager is deployed. Daaleman, Hay, Prentice and Gwynne (2014) found that physicians and care staff uniformly shared that outreach and personal communication by the care manager were key to effectively implement the position into the practice workflow.

Similarly, Holtrop, Potworowski, Fitzpatrick, Kowalk & Green (2015) found that practices with effective care management had: well-considered goals and outcomes for what success would look like, set and kept regular meetings for key decision makers within the practice, made the time for conversation that allowed individuals to determine steps for how the care management was going to work, who was involved, and how to know if it was working and engaged in re-planning after considering what was working and what needed improvement and additional planning was needed for new workflows.

Communication was also important in a study by Taliani, Bricker, Adelman, Cronholm and Gabby (2013). They found that effective care managers leveraged the potential of the EMR for communication, patient tracking, and information sharing; and had open and frequent communication with physicians and office staff.

Daaleman, Hay, Prentice, and Gwynne (2014) identified that a majority of physicians (75%) and support staff (82%) in primary care main means of communication with a care manager was via face-to-face, telephone, or electronic means, in order to facilitate referrals for behavioral health services and assistance with financial and social and community based resources.

After care management implementation is complete, the literature suggests that the satisfaction with care management services was very high and 79% of the clinician and care staff felt that the care manager are frequently or always accessible when needed (Daaleman, Hay, Prentice & Gwynne, 2014). However, while practitioners may be satisfied with care management, they may still need continued education. In a study of general practitioners in the

(2014) found that 80% of general practitioners needed training on the roles of care management.

The approach to a care management implementation in primary care may vary based on each practice, their patient population, staff and workflow. What has remain consistent across implementations is that communication between the care manager and the providers and staff will lead to a more successful implementation.

Cost of delivery reform

The biggest challenge practices face regarding a care management implementation is predicting the cost of care management and how to fund continued care management without an independent revenue source. This study is valuable to the literature because there is little cost analysis data in literature regarding care management or community health worker implementations. Care management effectiveness studies often report their return on investment but report very few details on the investment needed for a care management implementation. Those that do report on the cost of a care management implementation are inconsistent in what they include in their cost analysis calculations (Viswanathan, 2010). In literature review by Peart, Lewis, Brown and Russell (2018) reviewing patient navigator research, of the 78 articles selected for review, none of them discussed cost effectiveness of the having patient navigators.

Viswanathan et al. (2010) identified six studies that estimated intervention costs, but not all reported specific cost components or the year for which costs were estimated. Because the interventions with cost information differed (eg, populations targeted, settings, targeted outcomes), determining the cost of a typical of a care management implementation is difficult.

The reported annual costs per participant ranged from \$70 to \$9500, depending on the intervention, an extremely broad range that has little practical meaning.

In a microsimulation, Basu, Jack, Arabadijjs and Phillips (2017) estimated the typical costs of a CHW program to be \$47,800 per year per CHW (95% CI, \$42,200–\$65,300) in 2015 US Dollars, including salary, overhead, initial training, and annual continuing education. This microsimulation used an average patient caseload of 70 patients. This would result in a cost of \$56.90 per person in the CHW intervention per month.

A 95 day study of care coordination among children with special health care needs found that the annualized cost of care coordination ranged from \$22,809 to \$33,048 (Antonelli & Antonelli, 2004). In this study non-billable care coordination activities were measured within a pediatrics office. Seven hundred seventy four encounters that led to care coordination activities were logged for services to 444 separate patients. This model however did not use any care coordinators or community health workers. Care coordination was mostly performed by a nurse or physician (Antonelli & Antonelli, 2004).

In a study on an asthma self-management program where community health workers visited performed home visits as well as two telephone calls on asthma education, Campbell et al (2015) found the intervention to cost \$1072.00 per patient. The return on investment was 1.90 (or 190%). This study is challenging to use as a comparative cost study because it is not the same model as care management in a primary care providers office where patients may be moving on and off a care managers list to work with.

Other studies do not look at the cost of care management or community health workers specifically but assess the costs to transform a practice as a whole. A team-based chronic care

model that included health coaches has an estimated implementation cost of \$6.62 PMPM. This estimate on the low end of the \$8 to \$40 (average \$20) PMPM Centers for Medicare and Medicaid Services (CMS) find are needed to meet transformation milestones (Panattoni, Dillon, Hurlimann, Durbin & Tai-Seal, 2018).

Finally, cost-effectiveness studies of chronic care randomized control trials have provided expenditures for interventions but do not include implementation costs (Katon et al., 2012). Clearly, while there is some data that suggests an approximation to what a care management implementation might cost, there has not been a comprehensive cost analysis performed that describes the total cost of implementing care management into primary care and includes both implementation costs and ongoing costs.

Sustainability

As mentioned, not only has it been challenging for providers to anticipate the cost of offering care management services, they also have had a difficult time finding ways to sustain the funding for a care manager. Sharf et al. (2014) performed site visits and surveys of mental health clinic administrators and associated professionals. The study suggests that clearer roles and expectations for care managers might help create billing opportunities from payers and ensure that these positions are routinely staffed (Scharf et al, 2014).

Antonelli, McAllister & Popp (2009) found similar concerns. Thirty five percent of experts they interviewed stressed the need for a clear definition of care coordination and that there is pervasive concern regarding the lack of capacity in primary to provide care management services.

Some studies have looked at finding a return on investment as the method to sustain paying for care management. Morgan, Grande, Carter, Long, and Kangovi (2016) published an 8-step framework to calculate return on investment for a community health worker program at Penn Medicine. This calculation may be fairly straight forward at a large health system with advanced analytics. At a small practice, however, other methods of sustainability may need to be explored if return on investment is not easily obtainable. Additionally, to identify these metrics of health improvement with the patients, the group obtained two grants. Small practices may not have the luxury of procuring a grant to help them perform a randomized control trial to determine return on investment. Practices understand they must improve patient health but may need to determine other methods of funding such a program

In a similar approach, a microsimulation of patient health care utilization, costs, and revenues Basu, Jack, Arabadijjs and Phillips (2017) found that for community health workers to achieve cost-neutrality, 3-4% (4-5 visits) of ED use would need to be averted per year for patients with uncontrolled hypertension or congestive heart failure. Other chronic conditions would require between 7% and 21% of ED visits to be averted to achieve cost-neutrality. Reducing ED use over 7% however is not easily achieved. A large scale ED care management program at NYC Health + Hospitals has seen up to a 10% decrease in using care management to reduce ED utilization but these kind of results are unusual and require a significant investment and large infrastructure. Additionally, if cost do neutralize, it is unclear in this ED reduction model if the savings would directly go back to the primary care provider. If it was on a value based contract, it is unlikely that the practice would see the direct savings from the payer.

In the most common method for funding care management, Fries Taylor, Machta, Meyers, Genevro, Peikes (2013) explain that care management can be supported by federally funded programs (such as Area Health Education Centers or Health Information Technology for Economic and Clinical Health [HITECH] Regional Extension Centers), state government and/or Medicaid program waivers, and philanthropic organizations (such as the Commonwealth Fund's Safety Net Medical Home Initiative). Additionally, large health systems that own practices, as well as health plans interested in improving patient-level outcomes, may also fund care management (Fries Taylor, Machta, Meyers, Genevro, Peikes, 2013).

Subcontracted care management

Practices in New York State, though the Delivery System Reform Incentive Payment programs, have begun testing a subcontracted method of providing care management in their practice by contracting for a care manager who is employed with a care management agency. The research on subcontract or third party implementation of care management is widely unknown. In a qualitative study of fifty practices that provided disease management to Medicare patients, only four practices used third party vendors to provide the care management (O'Malley, et al., 2017).

Three of the four practices stopped using the third party vendors because they felt they contributed to fragmented care and created unnecessary paperwork. They also felt that the care managers communicated poorly with the practice and did not meaningfully improve the quality of care. The practices shared that patients disliked receiving calls from them. This data underscores the importance of communication during a care management implementation as we have also described above.

Primary care practices can vary significantly in size depending on the number of practitioners and other factors such as location. It is important for practices to have an understanding on the amount of care management they would require in order to adequately manage their patients' needs. The literature on understanding the percent of patients in a practice that would require care management is varied.

A study to identify Medicare patients requiring additional support services found that approximately 5.9% of Medicare patients were in need of care management (Vogeli et al, 2016). Yet this study is in an older population and does not reflect necessarily the needs of the general population. In a study comparing identification of high risk patients for care management between physicians and predictive models, the physicians found 4.3% of patients were in need of care management and the predictive model identified 6% of the practice patients were in need of care management (Freund et al., 2016).

The National Association of Community Health Centers (2017) reports that while 5% of the population may be at highest risk and require care management, up to 20% of patients are at risk and may truly need care management services. Evidence supporting this can be found in risk assessment research. A study where primary care providers reviewed their own randomly selected patients found 26% of their patients to be considered complex. The same study used complexity predictors and identified 19% of the same population to be complex patients (Hong, et al. 2014).

CHAPTER 3

METHODOLOGY

The previous chapter established the current knowledge related to value based payment and care management in health care. As described, there is little known about subcontracted care management impact on patients, implementation in the practice, cost and sustainability. The research questions that derived from this review of the literature are restated here:

Phase 1 Qualitative:

RQ1: Do the care managers and primary care providers perceive care management to have an impact on patients' health outcomes?

RQ2: What are the barriers to successfully implementing embedded care management into a primary care practice?

RQ3: What are the resources required to implement subcontracted care management?

Phase 2 Quantitative:

RQ4: What is the total cost of the subcontracted care management model?

RQ5: What patient threshold is required so that total cost of care management is compensated by insurers and the model is sustainable?

These research questions shaped the research process and informed the analytical method used. Using an exploratory sequential model in phase one we assessed if care management is leading to an improvement in patient outcomes to determine if it is worth a continued financial investment from the providers. While we did not have access to patient data, we conducted an online, open ended survey with the providers and care managers that participated in the PPS embedded care management pilot, to determine if they perceive there to be an impact on the health outcomes of their patients. The survey questions were adapted from a care management

study by O’Malley et al. (2017). Additionally, the variables to determine the cost of

subcontracted care management and the barriers to care management implementation are largely unknown. To develop these variables we included questions to understand them in the qualitative survey.

Once these variables were identified they were then integrated via a connected data integration methodology with the second phase of this study, the cost analysis, to answer the final two research questions. Using the total cost of subcontracted care management we were able to determine the threshold of patients needed in a practice to make the model sustainable from care coordination payments in an insurance contract. This two phased approach is an exploratory sequential mixed method model and is graphically represented in Figure 3.1 below (Creswell, 2019).

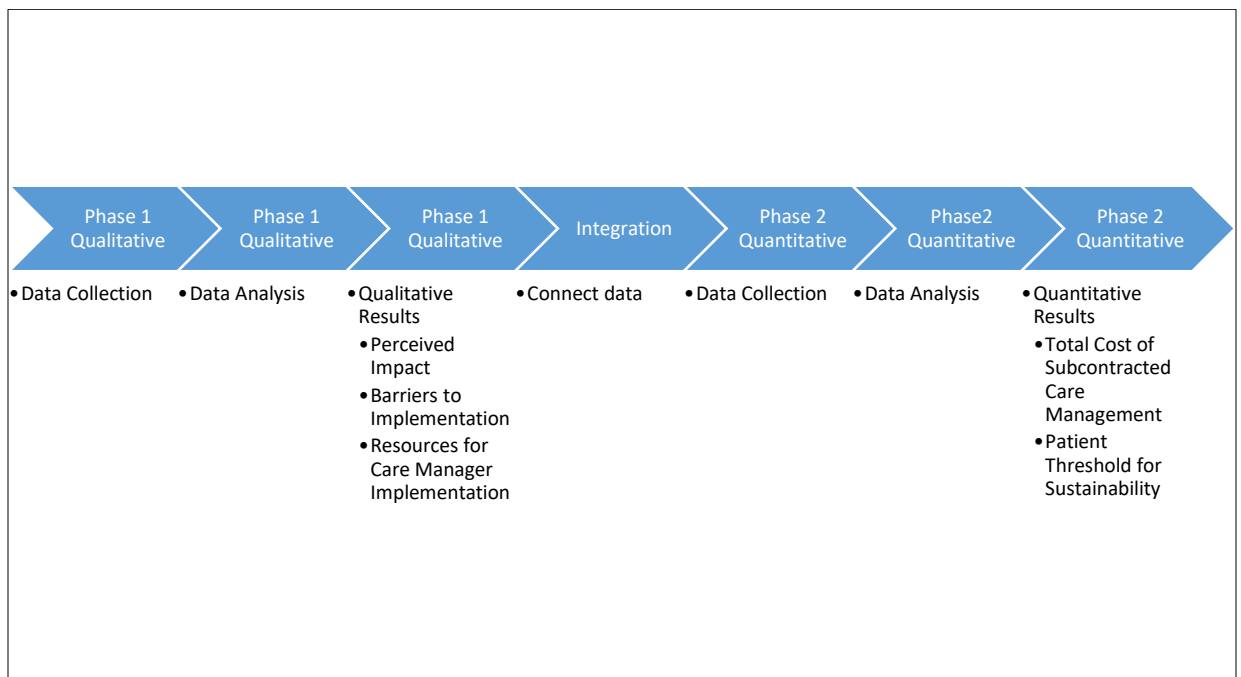


Figure 3.1 Exploratory Sequential Study Design

The open ended survey questions for the primary care and care manager qualitative survey were adapted from a study by O'Malley et al. (2017), commissioned by the Center for Medicaid and Medicare Services, that interviewed physician practices about their experience implementing Medicare Chronic Care Management. The practices interviewed in the O'Malley study have similar traits to practices in this study as the purpose of their study was to understand the experiences, perceptions and barriers and perceived outcomes of chronic care management implementation. Both practices in the O'Malley study and those in this study were offered an incentive payment to provide care management for individuals with chronic diseases through their insurer contracts. The major difference between the two studies is the patient population for the care management team. In the O'Malley study, the practices were providing care management on patients over the age of 65. In our study care management will be provided to adults over 18 in 5 practices and to children in one pediatric practice.

The survey was created using the web based survey tool, Survey Monkey. Copies of the survey questions can be found in Appendix C. The care manager and primary care provider surveys were each eleven questions long and included three descriptive questions, multiple choice or short answer, and eight open ended survey questions. There was no incentive provided to complete the survey. The survey was distributed via email to eligible participants.

Reliability and validity are generally not applied to the qualitative phase of this study but by accounting for potential bias and triangulating the results with the existing literature we hope to ensure the trustworthiness of the findings (Curry & Nunez Smith, 2015).

This study received expedited IRB approval from Westchester Medical Center in September 2018 and final approval from New York Medical College on November 11, 2018. The protocol ID number is 12737.

There are some potential risks to participation in this study. The care managers have a potential risk of discomfort from the survey questions. If the care manager has not had a positive experience at the primary care location where they were embedded, they may feel uncomfortable speaking negatively about it for fear of retaliation from the practice or their employer. To address this potential discomfort, the participant was not required to answer any questions they would not like to answer and responses will remain anonymous. Additionally, their responses were not shared with the practices or their employer and they were informed that they are not required to participate in the study.

Similarly, the physician may feel uncomfortable speaking negatively about the care manager who has been embedded into their practice. To address this potential discomfort, the participant was not required to answer any questions they did not like to answer and, similar to the above, their responses were not shared with the care management agency or their employer, their responses are anonymous and their participation in the study is entirely voluntary.

There was also the potential risk for a care manager or a physician to submit identifiable data in their responses. To prevent this from happening, the survey included reminders for respondents to not include any identifiable information in their responses. If any identifying information was mistakenly submitted, it was redacted from the data set and not included as part of the study.

The benefit of this study is to physician practices in the future who will better understand the value proposition of care management in their practices. By studying this model of care we can determine if this model is beneficial to each group participating and if it should continue being used as a way to provide care management services.

Phase One Methodology

Data Collection- Qualitative

To recruit study participants, the consultants responsible for implementing care management at the primary care practices provided a list of emails for the care managers and physicians who participated in the pilot. These individuals, who met the criteria for inclusion, were sent an IRB approved email inviting them to participate in the study. The care managers and physicians received similar versions of a recruitment email. The email informed potential participants: the purpose of the study, that their participation was voluntary, that all questions were optional, that they could end their participation at any time and, if they chose to participate, that their responses would remain anonymous. The email also contained the web link to their respective survey and contact information for any questions. A second follow up email was sent to potential participants directing them to the first email to gain additional responses. Data collection began on December 11, 2018 and ended February 1, 2019.

The recruitment email included a link to the electronic survey where participants could type their responses to the survey questions. Again, the data was collected using the Survey Monkey, web-based survey tool. The beginning of the survey also included the above mentioned rights of those who would like to participate. The survey did not request any identifiable

information from the participant and therefore did not require a consent. Survey responses were downloaded in an excel format from Survey Monkey for analysis.

For this study a total population sampling method was used. Total population sampling is a type of purposive sampling technique where the population being sampled all have a characteristic that is uncommon in the greater population (Etikan, Musa, Alkassim, 2016) All care managers and physicians that participated in the PPS's care management study must be included because if one individual were excluded, it could have a significant impact on the results. There was no other exclusions or inclusions in the criteria related to race, gender or any other variable.

This study included all care managers and primary care providers that were currently or had previously participated in the Westchester Medical Center PPS embedded care management pilot program beginning July 2017 for over one year. These were the only two criteria needed to be eligible for participation in the exploratory first phase of the study.

Sample Description

The target population size for the phase one qualitative care manager survey was a total of eight individuals. The care managers targeted were employed by a Care Management Agency and embedded into the primary care provider's practice as part of the PPS pilot project. They were eligible for the study even if they were no longer embedded in the practice. Two of the eight embedded care managers left the Care Management Agency prior to the start of this study and their contact information was not available.

The target population size for the phase one qualitative physician survey was a total of six physicians. The physicians were eligible if they were employed by a practice who had care

managers from a Care Management Agency embedded into their practice and also worked at a site where these care managers were embedded. One of the physicians left the practice prior to the start of this study and no contact information was available to reach him.

Data Analysis - Qualitative

To analyze the results from the phase one data, the care manager and primary care physician survey data were exported from Survey Monkey in a Microsoft Excel file format and formatted so the first row was the header row that included the survey question. The subsequent rows were the individual survey responses. On the survey results the “practice name” question responses were redacted and replaced a practice letter to preserve the anonymity of the organizations. This was done on both the care manager and the primary care provider surveys. If the respondents were both working within the same practice, the practice letter would be the same.

Descriptive data collected about the survey respondents, such as their profession based on the survey they received, were also added to the file with the open ended survey responses. The formatted survey files were imported into Dedoose version 8.1.8 (2018), a web application for managing, analyzing, and presenting qualitative and mixed method research data.

Analyses of the open-ended survey questions were thematic and done in two main steps. First, after reviewing the literature described in Chapter 2, the following codes were selected a priori and entered into Dedoose: changes in personnel, inadequate EHR functionalities and interoperability, poor communication with practice, and no meaningful improvement in care (O’Malley, 2017). Second, the qualitative codes were refined by the research associate while reading and rereading the survey responses. Codes that emerged from the data were separately

defined and included. Themes across codes were also documented using the memo functionality in Dedoose.

The frequency of themes across specific questions were analyzed to find trends and results for the specific research questions of this study. A code co-occurrence table was generated to identify the frequency of themes in response to the survey questions. The survey question responses used to answer the first three research questions of this study can be found below in table 3.1. To answer Research Question 1, themes from the primary care survey and care manager survey question 6, 7, 8 and 9 were used. To assess Research Question 2, themes from the responses to care manager survey questions 10 and 11 and primary care survey questions were used 10. Finally, to answer Research Question 3, themes from primary care provider survey question 11 and care manager survey question 5 and 10 were used. Questions 1-3 for both surveys were descriptive. These questions inquired about the practice where the respondents worked or were embedded, their patient case load and, for the care managers, how long they had been providing care management services. Lastly, themes were analyzed in Dedoose by comparing responses based on profession.

Table 3.1

Survey Questions Analyzed for Research Questions 1-3

Research Question	Care Manager Survey Question Used for Analysis	PCP Survey Question Used for Analysis
RQ1: Do the care managers and primary care providers perceive care management to have an impact on patients' health outcomes?	(6) How did the care management services you provided have an impact on patient hospitalizations?	(6) How did the care management services provided have an impact on patient hospitalizations?
	(7) How did the care management services you provided have an impact on patient Emergency Department (ED) use?	(7) How did the care management services provided have an impact on patient Emergency Department (ED) use?

	(8) How did the care management services you provided have an impact on quality of care processes measures?	(8) How did the care management services provided have an impact on the quality of care processes measures with your patients?
	(9) Can you describe three successes working with the primary care provider in the practice	(9) Can you describe three of the greatest successes from embedding the care manager into your practice?
RQ2: What are the barriers to successfully implementing embedded care management into a primary care practice?	(10) Can you describe three the challenges to being successful working with the physicians in the primary care practices? (11) Can you describe at least three challenges to being successful with your patients?	(10) Can you describe three of the biggest challenges to embedding the care manager into your practice?
RQ3: What are the resources required to implement subcontracted care management?	(5) What tools, if any, did you use document your cases? Were they tracked in an Electronic Medical Record or other system? (10) Can you describe three the challenges to being successful working with the physicians in the primary care practices?	(11) Were there any additional costs incurred by your practice from having the care manager working out of your office such as office space, materials etc.? If so, what were these additional resources needed?

Phase Two Methodology

Data Collection- Quantitative

To calculate the cost of implementing subcontracted care management for one year in a primary care practice, we collected cost variables from three areas. First, we identified care management cost variables in the literature and used cost variables identified from the Performing Provider System (PPS). These cost variables and their data sources can be found in Table 3.2. To gain a more robust understanding of the costs associated with subcontracted care management we collected information program cost variables from the care manger and primary care provider participants in the qualitative survey.

Cost variables from literature review and PPS data.

Cost Category	Data Source	Cost Assignment
Subcontracted for Care Management	PPS Contract	Actual
Physician meeting time	PPS Meeting report	Literature Review Proxy Rate
Executive staff meeting time	PPS Meeting report	Literature Review Proxy Rate
Project Manager/ Director meeting time	PPS Meeting report	Literature Review Proxy Rate
Proxy Space cost	PPS Contract	Proxy cost
Materials	<u>Amazon.com</u> & other publicly available sites	Averages
Training	PPS Contract	Actual
Consultants	PPS Contract	Actual rate

To collect PPS cost variables for the cost analysis, we used data from their provider database. Available at the PPS, Salesforce is a web based program that the PPS uses to track the activity of organizations they engaged with. This included the care managers and primary care practices. All subcontracted care management implementation meetings were tracked in this program. To collect data on staff time spent for the care management implementation, a report from the database was created to extract implementation meeting information. All subcontracted care management meeting dates were included in this report. This dataset included: the date of the implementation meeting, the attendee’s organization and their job title.

The job titles were aggregated into six categories 1) care managers, 2) physicians, 3) project directors, 4) consultants, 5) executives and 6) PPS staff. A literature review was performed to collect salary information for physicians, project directors and executives. The salaries from the literature are located in Table 3.3. Salaries for care managers and consultants would be collected from contracted amounts as described below.

Estimated Staff Hourly Rates (Kunisaki, 2016).

Role	Annual Salary	Benefits (US Bureau of Labor Statistics)	Salary with Benefits	Hourly Rate
Primary Care Physician	\$221,419	30.30%	\$288,508	\$121
Care Manager	\$50,000*	(included in contract rate)	\$50,000	\$27
Consultant	\$300,300	(included in contract rate)	\$300,300	\$165
Executive	\$337,227	30.30%	\$439,407	\$185
Director/ Manager	\$100,545	30.30%	\$131,010	\$55

Note: *Mean salary with benefits from Integrated Healthcare Strategies (2018)

Cost variable for the cost analysis were also extracted from the contracts managed in Salesforce. The cost of the care management services was collected from the contracts between the PPS and CMAs and the amount the CMAs spent to pay for and deploy the care manager for one year was used. This rate is comparable to other care management salary rates found in the literature and can be generalizable to other greater metropolitan areas. Care managers also participated in a minimum of one training entitled “Care Managers for Front Line Workers.” The cost of this training per person was included in the contract for the training. Similarly, the implementation consultant’s hourly rate was collected and used to calculate the average consultant cost for a care management implementation. Finally, a proxy space cost was collected from the rent contract the PPS had for space. The rent was then determined in a per person cost based on the number of employees in the PPS office.

Additional implementation costs such as materials, computers and other resources come from the care manager survey responses to questions 5 and 10 and physician survey responses to question 11. These identified resources were assigned a cost by researching the cost for these

miscellaneous items on amazon.com and calculating an average cost based on three similar products or by finding a cost for the product or service from the organizations website. All reported cost variables were used with the exception of the phone line since it was assumed they would already have a phone plan prior to having a care manager.

The average patient case load of the care managers used in the cost analysis to determine the per person intervention cost was also collected from the care manager survey question 3 responses. Lastly, the number of Medicaid patients each practice saw in 2016 was collected from a PPS published report (WMCHealth Performing Provider System, 2017). This number will be used to estimate the number of Medicaid patients in the practice.

Data Analysis- Quantitative

Calculation of implementation staff time costs.

To calculate cost of staff time used in care management implementation meetings, an implementation meeting report from the PPS database was extracted. The report included job titles of those in attendance, meeting dates and organization of the attendee. From this implementation meeting report, the job titles were reviewed and bucketed into six categories that had similar characteristics. Those categories included: care managers, physicians, project directors, consultants, executives and PPS staff.

The assumption was made that each meeting lasted approximately one hour. Next, we calculated the number of meeting hours for each job category spent over the course of the implementation. The hours by job category were then attributed to a PCP organization or the care management organization based on the organization name and the type of organization it was. At this point the organization name was redacted from the data. The average number of

implementation hours per job category for the PCPs and Care Management Agencies were then calculated (Table 3.4). The implementation hours for the consultants were attributed to the PCP implementation hours as this expense would likely be the responsibility of the PCP in a non-pilot setting.

Table 3.4

Average implementation hours per practice

Company	Consultant Hours	Executive Hours	Physician Hours	Project Director Hours
Consultancy	152			
Practice A		6		6
Practice B		4		9
Practice C			11	9
Practice D			20	
Practice E		17	2	1
Practice F				13
Total	152	50	33	147
Average Hours Per Practice*	25.3	4.5	5.5	6.3

Note: * Average Implementation Hours per Practice= total hours per job category / 5 practices

Finally, based on the average number of implementation hours by job category we calculated the cost of staff hours using the job salaries found in the literature from Table 4.3. The PPS staff time was excluded from the calculation as this expense would not be applicable in real world costs of care management implementation.

Cost calculation.

Once the cost of staff time to implement care management was calculated as described above, this was added to the other expenses identified in the data collection process. This included the cost of: subcontracted care management, trainings, office space, computer, stationary, filing cabinet. Costs of materials were identified using amazon.com for office supplies and other publicly available costs for the interpreter service, Microsoft office

application and Electronic medical record costs. The sum of these expenses allows us to calculate the total cost of subcontracted care management for the first year including implementation costs.

To calculate the cost of care management in subsequent years, we reduce the startup costs needed. This includes the cost of the consultants and implementation meetings. Continued costs included cost for subcontracted care management, materials and office space.

Sustainability.

To calculate sustainability the practice must determine what the cost of care management is per person across their entire practice population because care coordination payments in value based insurance contracts are generally paid on a per person (member) per month (PMPM) rate for the whole practice and not per person enrolled into care management. To determine the PMPM cost of the program, we used the number of unique Medicaid recipients seen at the practice for one year as a proxy of the number of Medicaid patients on the practice's patient panel. To calculate the PMPM cost of the program the following calculation was used:

$$(1) \text{ PMPM Program Cost} = \frac{\text{total cost of care management program}}{\text{total unique Medicaid patient volume} / 12 \text{ Months}}$$

Next we calculated the potential payments the practice could receive from care coordination payments in a value based contract. To calculate potential care coordination reimbursement amounts we must estimate how much the practice would receive in care coordination through a care coordination payment in a value based payment contract. Research suggests that practice incentives pay a median payment amount of \$4.90 per member per month (PMPM) (Edwards, Bitton, Hong and Landon, 2014). New York State's PCMH incentive

reimburses \$7.50 PMPM for the two highest level of PCMH accreditations and \$3.00 PMPM for the next level down (NYSDOH, 2018). Additionally, in a conversation with the Chief Medical Officer a Medicaid health plan in New York, they revealed their care coordination reimbursement in value based payment contracts are \$5.00 PMPM. Given the average PMCH incentive payment is \$5 PMPM and the reported VBP care coordination payment is \$5, this is the reimbursement rate used in this study. The Medicaid patients each practice saw in 2016 a WMCHHealth PPS (2017) published report was used to represent the practices total Medicaid patient volume. To determine the potential care coordination revenue we use the following calculation:

$$(2) \text{ Care Coordination Revenue} = \text{total unique Medicaid patient volume} \times \$5 \text{ care coordination PMPM rate} \times 12 \text{ months.}$$

Once the payments for the practice are calculated, we can reduce that amount by the cost of implementing the care management program for one year to determine if the care coordination payments will cover the cost of care management implementation.

We calculated the threshold of patients needed to cover the first year of care management implementation costs. This threshold can be determined using the following calculation:

$$(3) \text{ Patient Threshold} = \text{total cost of care management program} / \$5 \text{ care coordination PMPM rate} / 12 \text{ months.}$$

A sensitivity analysis was then performed to see how a change in care coordination reimbursement rate or a change in the cost of care management would impact minimum number of patients needed to cover the cost of care management. We used \$0.50 increments starting at three dollars, the lowest care coordination reimbursement rate in New York, to \$7.50, the highest

care coordination reimbursement rate. For the cost of care management variations, we used increments of \$5,000.

CHAPTER 4

RESULTS

This chapter presents the results of the open ended survey data. In order to identify the perceived impact of care management on the health of the patient, challenges to subcontracted care management implementation, and resources needed. Next, we discuss any unanticipated qualitative findings from the responses.

Subsequently, this chapter presents the phase two, quantitative findings. We will present the identified costs of subcontracted care management discovered in this study and the total subcontracted cost for one full time care manager. Finally, this chapter presents the threshold of patients required at a practice to cover the cost of subcontracting for one full time care manager assuming value based payments.

Phase One Results

Sample Description

A total of nine individuals participated in phase one of the research. Five of the six eligible care managers participated and four of the six eligible primary care providers responded to the survey. Of the care managers who responded, four are female and one is male. Of the primary care providers who responded, two are male and two are female. Three of the care managers have been providing care management for 2-6 years. One care manager has been providing care management for over 8 years and one for less than two. In two practices both the PCP and care manager responded to the survey. The other two PCPs and two care managers all

represented different practices. Every practice that participated in the pilot was represented in the study by either a care manager, a PCP or both (Table 4.1).

Table 4.1

Survey Respondents

Practice	Primary Care Provider		Care Manager	
	Gender		Gender	Years as Care Manager
Practice A	Male		Female	4-6
			Female	<2
Practice B	Male		Female	>8
Practice C	Female		-	-
Practice D	Female		-	-
Practice E	-		Female	4-6
Practice F	-		Male	4-6

In the survey responses, Care Managers reported an average patient caseload of 42.5 patients (Table 4.2). One reported caseload was excluded as an outlier because the care manager only reported three patients in their case load. We expect this was a typo or misunderstanding of the question.

Table 4.2.

Care manager average patient caseload

Respondent	Caseload Response	Number used for Average Calculation
CM 1	60-90	75
CM 2	3	excluded
CM 3	40	40
CM 4	25+	25
CM 5	30	30
Average Caseload		42.5

Qualitative Analysis

The primary care provider responses were less robust than the care managers' survey responses. The PCPs used 194 words on average to respond to all of the open ended questions while the care managers' responses averaged of 467 words. Nevertheless, many of the themes between both groups are similar.

The themes identified in the care manager responses were: their perceived impact of care management on patients' health outcomes, the importance of the primary care practice staff and physicians understanding the role of the care manager, the benefit of a positive working relationship between the care managers and PCPs, the importance of the PCPs having more time to spend with the care managers and patients, the importance of patient trust and the amount of transportation required for the patients they are managing.

The themes identified in the Primary Care Providers responses were related to the impact of care management on the health outcomes of the patients, the significance of the care manager and the physician relationship and the trust of the patients to the success of the program, the resources required for care management implementation and the importance of the care managers providing transportation to their patients.

In the subchapters below, the first three research questions are answered using the themes from the responses to the survey questions intended to answer each research question. The subchapters begin with identified themes based on care manager responses followed by themes identified from the physician responses. Unanticipated findings from the survey also emerged and are reported after the first three research questions are presented. Quotes from respondents have been extracted exactly as they were written and have not been edited. The frequency of these themes are reported in Table 4.3.

Table 4.3

Frequency of qualitative themes

Themes	CM Themes		PCP Themes	
	CM Code Frequency	CM % of frequency	PCP Code Frequency	PCP % of frequency
EMR for Tracking	9	12%	-	-
Identify Patients	6	8%	6	20%
Impact Unsure	3	4%	1	3%
Positive Impact	6	8%	9	30%
No impact	-	-	3	10%
Transportation	11	14%	4	14%
Patient Trust	6	8%	1	3%
Relationship With Practice	12	16%	4	13%
Time Stress	7	9%	-	-
Understand Role of Care Manager	11	14%	-	-
Resources	4	5%	2	7%
tracked in excel	2	3%	-	-
Total	77		30	

RQ1- Care management impact on patient health

As hypothesized from the review of the literature, the results related to the perceived impact of care management on patients' health outcomes were mixed. Three questions were asked to determine if the care manager or physician felt that care management had an impact on the health of a patient. We asked if they perceived care management had an impact on their patients' 1) emergency department use, 2) hospitalizations and 3) quality of care measures.

The care manager responses for all three questions were mixed. Three of the five care managers expressed care management had a positive impact on two or more of questions. One care manager stated that she found "*far fewer hospitalizations. One of my patients was able to remain out of the hospital because I was able to transport her to her regular pcp visits.*" Another

care manager shared that *“there was a reduction in hospitalizations for some patients because we encouraged the utilization of urgent care and PCP visits instead of ER visits.”*

One care manager expressed uncertainty regarding the impact of services because there was not enough information to see a change. He stated *“I am unsure if the care management services that I provided had an impact on patient hospitalizations as I did not have access to hospitalization alerts.”* The response to patients’ use of the emergency department also reflected the same sentiment. Lastly, one of the care manager respondents did not answer two of the questions and did not directly answer the third.

The response from the primary care providers was also mixed. Two of the PCPs found improvements in the health outcomes of their patients as a result of using care manager services. One physician shared that he saw *“reduce(d) ER visit for asthma and chronic pain patients.”* These views are fundamentally subjective, but do accurately reflect the PCPs beliefs of the impact of care management. Regarding care management’s impact on quality measures, one PCP shared that care management provided a *“positive impact, follow up with PCP is better when care managers are aware of patients appointments as they bring these patients to their appointments.”*

Another PCP was not entirely confident if care management resulted in a reduction of ER visits or hospitalizations. He stated that *“we believe we may have decreased hospitalizations however it is hard to prove.”* Regarding ED use, he shared that they *“tried to identify the over users/abusers of the emergency room and come up with a strategy to decrease use. It was not always successful- often it was.”*

The last physician response expressed across all three areas that there was no impact on patient health outcomes. This practice, however, was the only pediatric practice while the rest of the respondents were care managers or primary care physicians at adult patient practices. This physician also explained that *“it was hard to integrate them [care manager] with the rest of the team. Their expertise was not well suited for the population in the practices.”*

RQ2- Barriers to care management implementation

The most frequently expressed challenge the care managers faced while working with the primary care providers at their practice was that the primary care providers had a difficult time understanding the roles of the care managers. One care manager stated that *“in the beginning it was challenging because the PCP did not understand my role.”* Another shared:

At times it was difficult as upper management clearly did not understand my role as a care manager as I was asked several times to explain my role during my time at the practice even before I left the practice. Due to this lack of understanding it was difficult for upper management to understand my need for private office space and space to keep patient files. Upper management’s lack of understanding of my role made it difficult for me to collaborate with other departments as I felt like there was a lack of support of my work.

Some care managers, on the other hand, had a positive experience because the staff at the practice understood their role. For example, one care manager said *“they understand our role because I met with them initially, with the help of the office manager to clearly explain it.”*

A related barrier faced by care managers working in the PCP office was they did not always have a positive working relationships with the physicians. This was critical to the success

of the care manager given the frequency it was brought up in the care managers' responses. For example, one care manager shared she "*felt that I had support from a few of the medical providers but not all within the department.*" The same care manager also shared "*it was a constant struggle to collaborate with other departments.*" Conversely, another care manager shared that "*the PCP's absolutely supported us and explained to the patients what we do*" and that "*the PCPs were very kind and supportive.*" In the absence of that relationship, care managers can face challenges working with the group.

Similar to the care managers' responses, one of the themes that emerged from the PCP survey data was also the importance of the relationship between his care manager and primary care provider. One PCP who expressed a positive relationship with his care manager stated "*she took a lot of the burden off of me as the physician because she was helping me in areas of medicine that I am not really trained in- the social services aspect.*"

Another barrier to care management implementation was due to the limited time primary care providers had to spend with the care managers as well as the patients. It was described by care managers that "*the offices are very busy so sometimes there would be a lot going on and it would be hard to engage the doctors.*" Additionally, one care manager shared that she would have to "*wait to obtain provider signatures, especially MD signatures who are not always available.*"

The physicians' busy schedules also had an impact on the care managers' ability to work with the patients. One care manager explained "*The wait times in the office are frustrating to many patients and sometimes that would get in the way of being able to efficiently engage patients.*" Similarly, another care manager shared "*It was difficult to engage the patients at times*

because they simply didn't want to wait anymore after being in the waiting room for an extended amount of time (there were internal issues as physicians were being overbooked)."

A final key factor to care management effectiveness in the practice was the importance of patient trust in both the care manager and the practice. One care manager explained *"sometimes gaining trust was a struggle because the patients never heard or have never been eligible for extra community support."* Several other shared the same sentiment that *"trust was hard at first with patients."* However, once care managers were able to gain the patients' trust, one care manager shared that *"patients were able to open up and were able to develop trust in the care management process, to the extent that they personally reach out asking for assistance."*

One of the primary care providers also reflected on a similar experience. They stated that *"once staff started discussing with patients about care manager patients opened up."* Based on these responses, it is clear that communication to patients regarding their care management benefit is important for gaining patients' trust and developing relationships.

RQ3- Resources for care management

Both the care manager and primary care providers referenced resources that the care managers used or requested during the pilot project. Collecting this data is vital to understanding all of the costs associated with subcontracted care management implementation. One care manager reported that the practice was *"unable to provide me with a lockable file cabinet due to financial reasons."* They also stated that *"it was up to the medical practice to provide me with an interpreter service but they did not."*

Additionally, all responding care managers cited that they used an electronic medical record to track their patient care and a few of the care managers also stated that they used excel

spreadsheets to track their activities with patients. Electronic medical records were reported by one user as the means in which they received lists of patients in need of care management.

The primary care providers shared that care managers required “*office space, computer, stationary, long telephones conversations and communication with different specialist’s offices and coordinating care.*” A second physician also indicated that their care manager required a computer. These cost variables, summarized in Table 4.4, are used to determine the total cost of care management reported by the care managers and physicians and are integrated into the total cost of care management calculation reported in Phase Two results.

Table 4.4

Survey Reported Costs Variables.

Computer
 Filing Cabinet
 Electronic Medical
 Record
 Excel
 Phone Lines
 Office Space
 Interpreter services
Stationary

Additional finding- Patient identification

Care managers reported two primary methods of receiving patients that had been selected for care management. In three cases the practice provided care managers with a list of patients who were selected based on the patients’ health condition and/or socioeconomic risk factors. One care manager explained that she was “*instructed to look for patients that were stratified as high risk (which were marked with a red icon) on the schedule in the electronic health record.*”

Another described that *“referrals are generated mainly on patient’s medical condition, follow up need, and scheduling.”*

Care Managers also received referrals directly from the physicians. One care manager shared *“patients were referred to me either by the Primary Care Physician when they came in for their appointments.”* Another care manager shared that the physicians *“felt comfortable sending referrals my way.”*

The practices provided a more specific way of identifying patients in need of care management. Two of the four practices referenced using the American Academy of Family Physicians method for Risk-Stratified Care Management and Coordination. This method is a framework designed to guide the physician and the care team through stratifying patients into six risk based levels representing health severity, social determinates, and utilization of services (AAFP, 2019). Another practice shared that they *“looked at specific illnesses and diagnoses. The ones that appear at most complex and would require the most amount of follow-up were referred to the care manager.”*

Unanticipated findings

There were themes that emerged from the primary care provider and care manager survey responses that were not anticipated. We asked care managers and physicians if they had any challenges working with the patients and, across nearly all responses, even on questions not related to challenges of patients, both care managers and physicians expressed that patients had significant transportation barriers. A care manager reported that *“most of my patients’ biggest problems was transportation but that was easily solved because I transported them.”* Similarly,

one physician reported that “*follow up with PCP is better when care managers are aware of patients’ appointments as they bring these patients to their appointments.*”

Phase Two Results

RQ4-Quantitative Analysis

Using implementation meeting reports from the PPS, the number of care management implementation hours for each job category needed at the primary care practice was calculated. Hours of staff time and cost of staff time to implement care management in the provider practice are reported in Table 4.5. The hourly rate for each job category includes an additional 30% in benefits. Implementation meetings and consultant costs needed at the start of the pilot account for nine percent of the total costs in the first year of care management in a practice.

Table 4.5

Staff time and cost for care management implementation.

Position	Practice Staff Average Implementation Time (Source Table 3.4)	Hourly Rate	Average Implementation Cost
Executive Staff	4.5	\$185.29	\$833.80
Primary Care Provider Staff	5.5	\$121.66	\$669.12
Project Director Time Cost	6.3	\$55.24	\$349.88
Consultant Time Cost	25.3	\$165.00	\$4,180.00

Materials and space needed for the care manger make up the thirteen percent of costs for care management for the first year. These costs can be identified in Table 4.6 below. The fringe benefits and training of the care manager are the responsibility of the Care Management Agency. Actual costs can be found in the Table 4.6.

Cost of materials for care management staff

Resources (As reported in Table 4.4)	Data Source	Cost
Computer	Amazon.com	\$660
Filing cabinet	Amazon.com	\$99
Stationary	Amazon.com	\$24.60
EMR Costs	Georgia Department of Community Health EMR user pricing	\$4,500
Interpreter Service Cost	AT&T On Demand Interpreter Powered by Language Line Services	\$120
Microsoft Office Package	Microsoft	\$99
Office Space	PPS Space Contract (total rent/number of staff*12)	\$2,772
Total Resource Cost		\$8,275

As seen in table 4.7, the sum of all the cost variables total first year’s cost for a full time subcontracted care manager in the primary care provider’s office. These costs variables were used from the costs in table 4.6 and 4.5 and also included a \$50,000 subcontracted care management contract as provided by the PPS that covered salary and overhead expenses for the care manager. Given all the cost variables, the total cost identified in this study is \$64,307.32. Seventy eight percent of costs were for the cost of the subcontracted care management contract. If care management were continued past one year, the costs would be reduced for subsequent years because the implementation costs would not be required. Assuming space and materials are still required, the cost for subsequent years are an estimated \$58,274.52 per year.

Costs for subcontracted care management for first implementation year.

Cost Category	Data Source	PCP Expense
Subcontracted for Care Management	PPS Contract	\$50,000
Physician meeting time (Table 4.5)	PPS Meeting Report	\$669
Executive staff meeting time (Table 4.5)	PPS Meeting Report	\$833
Project Manager/ Director meeting time (Table 4.5)	PPS Meeting Report	\$349
Resources/ Space (Table 4.6)	See Materials calculation sheet	\$8,274
Consultants (Table 4.5)	PPS Contract	\$4,180
Total		\$64,307

We calculated the potential care coordination payments to practices based on the average reported care coordination reimbursement rate in the literature of \$5. This information tells us how much total revenue could be brought in from the health plan for care coordination. This was calculated using the number of unique Medicaid patients the practice saw in 2016 as a proxy for the practices Medicaid patient panel size. Practices with a larger patient panel generated greater yearly care coordination reimbursements as seen in Table 4.8. We also calculated the cost of the subcontracted care management intervention per person per month in the practice because a care coordination reimbursement in a value based contract would be paid on a per person per month rate across the practice population and not only for those who receive the intervention. As shown in table 4.8 below, as the practices get smaller, the cost per person per month for the intervention gets larger and eventually exceeds the \$5PMPM reimbursement. It costs Practice F and D, for example, more than the \$5 PMPM to pay for the intervention at a rate of \$5.70 and \$9.32 respectively as see in table 4.8. To determine at what point the costs exceeds the reimbursement we calculated the threshold of patients needed in a practice described below.

Table 4.8.

Cost of subcontracted care management PMPM across the practice and potential yearly care coordination reimbursement.

Practice name	Unique Medicaid Patients with a Claim at the practice (Jan 2016- Dec 2016)	Potential Patients in need of CM services (assuming 20% from research).	PMPM intervention calculation (using \$64,307.32 as year one cost)	PMPM cost of intervention (across all Medicaid patients in practice)	Max Potential Yearly Medicaid Care Coordination Reimbursement (at \$5 PMPM)
Practice E	14757	2951.4	\$0.36*	\$0.36 PMPM -1 CM	\$1,844,625**
Practice A	5640	1128	\$0.95	\$1.90 PMPM- 2 CMs	\$338,400
Practice B	1385	277	\$3.87	\$3.87 PMPM- 1 CM	\$83,100
Practice F	940	188	\$5.70	\$5.70 PMPM- 1 CM	\$56,400
Practice D	575	115	\$9.32	\$9.31 PMPM- 1 CM	\$34,500
Practice C	unknown				

Note: * Calculation Example: \$.36 PMPM Program Cost = \$ 64,307 total cost of CM program / 14,757 total unique Medicaid patient volume/ 12 Months

** Calculation Example: \$1,844,625 Care Coordination Revenue = 14,757 total unique Medicaid patient volume X \$5 care coordination PMPM rate X 12 months.

RQ5- Patient Threshold for Sustainability

We used the patient threshold formula as described in the methods and below to calculate the minimum number of patients needed to receive enough reimbursement cover the first year of care management.

$$\text{Patient Threshold} = \frac{\text{total cost of care management program}}{\$5 \text{ care coordination PMPM rate} * 12 \text{ months}}$$

Note: \$5PMPM Care Coordination Reimbursement rate used. \$5 is the average care coordination reimbursement rate reported in the literature.

Using this calculation we find, to exactly cover the first year's cost of subcontracted care management implementation for one full time care manager, a practice would need 1072 patients as part of a care coordination contract as seen below:

$$1072 \text{ Patients} = \frac{\$64,307 \text{ total cost of CM program}}{(\$5 \text{ care coordination PMPM rate} * 12 \text{ months})}$$

A sensitivity analysis using this calculation was performed in Table 4.9 to assess the number of patients that would be required to cover the cost of care management services based on the varying cost of care management and potential reimbursement rates. Practice F and D had fewer than the threshold number of patients by 132 and 497 respectively, therefore, they would not be sustainable under the assumptions.

One option for these practices would be to subcontract less than a full time care manager or potentially negotiate a higher care coordination reimbursement rate. However, if practices receive a higher reimbursement, such as \$7.50 per person per month through the Patient Centered Medical Home reimbursement rate, the threshold is lowered to 715 patients to cover the cost of a full time care manager. This reimbursement rate would put Practice F 225 patients above the threshold but practice D would remain under the threshold by 140 patients. Using the sensitivity analysis below, we can see that if a practice has 1000 patients and the cost of care management is close to \$65,000 they will require a reimbursement rate of \$5.50 to cover the cost.

Sensitivity analysis of patients required to cover cost of care management

		Cost of Care Management					
		\$50,000	\$55,000	\$60,000	\$65,000	\$70,000	\$75,000
Care Management Reimbursement Rate	\$3.00	1389	1528	1667	1806	1944	2083
	\$3.50	1190	1310	1429	1548	1667	1786
	\$4.00	1042	1146	1250	1354	1458	1563
	\$4.50	926	1019	1111	1204	1296	1389
	\$5.00	833	917	1000	1083	1167	1250
	\$5.50	758	833	909	985	1061	1136
	\$6.00	694	764	833	903	972	1042
	\$6.50	641	705	769	833	897	962
	\$7.00	595	655	714	774	833	893
	\$7.50	556	611	667	722	778	833

CHAPTER 5

DISCUSSION

This research assessed a new, subcontracted model of delivering care management in primary care practices. The testing of new models to deliver care management services is a result of payment reform happening at the national and local level. Health care providers are seeking ways to better manage their patients’ care and control costs. This study evaluated the success and sustainability of this new model of care management delivery by addressing the three phases of Muhlestein, Saunders, Richards and McClellan’s (2018) payment reform framework that include: payment reform, delivery reform, and improved performance. We assessed if there was improved performance by evaluating the perceived impact care management had on patient outcomes. We then addressed how the delivery of care management was implemented by identifying the barriers to implementation. We analyzed payment reform of this model by

determining the total cost of the subcontracted model using the reported resources required and then assessing the sustainability of subcontracting for care management by identifying the circumstances needed to make funding care management sustainable in a value based contract.

This chapter recaps the answers to the research questions and the significant and important findings are summarized and compared to existing research. The implications of the findings and need for future research are also presented.

Summary of the Findings

In the last chapter we identified the perceived impact of care management (RQ1) is mixed. While the majority of care managers and primary care provider responses articulated positive results, some felt they could not prove an impact or that care management worked for some patients and not others. Only one individual, a physician from a general pediatric practice, shared that there was no impact on the health of the care managers as a result of the care manager's work.

Next we found that there are several key factors that impact the ability of a subcontracted care manager to be effective in a primary care practice (RQ2). First, the practice must understand the care manager's role and the services they provide. This is important for the care manager's ability to collaborate with the practice. Second, care managers must have a positive working relationship with the practice. Without their support, they can have a difficult time engaging with both the physicians and patients. Third, time constraints of the primary care provider make care management challenging. Finally, patient trust is essential to the care manager's ability to work with the patients. Communication with patients about their available care management services could have an impact on improving patient trust.

The resources identified for subcontracted care management (RQ3) from the qualitative data included: computers, stationary, electronic medical records, filing cabinets and other supplies. The cost of these items were calculated and combined with additional cost data in phase two.

We used the resources needed for subcontracted care management identified in phase one and connected them to additional data for the cost analysis in phase two. We found that the cost the first year of subcontracted care management (RQ4) including implementation fees is \$64,307 and an estimated \$58,274 for subsequent years. For practices to exactly cover the cost of subcontracted care management with \$5 care management reimbursement payments they would need more than 1072 patients connected to health plan contracts that reimburse for care management (RQ5). However, from our sensitivity analysis we can see that higher care management reimbursement rates or lower costs of care management reduce the minimum number of patients needed to fund a full time care manager. More patients might also allow a practice to subcontract for more than one care manager and smaller patient panels might suggest that less than one full time care manager is needed.

Interpretation of Qualitative Findings

Our results show that the perceived impact of care management on the health of the patients was mixed. These results are in alignment with many of the studies on the impact of care management. In Viswanathan's (2010) literature review on the impact of care management, some studies suggested that care management interventions can result in improvements in patient behavior and health outcomes but other studies suggested that the interventions provide no statistically different benefit.

Our pilot study had six unique primary care practices and each organization had their own workflows. It is possible what was effective for some were not as effective for others or that the intervention was different and this variation could be the potential reason for the mixed results. Research by Soto-Gordoa et al. (2018) examines the importance of correctly identifying patients in need of care management. Their research explains that it is primarily the effectiveness of the care management intervention that will have an impact on the health of the patients and that the identification of the correct patients is secondary to a program's effectiveness. The pilot in this study did not require care managers at each location to provide the exact same intervention nor did it require the practices to identify patients in the same way.

Additionally, one of the unexpected findings in this study was the various methods to identify patients in need of care management. Two of the primary care providers reported using the American Academy of Family Physicians risk stratification tool to identify high risk patients and the other two used reports of patients with chronic diseases or those with frequent hospital use. It is possible that the identification of patients could have had an impact on the perceived outcomes of the patients since the identification of patients was not the same across the practices. A consistent and evidence based means of identifying patients should be considered for future implementations.

The mixed responses to the perceived impact of care management on the health of the patients in this study is also aligned with studies finding limited evidence in the effectiveness of care management. Kangovi (2018) found that patients in the intervention arm had a shorter length of stay and lower number of hospitalizations and while the results approached significance, they were not statistically significant. Similarly, Burns, Galbraith, Ross-Degnana

and Balabran (2014) found phone calls to patients discharged from a hospital resulted in a lower readmission rate but these results were not statistically significant. Daaleman, Hay, Prentice and Gwynne (2014) also found an absolute decrease of 7.5 inpatient admissions per month and an absolute decrease of 8 emergency department visits per month for recipients of care management services. Yet this study does not report this decrease to be statistically significant. The mixed results in this study are similar with this evidence that suggests that care management can have some impact on a patient's health but it is not always effective or enough to be statistically significant.

Regarding the physician that reported no impact on the health of their patients at the pediatric practice, we know from the literature that comprehensive care management for children and youth is different from care management services that of the adult population (Antonelli, McAllister & Popp, 2009). It is likely that without addressing the pediatric population differently, the care manager was not set up to succeed in this role. We do not know if the care manager had previous experience working with the pediatric population but, as this was the only response that found no impact across all three survey questions, we can speculate the approach to care management with this population was not meeting their needs.

The results to the second research question in this study indicate that an important factor to successful care management implementation is the physicians understanding of the care manager's role. Care managers who had a negative experience with the practice expressed the physicians lacked understanding about their position and, conversely, care managers who spoke positively about the practices expressed the physicians understood their role in the practice. This

data aligns with the findings from Demou, Gaffney, Khan, Lando and Macdonald (2014) that provided evidence that physicians needed training on the role of care management.

Additionally, the care manager's relationship with the practice and ability to spend time with the PCP were also reported as critical to the care manager's success. These themes highlight an issue related to the lack of communication between the groups. It is not likely that there will be a positive working relationship and time spent with the PCP without communication between the groups. This data correlates with the findings of O'Malley et al. (2017) that established practices dislike third party care managers who were not employed by their practice because they "communicated poorly." Daaleman, Hay, Prentice and Gwynne (2014) conclude that physicians and care staff felt outreach and personal communication by the care manager was essential in effectively implementing the position into the practice workflow. Without a strong relationship with the physician and time with them to discuss patients, communication will be limited.

The findings suggest the need for an educational training program prior to the start of the care manager that will define the roles of the care managers for physicians and office staff. We know from the staff time analysis the average number of hours physicians spent in implementation meetings was 5.5 hours per practice. This time spent could be spread across multiple physicians. These meetings were also not intended to educate the physician but to determine how the care manager was fitting into the practice workflow. The pilot was missing this onboarding component which could have improved the care managers' experiences in the practices and resulted in stronger relationships with the providers. It is suggested that the Care Management Agencies develop an in person training program for the staff at the primary care

providers' office that includes materials that define the care managers' role as well as walk through scenarios where a care manager can provide services. This will allow the staff to best identify times when the care manager can assist them.

The last barrier to care management implementation was a lack of patient trust. Without patient trust the care managers expressed it was difficult to engage with the patients. The practices were not consistent in how they educated patients about the care management program and who the care managers were. The qualitative responses suggest some of the practices did not communicate well with the patients who the care managers were and at least one of the practices, as reported by the physician, did educate patients. The possible lack of communication with patients about the care management that was offered suggests additional patient education is needed. This barrier also aligns with research that suggests that physician communication with patients can have an impact on trust and that more communication with the patient can be associated with higher rates of trust (Martin, Roter, Beach, Carson & Cooper, 2013).

There is limited research available regarding the resources explicitly required for care management implementation in a primary care practice to compare the results of our third research question. However our findings that the care managers utilized the electronic health record (EHR) to track their patients correlates with research by Reinschmidt et al. (2017). Reinschmidt et al. (2017) found that care managers used EHRs to document their services with the patients as well as communicate with staff in the physician practice using task functionality in the EHR. The use of "tasks" in the EMR was also specifically mentioned by a care manager in this study.

In an unexpected finding, this study identified that the care managers were transporting patients to and from their appointments. All care managers and two physicians reported transportation as a barrier to care or that the care manager was physically taking the patient to their appointment. This finding is consistent with the literature that indicates transportation is routinely cited as a barrier to accessing health care (Syed, Gerber & Sharp, 2013) but was the finding was unexpected because it was not in the job description of the care manager to physically transport the patients. By care managers transporting the patients they are assisting in meeting their needs. In a literature review by Syed, Gerber and Sharp (2018) additional research is needed to determine transportations impact on health outcomes but there is preliminary evidence to indicate that access to transportation contributes to more timely access to care and can improve outcomes.

Overall, the care managers and physicians had seven qualitative themes in this study that were the same. The emphasis on each theme however was varied between the two groups. The exception was patient transportation as noted above. The care managers spoke in greater depth and detail regarding their challenges working with the practice and the importance in the staff understanding the role of the care managers. While the physicians discussed the importance of patient trust and care managers' relationship with the practice to the program, they spoke more frequently regarding how they identified patients. The physicians also spoke more positively regarding the outcomes of care management with the exception of one physician whereas the care managers were more frequently unsure of their impact than the physicians. Surveying both groups helped identify and expand on themes that may have been missed if only one party was surveyed such as limited time with the PCP as a barrier to care management implementation.

This barrier would not have been identified if care managers were not surveyed. It also informs future implementers what is important to each group so they can develop an educational onboarding program or improve workflows that address their varying needs.

Interpretation of Quantitative Findings

Our study found that the cost of subcontracted care management services for one year, including implementation costs were \$64,307 and an estimated \$58,274 for subsequent years. While these costs are above the \$47,800 per year per care manager (95% CI, \$42,200–\$65,300), as estimated by Basu, Jack, Arabadjis and Phillips (2017), they do fall within the confidence interval range of their study. The Basu, Jack, Arabadjis and Phillips (2017) study data was from the Massachusetts Department of Public Health. Their cost analysis includes the care manager salary, supplies and training and uses a price point of \$5000 for supplies which is less than the materials cost identified in our study. We speculate that their supply costs, although not noted, may not include the use of an EHR which greatly contributes to the high price point for the materials calculation in our study (Basu, Jack, Arabadjis and Phillips, 2017). Additionally, unlike our study, it does not include the cost of implementation consultants or account for space costs. This makes up the majority of the difference between the two cost estimations.

Our care management rate is substantially higher than the \$22,809 to \$33,048 annualized cost of care coordination found by previous research (Antonelli & Antonelli, 2004). Their study, however, tracked what it costs a practice to provide care management to patients among their existing staff as opposed to subcontracting or hiring a care manager to provide care coordination. In their study this cost was based on staff who also had other roles than to provide care coordination in the practice (Antonelli & Antonelli, 2004).

There is limited research regarding the sustainability of funding care management services. While some studies suggest care management may provide a return on investment there is little guarantee, given care management's varying ability to impact health, that a practice will receive a return on investment (Rush, 2012). Morgan, Grande, Carter, Long, and Kangovi (2016) published an 8-step framework to calculate return on investment for a community health worker program at Penn Medicine. This calculation may be fairly straight forward at a large health system, however, at a small practice other methods of sustainability may need to be explored if return on investment is not easily measurable, or retained by the practice itself.

Our study finds value based payment care coordination reimbursement payments or Patient Centered Medical Home reimbursement payments, at their current rate and with a minimum threshold of patients, are enough to fund subcontracted full time care managers because the revenue from those payments are more than the cost. With this method, you are able to calculate the minimum number of patients in a practice needed to cover the cost of care management services based on a practices reimbursement amount and their care management expenses. Our model assumes a practice would use the entire reimbursement to cover care management services which may not reflect the reality in a practice.

Our results show that, to cover the first year's cost of subcontracted care management implementation for one full time care manager, a practice would need a panel of 1072 patients. Practices that receive a higher reimbursement, such as \$7.50 per person per month through the Patient Centered Medical Home reimbursement rate, require a lower threshold of patients needed to cover the cost of one full time care manager or may be able to afford two care managers depending on the size of their practice.

Meanwhile, practices with fewer patients or lower reimbursement rates may not be able to cover the cost of a full time care manager. In this study we assume, based on the research, that approximately 20% of each practices' patients are complex and need care management (Hong, et al. 2014). Smaller practices may not require a full time care manager because with an average caseload of 42 patients, as reported in this study in table 4.2, the care managers would likely not have a full workload if only 200 patients in a practice were complex and in need of care management. These practices, could consider a less than full time subcontracted care management arrangement.

On the other hand, if a practice had a commercial insurance panel and could also receive reimbursement for those patients, they may have enough patients for a full time care manager. Through this model each practice can input their own individual scenario to determine what care management arrangement best meets their needs.

Subcontracted care management allows providers the flexibility to have enough care management that their practice requires and not have to pay for additional care that might not be needed in a practice with a low volume of patients. While this pilot program did not have any care managers who were subcontracted for less than full time, the original intent of the pilot program with the PPS was to allow small practices to share care managers between them. By practices subcontracting with a local Care Management Agency they are able to share a community resource. This model is often referred to as the "sharing economy" in which services or goods are shared among people or groups. A common example of a sharing economy model today is the use of ride sharing services like Uber. Evidence suggests that the sharing economy model is a more sustainable model for delivering services (Mi & Coffman, 2019).

Staff Onboarding Program

The qualitative results of this study identified key factors that are important, from the care managers' perspective, to allow them to have a positive experience working in a provider practice. To mitigate some of the potential barriers to care management that have been identified in this study, implementers of care management should develop an onboarding educational training plan for all of their staff prior to the arrival of the care manager. An important component of this onboarding plan would be to ensure that the role of the care manager in the primary care practice is explained to all members of the staff. Additionally, an explanation or description of all the services a care manager can provide would allow staff to better understand the ways in which the care managers can assist the patients in their practice. It is important to distinguish how the roles of the care managers are different from the roles of the nurses or office staff who may have previously had to complete work the care manager would now be responsible for, such as calling some patients prior to their appointment.

Care Manger and PCP Meeting Time

In addition to developing an educational training for staff, it is recommended, after the care manager arrives at the site, to create time when the care managers and physicians can regularly meet to discuss their mutual patients. The care managers who reported positive and supportive working relationships had routine collaboration with the physicians in the practices, while the care managers that had less positive relationships with the physicians described issues regarding not having enough time to speak to the physicians. By creating a time where care

managers and physicians can meet, this continues the communication between them and helps build the relationship that is important to the success of the implementation.

Consistent Care Management Intervention

It is also recommended that a prescribed care management intervention be used across the practices in order to better determine if the work of the care manager is having an impact on patient health outcomes or if the variations in the intervention have an impact on the implementation in the practice. This pilot did not have a consistent way in which the care managers worked with their patients. While each practice may have different needs it is challenging to study the impact of care management interventions when each practice is using care management differently.

Patient Education

As both care managers and PCPs reported patient trust was essential to patients' willingness to work with the care managers, the development of a patient program to educate on the role of the care manager is also recommended. The practices can provide materials about how the care managers can help the patients and have it distributed by the Primary Care Physicians. By receiving information about care managers from their primary care physicians who they trust and have a relationship with, this may improve patients' willingness to engage with the care managers and receive help from them in their care.

Part Time Subcontracted Care Management

Based on the evidence from the quantitative analysis in this study, we find that small practices with fewer patients may not require a full time care manager. It is recommended that these practices with smaller complex patient volumes subcontract with a care management

agency for a part time care manager. This allows the practice to only pay for the care management services they are utilizing. The care management agency can then deploy their care manager to other locations as needed when they are not working in the practice. As described above, a shared economy model can be implemented to utilize local care managers more effectively and also result in a more sustainable model for the practice. This type of model, however, has not been studied to date. While it may be more cost effective for the practice. It might be challenging for the care manager to negotiate working at more than one practice and creating a schedule that meets the needs of more than one group.

By subcontracting and not employing the care manager, the practice may experience challenges with integrating the person on to their team as we described above. Subcontracting, however, allows the practice to embed an individual from an organization with unique care management resources, expertise and training that the practice may not have. More research in this area is required.

Limitations of the Study

The first limitation to the study is the small sample size which does not allow generalizability. Additionally, two of the care managers were not reachable because they had left their organization prior to the start of this study. In one practice a physician who participated in the study also left the organization and in another organization, the physician did not respond to the survey despite multiple outreach attempts.

An additional limitation of this study was the qualitative data collection method. This study collected qualitative data via web based survey and not from interviews with participants and as a result there was not the ability to probe or ask additional questions.

Response bias from the surveys is also a possible limitation. Care managers may not be willing to report challenges they faced with the providers due to fear of retaliation. They also may overstate the impact of their services in an attempt to prove their value to the program and for job security.

There may also be demand characteristic bias as a result of the provider and care manager relationship. In demand characteristic bias, respondents feel they know the desired outcome of the study is and alter their response to “help” the study (Orne, 2009). It is possible that care managers and providers wanted to speak positively about the patient outcomes to make it appear that the program made a difference.

Recommendations for Future Research

Based on the limitations of this study, future research utilizing interviews to collect more robust qualitative data is recommended. This is especially recommended for the physician population who provided significantly less detail than the care managers in this study.

In future research we would also recommend interviewing the leadership from the Case Management Agency. While the care managers can provide a comprehensive understanding of the challenges they face being embedded in the practice, the executive level staff from the Care Management Agency may be able to provide additional operation barriers to subcontracted care management implementation that the care managers are not aware of.

An additional limitation of the study was the limited sample size. Because this pilot was small and some physicians and care managers were not reachable, it limited the amount of data we were able to collect. Another limitation of this study was its inability capture the impact on patients’ health outcomes. In this study we use the care manager and primary care providers’

perceived impact of care management to determine if the program provides value. Follow up studies should seek to calculate outcomes. This could best be done using propensity score matching to find a group of patients that did not receive care management services and only received usual care. One would then compare the quality measures or hospitalizations of the two groups to determine if the group with care management performed better. Similarly, additional research to assess in more detail how patients were identified within the practice and how that identification did or did not have an impact on the outcomes of patient would be valuable.

Future research is also recommended to gain an understanding of the patients' experience with care management. Better patient experience is an outcome of payment reform in Muhlestein, Saunders, Richard and McClellan's (2018) theoretical framework, yet this study does not address this component of the framework. Qualitative research regarding patients' experiences with care managers would be the first step to this investigation.

Future research to compare care management in a subcontracted model to a non-subcontracted model is another area of research to be explored. O'Malley et al. (2017) identified a few practices that used third party care management for the Medicaid population but this was an unexpected finding of the research and should be investigated further.

Conclusions

In sum, this study contributed to the current literature by expanding on the perceived impact of subcontracted care management and its implementation barriers, by providing cost analysis of the investment needed for care management and by providing knowledge of the number of patients needed to fund a full time care manager through a care management contract. As physicians seek to identify ways to better manage their patient population and address their

nonmedical needs in order to have an impact on their health, they are considering care management as a solution. For small practices, however, care management may require a significant investment of resources. Practices require an understanding of the value, investment and means of sustainability of care management prior to making an investment.

It may be beneficial to subcontract for care management services through existing care management agencies in New York State. Potential implementers of subcontracted care management will be able to anticipate costs and learn from the challenges articulated in the study to better prepare them. With this knowledge practices can make educated decisions on care management in preparation for value based payment.

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Appendix A: Survey Instruments

Embedded Care Manager Survey

Thank you for taking the time to complete this survey. We would like to hear from you about your experience working in a primary care practice. Your responses are important to help us understand how subcontracted care management services are being implemented. The purpose of this study is to understand how care management services are offered using this model of embedded care management.

This survey is completely confidential. Nothing you say will ever be tied to you or your care management agency. You are not being evaluated or audited. Neither your name or the name of your agency will be mentioned in any summary report.

There are no right or wrong answers to these questions. You can stop at any time and not complete the entire survey and do not have to provide any explanation. You do not have to answer any questions you would not like to answer.

If you have any questions before you begin, contact Lauren Klein at Lauren_klein@nymc.edu or 914.474.6566. This survey is for a research study being conducted by Lauren Klein at the Department of Public Health at New York Medical College.

Please submit this survey by Wednesday, December 19th. Thank you for taking time to complete this survey.

Background:

**1. Which Primary Care Practice Location were you embedded in (once submitted the practice will be assigned a practice number and the practice name will be removed):*

- Forme Medical Center & Urgent Care
- Llobet Medical Group
- Community Medical and Dental
- Poughkeepsie Medical Group
- Boston Children Health Physicians
- Middletown Medical Group

**2. How many years have you been a care manager?*

- Less than 2
- 2-4
- 4-6
- 6-8
- More than 8

Don't know

*3. *Approximately how many unique patients are on your case load at one time?*

*4. *Can you describe how patients were referred to you for care management from the primary care provider in two or more sentences? Did the provider stratify their patients and provide you lists of patients in need of care management? Did they provide warm hand offs after they saw a patient in the office? Was there a combination or other method used?*

*5. *What tools, if any, did you use document your cases? Were they tracked in an Electronic Medical Record or other system?*

Impact:

*6. *How did the care management services you provided have an impact on patient hospitalizations? If there was an impact, was the positive or negative (fewer hospital admissions vs more hospitalizations)? Can you provide one or more examples? (Please do NOT share any identifiable patient information)*

*7. *How did the care management services you provided have an impact on patient Emergency Department (ED) use? If there was an impact, was it positive or negative (fewer ED visits vs more ED Visits)? Can you provide an one or more examples?(Please do NOT share any identifiable patient information)*

*8. *How did the care management services you provided have an impact on quality of care processes measures? Did care management provide a positive or negative impact on quality measures? Can you provide one or more examples of this impact? Did more patients with diabetes receive their HbA1C tests? Were patients that were discharged from the hospital receiving follow up PCP visits within 7 days?*

Successes:

*9. Can you describe three successes working with the primary care provider in the practice? Did the PCP's support encourage more patients to agree to work with you? Did you build strong relationships with the PCP? Was it easier to contact patients because of their support?

A rectangular text input field with a light gray border. On the right side, there are two small square buttons, one above the other, with upward and downward arrows. On the bottom left and right corners, there are small square buttons with left and right arrows, respectively.

Challenges:

*10. Can you describe three the challenges to being successful working with the physicians in the primary care practices? Was it a difficult to receive patient referrals from them? Did they understand your role? Did they over or under utilize your services? Were they not supportive of your work?

A rectangular text input field with a light gray border. On the right side, there are two small square buttons, one above the other, with upward and downward arrows. On the bottom left and right corners, there are small square buttons with left and right arrows, respectively.

*11. Can you describe at least three challenges to being successful with your patients? Was it difficult to contact them? Was insurance a barrier to them accessing care? Was it hard gain trust their trust? Was transportation an issue?

A rectangular text input field with a light gray border. On the right side, there are two small square buttons, one above the other, with upward and downward arrows. On the bottom left and right corners, there are small square buttons with left and right arrows, respectively.

Primary Care Provider Care Management Survey

Thank you for taking the time to complete this survey. We would like to hear from you about your experience having a care manager from a care management agency coordinating care for patients in your practice. Your responses are important to help us understand how subcontracted care management services are being implemented. The purpose of this study is to understand how care management services are offered using this model of embedded care management.

There are no right or wrong answers to these questions. You can stop at any time and not complete the entire survey and do not have to provide any explanation. You do not have to answer any questions you would not like to answer.

This survey is completely confidential. Nothing you say will ever be tied to you or your practice. You are not being evaluated or audited. Neither your name or the name of your practice will be mentioned in any summary report.

If you have any questions before you begin, contact Lauren Klein at Lauren_klein@nymc.edu or 914.474.6566. This survey is for a research study being conducted by Lauren Klein at Department of Public Health at New York Medical College.

Please submit your responses by Tuesday, December 18th. Thank you for your time.

Background:

**1. Primary Care Practice Location (once submitted the practice will be assigned a practice number and the practice name will be removed):*

- Forne Medical Center & Urgent Care
- Llobet Medical Group
- Poughkeepsie Medical Group
- Community Medical and Dental
- Boston Children Health Physicians
- Middletown Medical Group

**2. Approximately how many unique patients (all payers) are seen each year at the practice location where you spend most of your time seeing patients?*

**3. Did your practice offer any kind of care management services prior to working with the care management agency?*

- Yes
- No

**4. Please describe how your practice risk stratified the patients to determine who would be referred to care management services in at least two to three sentence? Did you use an algorithm to determine risk? Did you look at only specific diagnoses or count of conditions?*

5. If you did not risk stratify your patients, please describe how else did you decide who should be referred in at least two to three sentences? (Type N/A if you risk stratify your patients and described above.)

Impact:

**6. How did the care management services provided have an impact on patient hospitalizations? If there was an impact, was the positive or negative (fewer hospital admissions vs more hospitalizations)? Can you provide one or more examples? (Please do NOT share any identifiable patient information)*

**7. How did the care management services provided have an impact on patient Emergency Department (ED) use? If there was an impact, was it positive or negative (fewer ED visits vs more ED Visits)? Can you provide one or more examples? (Please do NOT share any identifiable patient information)*

**8. How did the care management services provided have an impact on the quality of care processes measures with your patients? Did care management provide a positive or negative impact on quality measures? Can you provide one or more examples of this impact? Did more patients with diabetes receive their HbA1C tests? Were patients that were discharged from the hospital receiving follow up PCP visits within 7 days?*

Successes and Challenges:

**9. Can you describe three of the greatest successes from embedding the care manager into your practice?*

10. Can you describe three of the biggest challenges to embedding the care manager into your practice? Was it difficult to find space for them? Was it hard to integrate them with the rest of the team and workflow? Was it difficult to understand their role?

Resources:

**11. Were there any additional costs incurred by your practice from having the care manager working out of your office such as office space, materials etc.? If so, what were these additional resources needed?*

Appendix B: Codebooks

Care Manager Codebook:

Code	Description	When to use	When not to use	Examples
Address Gaps in Care	Care Managers address "gaps" in patient care by reaching out to the patient to ensure they receive medical care services they need completed such as a HbA1C test if they have diabetes.	Only use when care manager specifically describes a Medical quality gap they are trying to close in a patient's health care.	Not to be used when care manager refers patient to a community based organization.	I was also encouraging patients to complete their lab work if I noticed that they were due or had a standing order for lab work in the EMR.
Encourage PCP visits	Care Manager reaches out to the patient to encourage them to visit their PCP provider.	When care manager specifically references contacting or informing patients that they should attend their PCP visit or schedule a PCP visit.	Not when care manager reaches out to patient for other kinds of visits such as specialty care.	We encouraged annual physicals and follow up appointments.
Provide Services to Patients	Care manager works with patients to connect them to other care or services to address their needs.	To be used when care manager refers to how they try to referred to patients to specialty services, or community based services such as housing or food pantry.	Not to be used when care manager encourages PCP visits or for a gap in medical care.	They utilized our services when certain things were needed, such as food, support in the home, and the need for community resources.
EMR for Tracking	Care manager uses an Electronic Medical Record for documenting activity with patient.	To be used only when care manager specifically references an electronic medical record. They may or may not use the exact name of the electronic medical record.	Does not include when the care manager refers to tracking any other program that is not an electronic medical record.	I used All Scripts PROS which is an electronic medical record. I wrote my notes and entered my care plans and intakes into All Scripts PROS.
Face to face contact with patient	Care manager meets in person with patients to help manage their care.	To be used when care manager refers to meeting with the person at the PCP office or meeting with them in person.	Does not include phone calls. Also excludes any language where it is unclear if they are in person.	able to sit in the patient rooms with people and talk to them about their home life and find out their needs at length

<p>Identify Patients</p>	<p>How the care manager was informed of the patients they needed to work with.</p>	<p>Used when the care manager describes how the practice notified them of patients needing care management. This may include lists of patients.</p>	<p>Not to be used when patients are referred by PCPs at the practice or given warm hand off. Specifically used when care manager describes how the practice provides list of patients.</p>	<p>A list of High Risk patients was also provided to me.</p>
<p>Impact Unsure</p>	<p>The care manager is unsure if their services provided any impact on the health outcomes of the patient such as emergency department use or quality measures.</p>	<p>Care Manager is not sure if their work with patients resulted in a positive or negative health outcomes.</p>	<p>Not to be used when care manager expresses a positive or negative perceived impact of their care management services.</p>	<p>I am unsure if the care management services that I provided had an impact on patient hospitalizations</p>
<p>No impact</p>	<p>The care manager expressed they did not feel the services they provided had an impact on the health outcomes of the patient such as emergency department use or quality measures</p>	<p>Used when care manager feels services they provided did not lead to an impact in the patients' health.</p>	<p>Not to be used when the care manager is unsure of their impact or feels there is a positive impact.</p>	<p>there are patients who just do not respond to the services provided,</p>
<p>Positive Impact</p>	<p>The Care Managers expressed their care management services had a positive impact on patients outcomes. They may have seen a reduction in ER visits or improvement in quality measures</p>	<p>Used when care manager describes a positive patient outcome from their work with patients. When care manager describes reduction in ER visit, reduction in readmissions, improvement I quality measures.</p>	<p>Not to be used when care manager is unsure about impact of their services or if they express it did not have an impact on the health of patients.</p>	<p>There was a reduction in hospitalizations for some patients because we encouraged the utilization of urgent care and PCP visits instead of ER visits.</p>
<p>Patient Barriers to Accessing Care (Parent Code)</p>	<p>The care manager report problems that patients face in order to access care at the</p>	<p>To be used when a patient has any barrier to gaining access to care. This</p>		

	PCPs office or with other providers.	may include: insurance barriers, lack of providers, lack of transportation, financial barriers.		
Lack of Providers (Child Code)	Care Manager refer to there being limited providers available for the patient to see	When there is reference to limited providers or providers in close proximity to patient.	Not to be used for any other problem with providers such as financial.	Lack of Providers in patients county
Insurance (Child Code)	Types of insurance or lack of insurance is cited as a barrier for patients' access health care services.	Only to be used when specifically referencing an insurance company or insurance of the patient or lack of insurance.	Not to be used related to financial barriers of the patient.	Often getting services in place was a struggle because of insurance
Patient Financial Barriers (Child Code)	Lack of money or other financial issues are cited as barriers to accessing health care.	to be used when care manager cites a financial issue the patient has. This could be and issue with the practice or affording something related to their health.	Not to be used when care manager refers to insurance barriers.	If they are struggling financially they don't want to take the time off from work to come in to get the A1c test .
Transportation (Child Code)	Lack of transportation or difficulty gaining transportation is cited as a barrier to accessing health care and attending health care appointments.	Used when there is a reference of the patient having a lack of transportation or the care manager has to transport the patient or other references to transportation needs of the patient.	Not to be used when transportation is not referenced.	we have been able to pick up patients when they call and cancel due to lack of transportation.
Patient Trust	Having a patients trust is a major factor to the ability of a care manager to work with the patient.	To be used when there is a reference to patient trusting a care manager or trusting the provider practice or gaining a relationship with the patient. May also include patient not trusting because		patients were able to open up and were able to develop trust in the care management process, to the extend that they personally reach out asking for assistance.

		service is new to them.		
Phone Outreach	Care managers provided phone call outreach to patients to engage them in care.	Only to be used when care manager specifically references a telephone or phone call outreach.	Not to be used when care manager describes meeting with a patient in person or is not specific about if they have made a call to the patients.	Sometimes we do phone outreach if a patient is flagged or in need of help.
Referral From PCP	Primary Care Providers would refer individual patients to the care managers for care management services as they identified them.	Used when describing the PCP is referring patients in a one off manner to the care managers. May also mention not receiving referrals from the PCP. To be used in any reference to a "warm" hand off from the provider, meaning the provider referred the patient to care manager at the practice and usually the care manager could meet with them during their visit.	Not to be used when the practice is providing a list of patients to the care manager or receiving patients through the EMR.	It was difficult to receive patient referrals from the providers
Relationship With Practice	The care managers relationship with the PCPs and other staff in the practice was vital to the success of the care manager. Without a good working relationship it was challenging for	To be used when care manager references their relationship with the primary care practice. This may include a workflow or support or lack of support from the practice. Can be	Not to be used for care managers relationship with patient.	Many of the patients that were given to us were a warm hand off and seen in the office.

	the care managers to perform their jobs.	used for both positive and negative relationships with the practice. Can be used related to care managers relationship with PCP as well as other staff and departments.		
Time Stress	PCP practices are busy and there can be long wait times and short visits with the physicians.	To be used when there is a reference to problems related to having enough time. May be related to long wait times or enough time for care manager to see the practice.		usually did not allow me with much time to speak to the patient as the physicians had full schedules to follow.
Tracked in excel	Care mangers track work with patients in excel.	To be used when reference to tracking activity or work with patients in Microsoft Excel. Will use Excel in response.	Not to be used for tracking patients in excel.	I used Excel Spreadsheets as well.
Understand Role of Care Manager	The practice's staff understanding of the role and responsibilities of the care managers is important to the success of the care mangers.	To be used when specifically citing how the practice does or does not understand the role of the care manager. This could be related to the practice understanding what the care manager does or the services they provide.		In the beginning it was challenging because the PCP did not understand my role
Unmet CM Needs	Care Managers requested specific resources to perform their work but these were not supplied to them.	Any reference to an item or a services the care manager need to do their job but it was not provided.	Not to be used for resources that were provided to care managers.	They were unable to provide me with a lockable file cabinet due to financial reasons.

Primary Care Codebook:

Code	Description	When to use	When not to use	Examples
CM Resources	Physician reported resources the care manager utilized while working in their practice.	To be used when a specific material or product is used by the care manager or relates to something they need to complete their job.	Do not use if excerpt does not reference the use of resources, materials or office supplies used by the care manager.	Yes, office space, computer, stationary, long telephones conversations and communication with different specialists offices and coordinating care
Encourage PCP Visits	PCP describes the care manager encouraging the patient to attend their PCP visits when they are in contact with the patient.	When PCP specifically references care managers contacting or informing patients that they should attend their PCP visit or schedule a PCP visit. May also reference "well visit" or preventive care.	Not when referencing a care manager contacting patient for other kinds of visits such as specialty care.	They were also encouraged to see their internists for primary and preventative care as well.
Identify patients	PCP describing how the practice identified patients in need of care management.	Used when the PCP describes how the practice identified patients in need of care management. This may include lists of patients pulled from the electronic medical record.	Not to be used when patients are referred by PCPs with a warm hand off at the practice.	Ran reports of patients with high risk or chronic disease diagnoses, those who live in hot spot zip codes, and those on Medicaid. Then risk stratified using AAFP tool.
Impact unsure	Provider is not sure if the care management is having an impact on the health of the patient or impacting outcomes.	To be used when provider does not have a clear position on whether or not care management impacted patient care.	Not to be used when physician expresses impact of care management has a clearly positive impact on patient health and or outcomes or clearly has not made an impact on health or outcomes.	It was not always successful- often it was.

No Impact	Provider felt that the care management did not have an impact on the patients' health or impacting outcomes.	Used when PCP expresses the care management services provided did not lead to an impact in the patients' health. They might reference that they saw no change in the patient's health.	Not to be used when the PCP indicates care management has led to a positive change in health outcomes or they are unsure if there has been an impact.	no change
Positive Impact	Provider felt the care managers had a positive impact on the health of the patients they were managing.	Used when PCP feels the care management services provided did lead to an impact in the patients' health. This might be in reference to fewer ER visits, hospitalizations or improved quality measures.	Not to be used when PCP is unsure if there was an improvement or explicitly states there was no change or is unsure if there was a change.	No show rate went down, hospital follow up increased
Patient Trust	Having a patient's trust is a factor for the ability of a care manager to work with the patient.	To be used when there is a reference to patient trusting a care manager or trusting the provider practice or gaining a relationship with the patient. May also include patient not trusting because service is new to them. Can reference "opening up" to the care management.	Not to be used related to care manager and PCP relationship with one another.	Initially it was new patients were not discussing, but in two weeks once staff started discussing with patients about care manager patients opened up
Phone Outreach	Care managers provided phone call outreach to patients to engage them in care.	Only to be used when care manager specifically references a telephone or phone call outreach.	Do not use if reference to a phone call, telephone call or outreach is not explicitly made.	She would often called the patient and the day before their visit.

<p>Relationship with Practice</p>	<p>The care managers' relationship with the PCPs and other staff in the practice was vital to the success of the care manager. Without a good working relationship it was challenging for the care managers to perform their jobs.</p>	<p>To be used when the PCP references their relationship with the care manager. This may include how they work with the care manager. Can be used for both positive and negative relationships with the care manager. Can be used related to care managers relationship with PCP as well as other staff and departments.</p>	<p>Not to be used in reference to the patients relationship with the practice or care manager.</p>	<p>It was hard to integrate them with the rest of the team</p>
<p>CM Services to Patients</p>	<p>Care manager works with patients to connect them to other care or services to address their needs.</p>	<p>To be used when PCP is describing the services the care manager provides to the patients. This may include referrals, follow ups, etc.</p>	<p>Not to be used in reference to services provided by the PCP to the patient.</p>	<p>he was encouraging the patients to follow their diet, take their medications and make their specialty appointments and preventative care appointments</p>
<p>Transportation</p>	<p>Lack of transportation or difficulty gaining transportation is cited as a barrier to accessing health care and attending health care appointments.</p>	<p>Used when there is a reference of the patient having a lack of transportation or the care manager has to transport the patient or other references to transportation needs of the patient.</p>	<p>Not to be used for any other barrier to care such as financial or insurance.</p>	<p>especially those that has social needs for example transportation to offices,</p>