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Structure, Process, and Outcomes: The Foundation for Continuous Quality Improvement in Primary Care

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Structure, Process, and Outcomes: The Foundation for Continuous
Quality Improvement in Primary Care

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Abstract

Healthcare within the United States is notoriously fragmented and inefficient. Contemporary innovations for policy, reimbursement, and care delivery are consistently directed towards the promotion of value based care (Bates, 2010). These initiatives routinely coalesce around the promising potential of a robust primary care system. The Patient-Centered Medical Home (PCMH) model is increasingly becoming the standard of quality care and use of this model by healthcare providers is poised to bring about a paradigm shift towards value-based care (Henderson, Princell & Martin, 2012).

This scholarly project incorporated an evidence based approach to establishing continuous quality improvement in a primary care office pursuing PCMH recognition. Application of The Donabedian Model (Donabedian, 1998) and PARiHS framework (Kitson, Harvey, & McCormack, 1998) provided a strategic approach to developing and successfully adopting the foundation for continuous quality improvement. This project demonstrated how addressing the fundamental need for supportive structure and process improvements, based upon evidence and the context of an organization, can facilitate the successful adoption of continuous quality improvement (QI) in a Midwest primary care clinic. Systematic efforts to address issues of structure, process, and outcomes for a nurse-managed health center translated to improvement in quality performance scores for cervical cancer screening, breast cancer screening, and tobacco cessation counseling rates. Staff perceptions of organizational QI strategy also improved following implementation. Alternative revenue through incentivized reimbursements went unchanged, but an extended implementation period would likely foster an increase in the relative fiscal benefits of continuous quality improvement. Additionally, several unplanned benefits, including increased number of new patients establishing care at the practice, were actualized.
through organizational engagement in quality improvement work. Ultimately, this project demonstrated how addressing the fundamental need for supportive structure and process improvements, based upon evidence and the context of an organization, can impact outcomes and facilitate the successful adoption of continuous quality improvement in a nurse-managed primary care clinic.
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Executive Summary

Healthcare within the United States is notoriously fragmented and inefficient. Contemporary innovations for policy, reimbursement, and care delivery are consistently directed towards the promotion of value based care (Bates, 2010). These initiatives routinely coalesce around the promising potential of a robust primary care system. The Patient-Centered Medical Home (PCMH) model is increasingly becoming the standard of quality care and use of this model by healthcare providers is poised to bring about a paradigm shift towards value-based care (Henderson, Princell & Martin, 2012). The PCMH is a comprehensive approach to care delivery predicated upon continuous quality and safety. An empirical base exists to suggest that the successful adoption of a strategy for continuous quality improvement (QI), such as that of the PCMH, by a primary care organization can positively impact the quality of care (Friedberg, Rosenthal, Werner, Volpp, & Schneider, 2015; Savage, Lauby & Burkard, 2013). This type of care delivery redesign can begin the formative work of preparing a primary care practice for the inevitable transition payers will make towards quality based reimbursement models ((Nielsen, Buelt, Patel & Nichols, 2016).

Certainly, the transformative work such of adopting continuous quality improvement is not to be misrepresented as a simple endeavor. Application of The Donabedian Model (Donabedian, 1998) and PARiHS Framework (Kitson, Harvey, & McCormack, 1998) provided a strategic approach to successfully adopting a continuous QI model. This project aimed to answer the clinical question - how does an evidence-based approach to comprehensive QI, emphasizing structure, process, and outcomes, impact staff perceptions of QI, adoption of process efficiencies, and organizational performance as measured by HEDIS metrics and incentivized reimbursement?
This scholarly project identified the need to develop structural support for continuous QI. Consideration to organizational structure was intentionally incorporated by utilizing the patient care technology system and fostering staff knowledge and the explicit roles required to support continuous QI. Given the inherent complexities of organizational change, the importance of establishing a QI culture was also a primary structural consideration during project development. Building upon the organizational structure, relevant process improvements were developed and implemented to support QI work.

A variety of process improvements were introduced during the implementation period. These changes focused on utilizing the patient care technology to develop efficiencies for patient care delivery consistent with The Healthcare Effectiveness Data and Information Set (HEDIS) measures (National Committee for Quality Assurance, n.d.), systematic appraisal of quality performance data, routine QI meetings, and a comprehensive toolkit to guide and sustain the initiative. These process improvements were designed to improve outcomes as evidenced by quality performance scores in the organization’s electronic health record and incentivized reimbursement revenue from the two primary payers for this practice. Communicating the importance of measurable outcomes and collaboratively setting goals proved to be an invaluable component to the success of this scholarly project. To foster adoption and sustainability, an evidence-based implementation plan was applied to these key concepts of QI.

A review of contemporary literature highlighted several common approaches to successfully implementing continuous QI within the PCMH model. Engaging staff (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017; Flieger, 2017; Frasso et al., 2017; Reddy, Shea, Canaumucio, & Werner, 2015; Stout & Weeg, 2014), establishing meaning for the initiative (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017; Flieger, 2017; Stout &
Weeg, 2014), creating dedicated time of the work (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017; Flieger, 2017; Frasso et al., 2017), and driving change with data (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017; Frasso et al., 2017; Reddy, Shea, Canaumucio, & Werner, 2015) were evidence based strategies incorporated into this scholarly project. Meaning was constructed for the initiative early on through presentations about value based reimbursement and coinciding the work with organizational goals of PCMH recognition. Staff were engaged throughout the entirety of the implementation period, contributing to the development of process improvements through guided discussions and regularly solicited feedback. Dedicated time for the initiative was created by structuring monthly QI meetings in which to discuss process improvements and the impact of workflow changes. Lastly, change was driven with data by routinely disseminating organization performance reports to staff and developing a QI dashboard. Utilizing these approaches to address the fundamental tenants of QI, structure, process, and outcomes, proved to be an effective approach to establishing the foundation for continuous QI.

To evaluate staff perceptions of organizational development towards a comprehensive QI strategy consistent with the PCMH model, the QI component of a PCMH readiness survey was administered to staff at baseline and following implementation. This assessment tool was included based upon its proven sensitivity to reflect actual progress towards a comprehensive QI structure consistent with the PCMH model (Daniel et al., 2013). Following implementation, staff (n=6) reported appreciable development towards a comprehensive QI strategy for all four QI concepts on the survey. Staff members also routinely demonstrated adherence to new process improvements throughout the entire project period.
Following demonstration of patient care technology efficiencies, a tobacco cessation counseling order set, and corresponding billing code, was used on average 9.5 times per month during the two-month implementation period. For context on the impact of this process improvement, tobacco cessation counseling in the absence of an order set was only billed and documented on average 2.7 times per month in the preceding 32 months. In addition to an increase in documented instances of tobacco cessation counseling following implementation of the order set, the relative average month revenue from tobacco cessation counseling increased from $21.82/month to $77.44/month. The implementation of continuous QI also demonstrated the capacity to improve organizational performance as measured by quality metric scores.

Statistically significant improvement was evident for quality performance scores on cervical cancer screening rates among patients aged 21-29 (+44%, p<.001) and 30-64 (+24%, p=.009) and breast cancer screening rates (+17%, p=.021). Quality performance scores on tobacco cessation counseling improved 9%, but failed to achieve statistical significance (p=.237). Incentivized reimbursement was not impacted as expected, but this was limited by several unforeseen changes in the incentive program and the temporal constraints of the short project period. Several unanticipated benefits were also appreciated throughout this endeavor.

In reviewing the quality performance data, an obvious opportunity to increasing the number of new patients at the practice was identified. Using this data, a novel process was created and directly resulted in 39 new patients establishing care at the health center during the implementation period. Additionally, a comprehensive review of the performance data from the EHR demonstrated that the quality reporting was significantly skewed. Inconsistent documentation of care services and a sizable constituent of patients that were not using the health center for traditional primary care services negatively impacted quality performance scores. A
systematic data cleansing process and a structured approach to documenting care services was implemented to improve the integrity of the data being reported.

Ultimately, this initiative established preliminary support for the impact an evidence-based approach to comprehensive QI, emphasizing structure, process, and outcomes, can have on staff perceptions of organizational QI strategy and organizational performance as measured by HEDIS metrics and incentivized reimbursement. This project makes a timely contribution to the organization by implementing a system for continuous QI that aligns with several contemporaneous goals. This initiative fostered the development of the prerequisite structure and processes to support the long-term goal of PCMH recognition and alignment with value-based reimbursement models. The transformative work of redesigning care delivery is inherently complex and often predicated upon the preexisting structural characteristics of the organization. As such, establishing a culture of team-based QI, that emphasizes relevant process efficiencies, is perhaps one of the most notable accomplishments actualized from this scholarly project. Guiding this organization through a successful complex change endeavor galvanized staff around the potential of QI and will invariably have lasting implications as they continue along the PCMH journey.
Structure, Process, and Outcomes: The Foundation for Continuous Quality Improvement in Primary Care

Over the last several decades, the United States’ health care system has become increasingly fragmented and inefficient. The United States perpetually ranks near the bottom for key quality indicators of population health among developed countries despite having the most expensive health care system in the world (Davis, Stremikis, Squires & Schoen, 2014). This discouraging realization is often attributed to a health care system plagued by misguided incentives promoting volume over value (Berenson & Rich, 2010; Bodenheimer & Pham, 2010). The convergence of an aging population and unprecedented rates of chronic diseases necessitates a paradigm shift away from the reactive approach of simply addressing illnesses and episodic care needs (Bauer, Briss, Goodman & Bowman, 2014). Ongoing research and policy discussion is focused on potential strategies to guide the paradigm shift towards a healthcare system supporting quality patient care, particularly in the primary care setting.

**Background**

The proactive and predictive approach inherent to primary care makes it a pragmatic point of emphasis in contemporary models of health care reform. A comprehensive review of research comparing health care systems throughout the United States suggests that a robust primary care system leads to more effective and efficient care (Starfield, Shi & Macinko, 2005). As such, payers, providers, policy makers, and patients have begun to coalesce around the prospect of transforming both the structure and delivery of primary care to address the pervasive issues within the United States’ health care delivery system (Bates, 2010; Dentzer, 2010). When primary care is afforded the opportunity to function as intended, comprehensive care activities
can be prioritized to improve quality outcomes, efficiency, and patient satisfaction (Rittenhouse, Shortell, & Fisher, 2009).

**Patient-Centered Medical Home**

The Patient-Centered Medical Home (PCMH) model has emerged as a promising framework capable of reinvigorating the primary care system. Expanding upon the widely promulgated Chronic Care Model (Bodenheimer, Wagner & Grumbach, 2002), the PCMH fosters the innate strengths of primary care while incorporating innovative practice changes to align care delivery with patient-focused needs (Henderson, Princell & Martin, 2012). This holistic healthcare delivery model fundamentally aligns with the ubiquitous Quadruple Aim: improving the patient care experience, improving population health, reducing the overall cost of healthcare, and improving provider satisfaction (Bodenheimer & Sinsky, 2014). The conceptual promise of the PCMH to meet the broader goals of health care delivery has garnered widespread endorsement from key stakeholders including payers, policy-makers, and healthcare providers (Rittenhouse, Shortell, & Fisher, 2009).

With aspirations of developing industry standards, the Patient-Centered Primary Care Collaborative (2007) created the first iteration of guidelines for PCMH recognition. These criteria were adopted by the National Committee for Quality Assurance’s (NCQA) in 2008 and represented the first formal recognition process for the PCMH care delivery model. The primary tenants of the PCMH include: team-based care, individualized care, improving patient access, care management and coordination, and continuous quality improvement (NCQA, 2017a). Although conceptually the PCMH is a care delivery model, by emphasizing continuous quality improvement (QI) it has also served as the impetus for a fundamental shift towards value-based reimbursement.
Value Based Reimbursement

The traditional fee for service model does not support the continuous QI activity of which the Patient-Centered Medical Home (PCMH) is predicated upon. Fortunately, over 100 health plans have developed support for PCMH initiatives by providing capitation incentives for recognized practices (NCQA, n.d.). On average, PCMH practices report nearly $5.00 per member per month in alternative funding through capitation (Edwards, Bitton, Hong, & Landon, 2014). Many insurance companies also incorporate NCQA’s Healthcare Effectiveness Data Information Set (HEDIS), a set of nationally recognized quality metrics, allowing practices to obtain additional pay-for-performance reimbursement by meeting quality measures (Meridian, 2016). These incentivized reimbursements are designed to complement the traditional fee-for-service payment system that doesn’t support the anticipated outcomes of patient-centered care. Without financial support for the core functions of the PCMH, the sustainability of comprehensive QI and the relative patient-centered care practices are questionable at best (Arend, Tsang-Quinn, Lveine & Thomas, 2012).

Alternative payment models, supporting the comprehensive nature of the PCMH care delivery model, are regarded as merely the beginning of a movement towards breaking the cycle of volume based, fee-for-service medicine (Nielsen, Buelt, Patel & Nichols, 2016). This presumption is all but certain with the innovative changes underway in the public sector as Medicare leverages payment reform through value based reimbursement models. Medicare aspires to have 90% of payments linked to value by 2018 and historically, as the public sector goes so goes the private sector (Burwell, 2015). With increasing external motivation through payment reform on the horizon, it behooves organizations to begin the transformative work of
implementing a continuous quality improvement strategy before the incentives are replaced by penalties for not meeting standards of care.

**Continuous Quality Improvement**

Adopting the Patient-Centered Medical Home (PCMH) model, and the inherent requirements for continuous quality improvement (QI), is a pragmatic step towards aligning care delivery with ongoing payment reform. A comprehensive QI strategy enables continuous performance evaluation to identify opportunities for change, monitor the outcomes of change initiatives, and employ further change based upon the outcomes (Geonnotti et al., 2015). Incorporating a systematic approach to QI is widely regarded as a critical first step for adopting an innovative care delivery model such as the PCMH (Safety Net Medical Home Initiative, 2013). Although QI processes are an essential component to restructuring care delivery and aligning with payment reform, many primary care practices fail to incorporate a systematic approach to QI (Geonnotti et al., 2015). This quality chasm is largely attributed to not only the innate challenges of change in general, but also the perceived rigor and financial investment required to adopt a comprehensive QI strategy that aligns with value-based care.

Many organizational QI initiatives are impeded by past failures with change, preexisting structural and cultural barriers, and lack of engagement with key members of the organization (Fernald et al., 2011). To be successful, organizational change must be imbedded in the context of established structural and processual components that support the work of care delivery transformation. Even the most seasoned clinical practices will invariably require new skillsets and process improvement to achieve the anticipated outcomes of QI (Taylor et al., 2014). As such, to ameliorate prospective barriers it is imperative that evidence-based strategies to guide
the development of a continuous QI process be invoked early on for transformation endeavors in the primary care setting.

**Problem Statement**

The formative approaches to value based reimbursement have initiated the necessary shift towards quality care concordant with the PCMH model, but other barriers to adopting a continuous quality improvement strategy require attention. The intent of the PCMH model is commendable, but the framework for the transformative process towards recognition can be complex with limited individualized support. The quality improvement core criteria within the PCMH recognition program from the National Committee for Quality Assurance (NCQA) offers conceptual aims, but specific implementation strategies can seem quite nebulous without explicit guidance. This phenomenon seems to be particularly evident in smaller organizations that are more likely to lack the perquisite structure and processes to foster complex change (Hoff, Weller & Depuccio, 2012). The variability in how the core criteria are operationalized has led to mixed findings for quality of care in some PCMH demonstrations (Jackson et al., 2013). This is not to detract from the potential of the PCMH, but rather acknowledge the need for an evidence-based approach to support implementation and perpetuate the paradigm shift towards value based care.

A small Midwest nurse-managed primary care office, affiliated with a university college of nursing, has encountered many of the common barriers while engaging in the formative work of adopting the PCMH. The lack of structure and standardized processes to support this transformative process has been identified as a principal barrier to restructuring care delivery for this organization. To systematically organize the work of redesigning the care delivery model, a comprehensive gap analysis of the organization, utilizing the PCMH core criteria (NCQA, 2017a), was performed. This prospective assessment demonstrated many opportunities for
innovation within the organization, namely the approach to quality improvement (QI) (See Appendix A). An organized approach to continuous QI would facilitate progress towards several contemporaneous organizational goals: establish structure and processes for change, improve fiscal performance, realign care delivery with value-based incentives, and eventual PCMH recognition. Leadership personnel collectively agreed that implementing a strategic approach to continuous QI was a primary, and timely, need of the organization. It is envisioned that employing an evidence-based approach to implementing supportive structure and processes for QI can drive change to improve organizational performance. As such, this prompts the clinical question: How does an evidence-based approach to comprehensive QI, emphasizing structure, process, and outcomes, impact staff perceptions of QI, adoption of process efficiencies, and organizational performance as measured by HEDIS metrics and incentivized reimbursement? An individualized strategy for this primary care practice was conceived out of contemporary literature emphasizing the transformative work of PCMH organizations. This individualized strategy guided implementation efforts and facilitated the development of a quality improvement toolkit composed of policy, procedure, and evaluation deliverables. Additionally, this toolkit explicitly incorporated operational details that comply with the QI criteria for patient-centered medical home recognition through NCQA.

**Evidence-based Initiative**

The Patient-Centered Medical Home (PCMH) model is a widely promulgated approach to restructuring care delivery and aligning with value-based care due to the inherent expectations for continuous quality improvement (QI) (Taylor et al., 2014). A current review of the literature was conducted to demonstrate the empirical base for implementing a continuous quality improvement strategy for an organization working towards PCMH recognition. Literature was
collected using the Cumulative Index to Nursing & Allied Health Literature and PubMed databases. Keywords utilized in the searches include various combinations of “Patient-Centered Medical Home,” “Quality improvement,” “Quality Measures,” and “Implementation” connected with the Boolean operators “and” and “or”. Search parameters included peer-reviewed empirical literature published between January 2012 and September 2017. The date range was intentionally selected to avoid PCMH precursors likely to represent incomplete demonstrations that may attenuate the results of actual PCMH initiatives. The search was limited to articles focusing on at least one of two concepts: the association of PCMH initiatives in adult primary care settings with improvements in HEDIS based outcomes and successful strategies for adopting the PCMH model. Due to the variability of PCMH implementation, only studies designated as PCMH by the NCQA accreditation process are included. A total of 634 citations were initially identified. Title and abstract review for potential concordance with inclusion criteria and removal of duplicates narrowed the findings to 56 articles. Full text review identified six unique articles emphasizing the impact PCMH adoption has on quality metrics and five focusing on implementation strategies for practices successfully adopting the PCMH model. Two additional articles were identified upon citation review of the initial sample.

Evidence supporting the impact of PCMH initiatives on quality measures was collated to align with core measures of evaluating quality outcomes for PCMH initiatives (Rosenthal, Abrams & Bitton, 2012). Additionally, much can be learned from the successes, and failures, of previous PCMH demonstrations. The facilitating factors from published PCMH implementation initiatives were reviewed to identify guiding principles for the inherently complex work of establishing a comprehensive QI strategy.
Patient-Centered Medical Home Quality Outcomes

To foster homogenous evaluation efforts, a set of core measures are recommended to assess clinical quality outcomes for PCMH initiatives: preventive care, chronic disease management, acute care overuse, and safety (Rosenthal, Abrams & Bitton, 2012). This approach has also been supported by accrediting organizations, with the National Committee for Quality Assurance (NCQA) recently redesigning the recognition process to incorporate feedback from key stakeholders and allow for practices to focus more on the individualized outcomes of patient-centered care (NCQA, 2017b). Providing practices with the flexibility to individualize the transformation process and focus on empirically based outcomes will help elucidate the anticipated benefits of adopting the PCMH model.

Preventative Care. The monitoring of standardized nationally endorsed preventative care measures are recommended as a primary means of evaluating PCMH outcomes. The Healthcare Effectiveness and Data Information Set (HEDIS) guidelines are one of the most widely utilized group of measures for determining clinical quality (NCQA, n.d.). Four of the identified studies demonstrate improved performance on a variety of HEDIS based preventative care guidelines. Rosenthal et al. (2016a) evaluated preventative measures in a quasi-experimental study of 15 small and medium-sized primary care practices participating in the multi-payer medical home initiative, HealthTeamWorks. This pilot emphasized continuous QI through NCQA PCMH recognition. Utilizing a robust sample of 98,000 patients, the researchers identified improvement in multiple clinical quality indicators for practices participating in the pilot. Inclusion in this PCMH focused pilot was associated with improvements in cervical cancer screening rates at two and three years post intervention (4.7% and 3.3% respectively). Relative to 66 non-participating practices, PCMH focused organizations demonstrated statistically
significant (p<.001) increased rates of cervical cancer screening, at two and three years post intervention (12.5% and 9.0% respectively). Similar benefits continued to be evident after two years among a subsample of patients with two or more comorbidities.

In a mixed-methods study examining outcomes two years after the adoption of a PCMH model, improvements in preventative population health outcomes were identified (Savage, Lauby & Burkard, 2013). Implementation of the PCMH in a primary care clinic of 13,000 patients was associated with statistically significant increased rates of breast, cervical, and colorectal cancer screening rates 2 years after inception (p<.001; 1.4%, 1.0%, 9.8% respectively). Additionally, in a retrospective study analyzing medical claims from 27 pilot and 29 comparison practices, PCMH recognized organizations demonstrated significant improvement in preventative care measures (Friedberg, Rosenthal, Werner, Volpp, & Schneider, 2015). Statistically significant (p<.001) improvements in breast cancer screening (4.7%) became evident just one year after pilot organizations began working towards PCMH recognition. These benefits were sustained throughout all three years of the demonstration, eventually improving to a 5.6% (p<.001) differential in breast cancer screening rates relative to comparison organizations.

**Chronic Disease Management.** With the ever-increasing burden of chronic diseases, management of patients suffering under the weight of a life-limiting disease has become an imperative component to health care delivery. To evaluate the potential benefits of the PCMH for chronic disease management, Calman et al. (2013) conducted a retrospective study of 17 primary sites within a Federally Qualified Health Center network. All sites were PCMH recognized with NCQA. A total of 545 diabetic patients with at least one documented hemoglobin A1C (a measure of diabetes control) were included in the study. Among
uncontrolled diabetics (goal A1C <7.0%) with a hemoglobin A1C greater than 9% there was a notable, although significance was not reported, reduction in mean annual A1C levels from 10.72% to 8.34% in the 9-year practice transformation to a PCMH. Similar PCMH benefits have also been appreciated among much smaller, resource limited practices believed to encounter more challenges to recognition.

Wang et al. (2014) conducted a retrospective cohort study to assess performance on quality measures between PCMH recognized practices and comparison practices that are not PCMH recognized. The study sample consisted of 150 small primary care practices enrolled in the NCQA’s Physician Practice Connection PCMH program that offered QI support towards NCQA recognition. Of the study sample, practices that achieved PCMH recognition significantly outperformed non-recognized offices on A1C testing (64% and 48% respectively; p = .005) and blood pressure control for diabetic patients with hypertension (37% and 29% respectively; p = .03). In addition to chronic disease performance indicators, acute care utilization is also regarded as a primary measure for PCMH outcomes.

**Acute Care Utilization.** In an effort to foster quality of care over quantity of care, PCMHs are conceptually designed to mitigate unnecessary utilization of costly acute care services such as emergency room visits. Rosenthal et al. (2016b) analyzed the relationship between PCMH adoption and patient emergency department utilization. Eleven primary care practices, with 37 physicians serving 30,000 patients, participated in a Cincinnati medical home pilot. The participating organizations were expected to obtain PCMH recognition with NCQA by the end of the 3-year demonstration. Relative to 61 comparison organizations, PCMH recognized practice demonstrated a 22.6% reduction in emergency room utilization after 2 years. Likewise, analysis of quality data from a Pennsylvania medical home initiative demonstrated significantly
lower rates of all-cause acute care admissions (-1.7%, p=.006) and emergency department utilization (-4.7%, p=.001) among PCMH recognized offices (Friedberg, Rosenthal, Werner, Volpp, & Schneider, 2015). Significant reductions in acute care admissions became evident in the second year of the demonstration and continued into the third year when reductions in emergency department utilization also decreased.

**Implementation Strategies**

The impact of adopting the PCMH on quality outcome measures is well documented in the literature. Unfortunately, the QI work of PCMH adoption is fundamentally complex and necessitates a structured approach to ensure adoption and sustainability. A comprehensive review of the literature identified several strategies associated with facilitating the QI work of the PCMH. The proposed strategies can be categorically separated into four critical processes that have been shown to facilitate PCMH quality improvement work in primary care: establish meaning for the initiative, drive change with data, consistently engage staff, and create dedicated time to accomplish the work.

**Establish meaning for the initiative.** True PCMH transformation towards a culture emphasizing QI calls for a wide array of changes that can be challenging for staff preoccupied with the demands of current work. Instilling meaning into the work at hand can be a powerful motivator for overburdened staff susceptible to change resistance (Stout & Weeg, 2014). Defining the proposed work, namely how it coincides with the mission of the organization, can propagate a shared vision of transformation among staff. Education efforts that highlight the need to adopt the PCMH and implement systematic processes for QI (e.g. the changing landscape of payment reform) can help substantiate the cultural shift towards quality over quantity. Establishing the why for the intervention is regarded as a core component to garnering
staff buy-in for organizational changes such as the PCMH (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017). Additionally, providing a guided forum that allows staff to self-identify why adopting a systematic approach to QI may be beneficial to the practice. Meaning through interactive discussions can cultivate the reality that implementing the QI work emphasized by the PCMH is an evolution towards different work rather than additional or more challenging work. Another important component to adopting quality improvement is the utilization of data.

**Driving change with data.** Developing and organizing QI process with data has been identified as an evidence-based strategy to promote change in implementation science (Powell et al., 2015). These facilitating benefits have also been appreciated with the specific phenomenon of PCMH implementation. Quality improvement initiatives have demonstrated predictive value in the successful adoption of the PCMH, making these types of innovation a practical point to begin the PCMH transition (Reddy, Shea, Canaumucio, & Werner, 2015). Additionally, outcome reporting can foster staff buy-in by establishing performance awareness and providing data to celebrate the successes of change (Frasso et al., 2017). Outcome reporting holds value not only for evaluating change, but also identifying areas of opportunity to direct continuous QI work. It is imperative that staff also be engaged in reviewing the QI data so they are empowered to contribute and feel invested in the design of data-driven processes.

**Consistently engage staff.** Fostering collective responsibility through regular, organization wide, staff engagement is proposed as a facilitating factor for adopting the QI work of the PCMH (Frasso, et al., 2017). Establishing accountability throughout the entire care team, including front office staff, promotes a communal environment to support the interdependent processes required for change. Additionally, when staff are invested in developing the goals and
strategies for change, it makes the transformative work of PCMH quality improvement seem more attainable (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017). This emphasizes an important distinction between leadership personnel guiding staff towards change and directing change. Collaboratively identifying and addressing the cultural changes required to adopt a systematic approach to QI, such as that of the PCMH, can allow practice members to share in constructing the meaning for the initiative (Flieger, 2017). Cultivating buy-in through engagement can build upon each staff member’s fundamental motivation for change. Intentionally soliciting input from staff for proposed changes also facilitates the prompt adoption of new workflows (Stout & Weeg, 2014). Effectively, staff engagement enacts shared leadership to promote collaborative decision making and facilitate PCMH adoption (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017).

**Dedicated time to accomplish work.** Allocating specific time to incorporate and discuss changes facilitates better staff communication, relationships, and an explicit understanding of roles in organizations implementing a structured approach to QI through the PCMH (Flieger, 2017). Providing dedicated time can be operationalized through regular and formal care team meetings. Routine meetings can provide opportunities to discuss the specific work required of each staff member to adopt the various PCMH components to support QI (Frasso et al., 2017). Individuals involved in practices that dedicate time to regular staff meetings reported increased staff buy-in for adopting QI through the PCMH model (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017).

**Conceptual Models**

Conceptual models provide a structured perspective to view the phenomenon of interest. The Donabedian Model (Donabedian, 1988) was applied to explicate all the interrelated aspects
of the phenomenon of interest: continuous QI in a primary care clinic pursuing PCMH recognition. Additionally, the PARiHS framework (Kitson, Harvey, & McCormack, 1998) was incorporated to structure the transformative work of implementing the continuous QI strategy.

**Donabedian Model**

The Donabedian Model is perhaps one of the most notable conceptualizations of quality improvement. Donabedian (1988) asserts that three highly interrelated domains shape the assessment of quality care: structure, processes, and outcomes (See Appendix B). Application of the Donabedian Model suggests that establishing the *structural* capabilities for enhanced *processes* will ultimately facilitate improved *outcomes*. To truly impact the quality of care, it is imperative to account for all three contributing factors.

**Structure.** Structural components represent a diverse group of organizational attributes that reflect the setting in which care is delivered (Donabedian, 1988). These attributes are the fundamental components of an organization that determine the capacity to provide high quality care. This domain is comprised of the tangible organizational assets such as the electronic health record, administrative structure, organizational culture, and human resources such as education and training of personnel. Review of the structural measures for this organization highlighted several opportunities for improvement to facilitate a continuous quality improvement strategy.

The Midwest primary care office is a nurse managed clinic that provides healthcare to a diverse patient population consisting of underserved urban community members and university students. The clinic is a subsidiary of the local university that oversees operations. At baseline, electronic health record (EHR) reporting identified 11,842 active patients at the nurse-managed health center. The patient population has a variety of payer types including 7,669 (64.8%) self-pay, 2,679 (22.6%) individuals with various private coverage products, 1,364 (11.5%) Medicaid,
and 130 (1.1%) Medicare. It is noteworthy that the self-pay individuals are almost exclusively comprised of university students and faculty that utilize the health center for limited, often one-time, services such as student compliance requirements and vaccinations. These patients typically receive traditional primary care services elsewhere. As such, quality improvement initiatives were more appropriately directed towards the constituent of the patient population that receives traditional primary care services through this health center.

In the context of human resources, the health center currently has four nurse practitioners on staff. One of the more experienced practitioners, an embedded faculty from the overseeing university, recently resigned. Although the embedded faculty position remains vacant, a part-time nurse practitioner with a passion for quality improvement recently joined the care team. Two registered nurses comprise the entire clinical support staff. Due to the lack of staffed medical assistants, the registered nurses assume responsibility for usual nursing tasks as well as work that is characteristically performed by medical assistants (e.g. patient intake, obtaining vital signs, routine venipuncture, and vaccine administration). This highlighted a pervasive issue within the organization in which staff did not operate to the full extent of their education and training. This is also true of the assistant office manager that was largely limited to clerical functions despite education and experience to substantiate a more engaged role. This represented an opportunity to expand this staff member’s role to support comprehensive QI processes and foster sustainability. The primary care office also has organizational resources that were leveraged in support of the phenomenon of interest.

The Midwest primary care office adopted an electronic health record (EHR), Athena, in 2015. This platform has explicit support for PCMH recognition. Additionally, Athena has highly customizable quality metric reporting that the organization has historically only used in a very
limited capacity. Furthermore, the EHR has the untapped potential for customizable clinical decision support tools to facilitate the processual work of providing primary care. This again, represented another opportunity for supporting a comprehensive QI strategy by redesigning existing resources.

Assessment of the administrative structure suggested opportunities for transforming the way in which staff are engaged on quality improvement. Previously, the organization did not hold routine staff meetings or engage in collective discussions around quality improvement. Additionally, there was no routine monitoring or dissemination of quality performance data such as HEDIS performance scores. The limited reporting that occurred was not regularly used to drive or evaluate the impact of change. Adopting routine meetings, to foster shared leadership and collaboratively analyze quality metric data, represented an imperative opportunity to support a comprehensive QI process. In addition to establishing the structural resources to support QI, consideration to the specific activities of care delivery was essential.

**Process.** The process variable depicts what the care delivery team specifically performs to maintain or improve the health of patients. Care processes should pragmatically build upon the preexisting structural components of the organization. With respect to the EHR, and the robust quality reporting capabilities, dedicated processes for quality data auditing and analysis helped identify opportunities for care transformation. Furthermore, the EHR was utilized to optimize workflow and limit the occupational burden of any redesigned processes. Since many of these QI processes were new to the staff, routine meetings and staff engagement were an imperative processual component to facilitating the adoption of this initiative. Lastly, a QI toolkit was developed to ensure sustainability of the initiative beyond the initial project period. A systematic
approach addressing the structural and processual needs of this organization was intentionally incorporated to impact outcomes.

**Outcomes.** Outcome measures exemplify the impact of care and sustainability of the organization. Improving patient health and wellness is the overarching outcome goal for this organization. Outcome metrics such as the national recognized HEDIS guidelines provide a methodological approach to evaluating efforts to achieve this goal. Review of this organizations quality metrics, based on HEDIS guidelines, highlighted the opportunity for improvement in several areas. At baseline, quality performance data form the EHR identified that only 49% of eligible patients obtained the recommend breast cancer screening, 23% of women age 21-29 received the recommended cervical cancer screening, 54% of women age 30-64 received the recommended cervical cancer screening, and 37% of patients received the recommended tobacco cessation counseling. Appendix C provides a comprehensive report of HEDIS measure performance scores, with benchmarks that align with incentivized reimbursement, for this primary care office. Through efforts to improve the quality of care delivered a secondary outcome measure of financial performance warranted consideration as well. Previously, the organization enacted almost no routine efforts to garner incentivized reimbursement money available from payers. As a practice, nearly $39,000 of potential revenue through incentivized reimbursement from the 2016-2017 fiscal year went uncollected from the two primary payers for the practice. This outcome measure highlighted the opportunity to improve patient care while concurrently improving financial performance through alternative revenue programs. As such, consideration to structure, process and outcomes afforded a comprehensive approach to the phenomenon of continuous QI at this nurse-managed primary care clinic.
PARiHS Framework

Application of the Promoting Action on Research Implementation in Health Services (PARIHS) Framework suggests that the successful integration of research is contingent upon three interrelated factors: evidence, context, and facilitation (Appendix D) (Kitson, Harvey, & McCormack, 1998). Although originally conceived out of anecdotal wisdom and expert opinion, the PARiHS framework has since garnered preliminary support as an empirically based tool capable of facilitating the translation of evidence to practice (Kitson et al., 2008). This framework was incorporated based upon the proposition of its predictive value in shaping implementation endeavors. As such, the PARiHS framework was applied to the implementation of a continuous QI strategy at this primary care office.

Evidence. High quality evidence from research and organizational expertise support the successful implementation of a QI strategy (Kitson, Harvey, & McCormack, 1998). The research evidence for the PCMH impact on quality measures is well established and reinforced by the large number of organizations adopting or supporting the care delivery model (Nielsen, Buelt, Patel, & Nichols, 2016). A large-scale evaluation of 114 PCMH pilot practices demonstrated significant increases in alternative revenue streams (Edwards, Bitton, Hong, & Landon, 2014). Additionally, facilitating factors for adopting PCMH core components can be gleaned from published implementation endeavors of previous successful demonstrations (Applequist, Miller-Day, Cronholm, Gabbay, & Bowen, 2017). The core facilitating factors identified in the literature also align with recommendations for QI set forth by the American Academy of Family Physicians (2017). Evidence from clinical expertise to support this initiative is also evident.

Leadership personnel form the primary care practice explicitly acknowledged the need for a paradigm shift in the care delivery model. The Department of Health and Human Services
is actively collaborating with a variety of private and public entities to facilitate the system wide transition towards value based care (Centers for Medicare and Medicaid Services, 2015). In preparation for an all but certain acceleration towards alternative payment models, evidence of the organizational leadership’s support for a quality focused care delivery model was explicit.

**Context.** As the application of research aspires to translate evidence into meaningful outcomes in the clinical setting, significant consideration must be given to the context in which a proposed initiative will be introduced (Kitson, Harvey, & McCormack, 1998). The context of an initiative can be further refined into three key elements: the organizational culture, the structure of leadership, and the strategy for evaluation or measuring performance. These intangible, socially constructed, aspects of an organization are fundamental to change, but often escape consideration due to an inadequate analytical approach. Utilizing the Burke-Litwin Model (1992) the context for a QI initiative at this primary care practice was systematically elucidated (See Appendix E).

The culture at this primary care office communicated receptivity to change at baseline, but a multitude of previously failed initiatives conveyed a level of implicit change resistance. This was not perceived to be occurring exclusively at an individual level, as the lack structure and processes in place to support complex change were felt to be a more appropriate rationale for the previous failures. The organizational culture was very task oriented having few practices consistent with system wide quality improvement. The leadership structure of the organization was a bit convoluted with staff members assuming ill-defined roles and having limited processes in place to support effective team work. Shared leadership is the intended approach, but this was not consistently executed through formal processes such as routine meetings and regular staff engagement. As previously mentioned, the organization also had few formal processes for
capturing, and utilizing, quality metrics. Quality outcome measures were not consistently analyzed or used to drive initiatives for improving patient care. The identified contextual limitations were presumed to be amenable to remediation as the current manager was very motivated and offered significant buy-in for adopting a comprehensive QI strategy. A review of the context for this primary care site highlighted the opportunity to prospectively incorporate the structure and processes to foster the contextual support for a strategic QI process. These components were largely developed through collaboration between the project coordinator and staff of the nurse-managed primary care center.

**Facilitation.** Facilitation is regarded as the supportive work of promoting the initiative by changing the attitudes, habits, skills, and perception of staff members (Kitson, Harvey, & McCormack, 1998). Facilitators clarify the parameters of the change and how this change is enacted to bring about the anticipated outcomes. The work of facilitation can be separated into three key components: purpose, role and skills and attributes (Kitson, Harvey, & McCormack, 1998).

The purpose of facilitation is highly variable, but most effective when individualized to an organization. It is required that the role of the facilitator be highly dynamic within the organization. A very hands-on approach was needed due to the limited preexisting structural and processual support systems. These limitations highlighted the wide breadth of skills and attributes required of the facilitator to ensure the success of this initiative.

Incorporation of the PARiHS framework afforded the project coordinator significant insight to drive the success of a comprehensive QI strategy. Ample evidence, in research and organizational expertise, exists to support the adoption of this initiative. Additionally, the context of this initiative identified several opportunities for change to support the implementation of a
continuous QI process. The benefits of a project coordinator were undeniable for this process, and essential to the success and sustainability of this initiative.

**Need and Feasibility Assessment of the Organization**

Leadership personnel at this nurse-managed primary care office explicitly communicated the need for a fundamental redesign in the care delivery model. This inherently aligned with the organizational mission to provide accessible, quality healthcare and promote an innovative learning environment through an academic nurse-managed approach. A comprehensive gap analysis (See Appendix A), structured by the core components of the NCQA Patient-Centered Medical Home (PCMH) recognition criteria, identified the imperative need for a continuous quality improvement (QI) strategy. The need for a strategic approach to QI was also reinforced by evolving external factors. Ongoing payment reform in the public sector and increasing alternative payment models in the private sector demonstrate an inevitable paradigm shift away from the fee-for-service system. Restructuring QI activity allowed this primary care office to develop a systematic process for obtaining incentivized reimbursements and align with ongoing payment reform. Furthermore, this initiative supported the concurrent organizational goals of establishing structure and process for ongoing efforts of PCMH recognition. The explicit organizational need, exorbitant support from leadership personnel, and alignment with organizational goals were a testament to the feasibility and sustainability of this endeavor. With the intent on integrating new work, not more work, this initiative embodied limited occupational burden for the staff. Additionally, other than time, which the practice was willing and able to dedicate, the financial burden was not an impediment to the successful adoption of a comprehensive QI strategy.
Project Plan

Purpose of the Project

The purpose of this project was to introduce a continuous quality improvement (QI) process in a nurse-managed primary care practice. It was the intent of this scholarly project to answer the clinical question: How does an evidence-based approach to comprehensive QI, emphasizing structure, process, and outcomes, impact staff perceptions of quality improvement, adoption of process efficiencies, and organizational performance as measured by HEDIS metrics and incentivized reimbursement?

Objectives

Efforts to establish an evidence-based approach to continuous QI in a nurse-managed primary care clinic were aligned with the primary tenants of QI (structure, process, and outcomes) and guided by the following objectives:

Structure-

- Establishing routine meetings to collaborate with staff in the development and evaluation of continuous QI. The QI component of a PCMH readiness survey was administered before and after the project period to evaluate the impact of education, engagement, and structured QI meetings on staff perceptions of organizational QI strategy by March 14, 2018.

- Fostering the sustainability of the practice improvements to support continuous QI by developing defined practice roles and responsibilities, standardizing quality reporting templates, and optimizing patient care technology features. These structural adaptations were collated in a comprehensive toolkit that was presented to the organization for acceptance by March 14, 2018.
Process-

- Collaboratively developing process improvements and monitoring adherence to at least one of the process improvements by analyzing patient care technology data on tobacco cessation counseling order set utilization and billing by March 14, 2018.

Outcomes-

- Implementing a QI dashboard to monitor the impact of patient care technology efficiencies and process improvements on quality measure performance for breast cancer screening, cervical cancer screening, and tobacco cessation counseling by March 14, 2018.

- Implementing a QI dashboard to monitor the impact of patient care technology efficiencies and process improvements on incentivized reimbursement revenue by March 14, 2018.

Type of Project

This project was categorized as a quality improvement endeavor. Quality improvement is the strategic approach to analyzing performance measures for the purpose of identifying and addressing opportunities for transformation (American Academy of Family Physicians, 2017). The proper adoption of QI is an essential component to the success of high performing practices aspiring to improve outcome based metrics. Effective quality improvement initiatives are best formed by identifying opportunities for improvement, analyzing data to drive change, planning for change, and continuously evaluating the change (Taylor et al., 2014).

Setting and Needed Resources

The setting for the project was a nurse-managed primary care clinic. Operations for this practice are ultimately governed and subsidized by the overseeing university. The practice
resides in an urban area, providing care to underserved community members and university students across the entire life span. Limited material resources were required for the success of this innovative project. The primary resource required was the time of key stakeholders and project coordinator to facilitate development and implementation of this initiative. Key stakeholders included leadership personnel and clinical and administrative staff at the health center. Time and availability were never an impediment for this project as it was readily evident, and explicitly communicated, that the patient census was well below capacity. This regularly afforded staff downtime between appointments to contribute to the QI work. The project facilitator, with a background in primary care and familiarity with the EHR, was provided access to the EHR to extract quality metric data and develop patient care technology efficiencies to support process improvements and optimize patient care delivery.

**Design for the Evidence-based Initiative**

Application of the PARiHS framework guided the strategic implementation of a continuous quality improvement initiative at this primary care clinic. As such, this scholarly project emphasized evidence, context, and facilitation to address the key tenants of QI (structure, process, and outcomes).

**Evidence.** The plan for this initiative was predicated upon high quality evidence. The PCMH is a care delivery model emphasizing QI that has garnered significant traction in the last decade. It inherently aligns with payment reform initiatives that are encouraging a paradigm shift towards value based reimbursement. Adoption of the PCMH demonstrates the capacity to positively impact outcome measures such as patient adherence to preventative care measures, chronic disease management and acute care utilization rates. Additionally, formal recognition as a PCMH explicitly requires continuous quality improvement, which is regarded as a paramount
practice for any healthcare organization aspiring to improve performance (Taylor et al., 2014). Although the available framework for continuous quality improvement through implementation of the PCMH can be daunting at first glance, insight to strategies for success was gleaned from other demonstrations. Thematic analysis of contemporary literature highlights four processes that can facilitate adoption of a comprehensive quality improvement strategy: establish meaning for the initiative, drive change with data, consistently engage staff, and provide dedicated time for the new work.

Although meaning was inherently established through aligning the initiative with contemporaneous organizational goals, additional activities further reinforced the significance of continuous QI. Explicitly making the staff aware of the primary drivers for the change initiative was intended to afford them perspective about why the change is needed. Also, encouraging the staff to collaboratively discuss how QI can support their role and improve organizational performance aimed to help them establish a personalized meaning for the initiative. These intentional activities were incorporated at the initial QI meeting to help staff establish meaning for the initiative. Review of the literature also highlighted the importance of guiding change with data.

Driving change with data facilitated the change process in multiple ways. Data was initially used to identify the opportunity for transformation and then revisited to determine if that change in fact made a difference. HEDIS and incentivized reimbursement reports were audited and disseminated to staff monthly. Data through monthly performance reviews provided an objective means of measuring progress towards predetermined goals. The transformative work towards continuous QI in this project also emphasized staff engagement.
Systematic processes to foster staff engagement throughout the project period were included to encourage support for the QI initiative. Soliciting input from the staff about which processual measures to focus on enacts shared leadership and promoted staff buy-in. Clinical staff and front office staff leadership were provided with baseline performance data and encouraged to collaboratively identify the pilot HEDIS measures for this scholarly project. Guided discussion with the project facilitator during this process fostered a pragmatic selection process for measures conducive to change that are significant to the practices patient population: cervical cancer screening, breast cancer screening, and tobacco cessation counseling. This process was designed to mitigate some of the change resistance that may otherwise have impeded the success of this initiative. It was also important to develop dedicated time for staff to work on the proposed initiative.

To support a continuous QI process, three monthly meetings provided dedicated time to discuss the initiative. Additionally, the office manager and assistant office manager assumed many of the activities to support the innovative QI work (e.g. audited and reviewing reports, delegation and oversight of care coordination activities, patient outreach). The assistant office manager was a pragmatic choice to assume these responsibilities due to the expressed interest, concordant skillset, and the time constraints of other organizational members that excluded them from consideration. Inclusion of the assistant office manager is a notable component to the success and sustainability of this project. Utilizing evidence to shape this initiative helped build upon the organization’s contextual strengths and proactively address some of the potential barriers.

**Context.** Consideration for the organizational context helped guide the work of implementing a continuous QI strategy. The limited preexisting context to support successful
change was a primary consideration of this initiative. From a cultural perspective, this initiative incorporated collaborative decision making and fostered facilitative management processes. This guided the development of process improvements that are highly relevant to the daily work of all staff members. Additionally, collaboration with leadership personnel was an essential component to successful implementation. This initiative aligned with the vision of leadership personnel and had ample support to ensure success. A comprehensive organizational assessment was also critical to ensuring this project was contextually appropriate and more likely to succeed. Lastly, evaluation is an inherent component to QI work. As previously outlined, this initiative identified opportunities from HEDIS and incentivized reimbursement reports and used that same data to evaluate the impact of change. HEDIS guidelines are tangible measures of performance and were readily obtained through the EHR at this nurse-managed health center.

**Facilitation.** In pursuit of sustainability, the project coordinator designed the implementation period to have staff members independently performing the new processes after education and a guided facilitation period. This shared approach ensured that staff members were properly trained and demonstrated the capacity to perform the work with limited, if any, support from the project coordinator. To facilitate the normalization of process improvements, the project coordinator was readily available at the organization throughout the implementation period. During this time, the project coordinator also monitored workflow to create accountability and ensure staff adequately adopted the new activities. Staff were encouraged to provide feedback and be involved in designing, or redesigning, the processual changes.

Over the course of the project, a comprehensive toolkit was constructed to support continuous QI during, and after, the implementation period. This toolkit was presented to the staff at the nurse-managed health center to ensure awareness and encourage utilization of the
developed resources. This toolkit was stored on the network shared drive that is readily available to all staff members. Resources within the toolkit included:

- A guide to generating and analyzing quality measure reports from the EHR and participating payers.
- A detailed overview of the roles and responsibilities to support the process improvements for continuous QI.
- Reference tools for utilizing the patient care technology efficiencies designed during the project period.
- Reference tools for creating additional patient care technology efficiencies or modifying the current ones.

**Participants**

Participants involved in this initiative were primarily the staff at the health center. This included the nurse practitioners, registered nurses, office manager, and assistant office manager. Additionally, leadership from the university was involved as the Associate Dean of Practice contributed to project development and implementation efforts. Indirectly, patients also participated since quality metric data for the health center was routinely extracted from the electronic health record.

**Measurement: Source of Data and Tools**

Measurement is an essential component to identifying the need for change and actualizing the relative impact. Data to substantiate the focus of this initiative was obtained through a systematic organizational assessment and gap analysis. The findings from these endeavors highlighted the need for a comprehensive QI strategy at this nurse-managed primary care clinic. The preliminary measurement of success was based upon the explicit acceptance of
the proposed initiative. Once the initiative was accepted, the pilot measures were determined through collaborative review of quality performance data extracted from the EHR and predetermined payers that insure the largest patient constituent. Existing process outcome performance data for HEDIS measures was obtained through EHR reporting and used to demonstrate the opportunity for improvement to staff. Cervical cancer screening rates, breast cancer screening rates, and tobacco cessation counseling rates were identified as pilot measures amenable to change through process improvements. These measures were also felt to be meaningful indicators of quality care for the patient population at this practice. To measure the impact of change, baseline organizational performance data was obtained from the EHR. The impact of the initiative was evaluated by monthly auditing of the same HEDIS measures throughout the implementation period (two months). Utilization rates of the order sets to support the adoption of continuous QI were also extracted from the patient care technology.

Incentivized reimbursement reports were obtained to identify the opportunity for alternative revenue and measure the change in fiscal performance following implementation. Meridian Medicaid and Priority Health Medicaid incentivized reimbursement reports obtained by the office manager substantiate the potential for increased revenue from continuous quality improvement. To convey the anticipated investment of staff towards the QI meetings, comparable wages for each participant were used to demonstrate the fiscal burden of implementation. At least initially, with the availability of most staff members to assume additional work, the financial burden of this initiative is negligible. See Appendix F for a budget analysis chart.

**Steps for Project Development and Implementation**

The project was developed and implemented through the following steps (See Appendix G):
• Obtaining University Human Research Committee for IRB approval under the exempt status for quality improvement work on December 2, 2017.

• Disseminating plan for proposed initiative to gain approval from key stakeholders to implement by December 12, 2017.

• Collating and reviewing baseline performance data for HEDIS measures and incentivized reimbursements with staff by January 14, 2018.

• Establishing meaning for the initiative by reviewing the landscape of payment reform and opportunity for incentivized reimbursement with staff by January 14, 2018.

• Engaging staff to identify quality measures of focus for supportive activities during implementation period by January 14, 2018.

• Establishing dedicated time for QI activities by scheduling three QI meetings by January 14, 2018.

• Engaging staff to collaboratively develop process improvements to support continuous QI work at first formal QI meeting by January 14, 2018.

• Driving change with data by developing and introducing a QI dashboard to the health center by January 14, 2018.

• Implementing patient care technology efficiencies to support quality measure satisfaction and incentivized reimbursements by January 14, 2018.

• Defining and communicating staff roles and responsibilities to improve HEDIS measures and incentivized reimbursements by January 14, 2018.

• Collating and presenting updated HEDIS measures and incentivized reimbursements reports to staff at the second and third QI meeting by March 14, 2018.
• Evaluating staff perceptions of organizational QI strategy with a pre- and post-implementation survey by March 14, 2018

• Delivering a toolkit to support continuous QI at the nurse-managed health center by March 14, 2018.

Ethics and Human Subjects Protection

All data was collected and stored in a de-identified manner on the organization’s secure web based EHR system and shared network drive. The EHR is password protected, only allowing personnel directly involved with this initiative access to the performance data. The project coordinator has been provided access to the EHR reporting for the duration of the implementation period. The majority of data will be quantitative aggregate data on organizational performance for quality measures. These quality performance reports are stored on the network drive for the nurse-managed health center. University Human Research Committee for IRB approval under the exempt status for quality improvement work was obtained on 12/02/2017.

Budget

Since time is the principal resource to support this initiative, a budget was devised using income data consistent with the geographical context of this primary care clinic (Salary.com, n.d.). The average annual salaries were obtained and used to determine hourly salaries: annual income / (52 weeks x 40 hours). The overall financial investment was calculated to be $609.90 for the entire implementation period (See Appendix F). This accounts for the dedicated time of staff member in attendance at the QI meetings. Although student workers are employed at the health center, and participated in some of the minor supporting roles of this project, the wages
for these staff members are allocated to the overseeing university instead of the health center. Additionally, the time of the project coordinator was donated in kind.

**Stakeholder Support and Sustainability**

Stakeholder support for the implementation of a continuous QI strategy was very high within the organization. The alignment of this initiative with multiple short and long term organizational goals garnered support from leadership personnel and staff. Leadership personnel were already committed to adopting the PCMH framework, and QI is a core component to this care delivery model. Additionally, the financial implications for increased reimbursement address concerns of financial instability for the organization through new, more efficient, approaches to work rather than simply additional work. Furthermore, leadership personnel at the health center have already begun exploring the potential of extrapolating this pilot program to other payers in hopes of maximizing the financial impact of continuous QI. With consideration to the long-term implications and significant support from key stakeholders, the sustainability is believed to be very high. The Associate Dean for Practice from the overseeing university, who is regularly involved in the strategic vision and leadership of the health center, has expressed clear support for this undertaking. Additionally, explicit engagement of staff members at routine meetings was incorporated to foster buy-in and ongoing sustainability. The assistant office manager and office manager were intentionally made key contributors to this initiative so QI activity can pragmatically continue regardless of the temporal constraints of this project. As such, it is envisioned that in the absence of the project coordinator, the assistant office manager and office manager will assume much of the responsibility for driving the work of continuous QI through routine auditing and analysis of quality measure data.

**Project Evaluation**
A structured approach to evaluating how an evidence-based approach to comprehensive QI, emphasizing structure, process and outcomes, impacts staff perceptions of quality improvement, adoption of process efficiencies, and organizational performance as measured by HEDIS metrics and incentivized reimbursement was incorporated. Progress of the initiative was evaluated at every QI meeting through review of HEDIS and incentivized reimbursement reports. This information was collated into a QI dashboard that was posted in the clinical area as well as on the shared network drive for the office. The QI dashboard provided the organization with a pragmatic format for monitoring quality performance over time (See Appendix H).

Making the performance data readily available was done so purposefully and served to instill accountability and motivate staff to engage in the processual work of QI. To monitor adoption to the process improvements conceived during this scholarly project, tobacco cessation order set utilization was also evaluated.

Tobacco cessation counseling order set utilization, and appropriate billing, during the project period was audited from the electronic health record. This was compared to historical data from the electronic health record that detailed the cumulative instances of billing for tobacco cessation counseling in the preceding 32 months. Additionally, the impact of the QI project on staff perceptions of organizational QI strategy was evaluated. The QI component of the PCMH readiness assessment survey was administered to evaluate staff perceptions (See Appendix I). This assessment tool was included based upon its proven sensitivity to reflect actual progress towards a comprehensive QI strategy consistent with the PCMH model (Daniel et al., 2013). The survey evaluates staff perceptions of PCMH readiness on four key components to QI strategy:

1. The organizational approach to quality improvement activities
2. The organizational approach to establishing and monitoring performance measures

3. The organizational approach to staff and patient involvement in quality improvement activities

4. The organizational approach to electronic health record utilization for quality improvement

For each survey item, the staff member selects a response from one to twelve. Each interval of three corresponds to a category (Level D, C, B, or A) of increasing development towards a comprehensive QI strategy consistent with PCMH readiness. Each category offers a descriptive statement to offer staff context for a given numerical response. The survey was administered at the first QI meeting (baseline) and again at the final QI meeting (current). Lastly, the toolkit of staff roles and activities to support continuous QI was evaluated based upon acceptance by key stakeholders for the organization.

**Project Outcomes**

**Structure for Quality Improvement**

Throughout the project period significant consideration was given to developing and redesigning the necessary structural components to foster continuous quality improvement (QI). Monthly QI meetings were adopted by the nurse-managed primary care clinic, with the organization intending to continue this dedicated time for collaboration beyond the project period. These meetings also proved to be an essential opportunity to engage staff to shape the roles and knowledge necessary to support continuous QI.

Efforts to optimize the patient care technology experience for staff were well received and demonstrated the capacity to facilitate compliance with the pilot quality care measures. A
detailed list of the patient care technology improvements made to support the processual work relative to specific quality measures is available in Appendix J. Additionally, an easily reproducible report, aligning with all measures incentivized by payers, was integrated into the quality management center of the electronic health record. All measures tied to incentivized reimbursement, even those beyond the scope of this project, were included to easily facilitate the expansion of the program after the project period. Explicit consideration was also given to structural characteristics poised to facilitate sustainability of continuous QI at this nurse-managed health center.

To establish the organizational structure conducive to sustainable QI, a comprehensive toolkit was provided to the health center. This toolkit, composed of electronic documents and guides, offered instruction for patient care technology efficiencies and detailed the roles and responsibilities necessary to maintain the innovative work adopted during this scholarly project. Due to the size of the toolkit it was not practical to reproduce it in its entirety within this document. Acknowledging the importance for explicit insight into the content of the toolkit, two key sections from the toolkit are included in Appendix K (tobacco cessation counseling utilization guide) and Appendix L (QI roles and responsibilities overview). The complete toolkit was accepted by the organization and reported to be an effective resource to guiding current processes. Additionally, staff perceptions of the structural changes to the organizational QI strategy were evaluated by administering the QI component of a Patient Centered Medical Home (PCMH) readiness assessment survey.

The PCMH readiness survey was administered to staff (n=6) at the initial QI meeting and the final QI meeting two months later. This data was not amenable to statistical analysis given the small sample size. It is noteworthy that despite the small sample size from a statistical
perspective, the six respondents constitute two-thirds of all permanent staff members at the organization. As such, the data is regarded as an accurate representation of the staff perceptions at this health center. Quantitative analysis (including frequency and mean) was conducted to compare survey results from baseline (Jan 2018) and current (Mar 2018). A review of the data, comparing average responses at baseline and current, demonstrated one level of developmental progress towards a comprehensive QI strategy for all four QI concepts on the survey. On average staff (n=6) reported at baseline that:

- The organizational approach to quality improvement activities were not organized or supported (Level D)
- Performance measures are available for the clinical site, but are limited in scope (Level C)
- Quality improvement activities are conducted by a centralized committee or department (Level D)
- An electronic health record that supports Meaningful Use is used routinely during patient encounters to provide clinical decision support and to share data with patients (Level B, )

Following implementation staff (n=6), on average, reported that:

- The organizational approach to quality improvement activities are based on a proven improvement strategy in reaction to specific problems (Level B, improved from Level C)
- Performance measures are comprehensive, including clinical, operation and patient experience measures, and available for the practice, but not for individual providers (Level B, improved from Level C)
- Quality improvement activities are conducted by topic specific committees (Level C, improved from Level D)
• An electronic health record that supports meaningful use is also used routinely to support population management and quality improvement efforts (Level A, improved from Level B)

See Appendix M for collated response rates, by developmental category, for each survey item and Appendix N for a complete side-by-side comparison of baseline and current results. Given the sensitivity of this assessment tool for actual organizational development, these survey results also suggest progress towards a comprehensive QI strategy consistent with the PCMH.

Additionally, the perceived improvement in QI strategy by staff corroborates the observations of the project coordinator that suggests a paradigm shift towards a culture of QI had taken place during the project period. This critical outcome was the fundamental transformation needed to support the sustained adoption of the processual work of continuous QI.

Process Improvements

Prior to implementation, QI was largely done on an ad hoc basis. Although some quality performance data was audited, it was not routinely disseminated to staff or utilized to drive process improvement. There was no systematic process to identifying patients due for quality care measures such as preventative screenings. Through a comprehensive organizational assessment and collaborative engagement with staff members, several individualized process improvements were adopted at the nurse-managed health center. New process improvements included:

• Auditing and collating quality reporting data from the electronic health record to systematically identify patients due for breast cancer screening, cervical cancer screening, and tobacco cessation counseling
• Dedicated outreach efforts to arrange appointments for patients due for breast cancer screening, cervical cancer screening, and tobacco cessation counseling.

• Utilizing patient care technology efficiencies to support quality measure documentation and billing during an encounter (See Appendix O)

• Disseminating monthly performance reports to providers to instill accountability and provide them with the means for self-evaluation

Staff members routinely demonstrated adherence to the new process improvements throughout the entire project period. Following demonstration of patient care technology efficiencies, the tobacco cessation counseling order set, and corresponding billing code, was used on average 9.5 times per month during the two-month implementation period. For context on the impact of this process improvement, tobacco cessation counseling in the absence of an order set was only billed and documented on average 2.7 times per month in the preceding 32 months (See Appendix O). In addition to an increase in documented instances of tobacco cessation counseling following implementation of the order set, the relative average month revenue from tobacco cessation counseling increased from $21.82/month to $77.44/month. It is also noteworthy that these novel processes were maintained by staff without extensive facilitation by the project coordinator.

In the final month of the implementation period, the project coordinator was almost exclusively observing operations. The lack of follow up involvement or reeducation needed from the project coordinator suggests a level of normalization for the process improvements. In addition to the predetermined process improvements, other unanticipated benefits were appreciated during the implementation of a systematic approach to QI.

Although not a preconceived process improvement for this project, the organization adopted a systematic process for identifying patients assigned to their practice but have yet to
established care. This was the result of the project coordinator analyzing incentivized reimbursement data from the two primary insurance carriers for this nurse-managed health center. Review of the data highlighted that over 1,400 assigned patients from the two primary payers for this organization were not active patients and an additional 40-50 patients were being assigned each month. As such, the practice is now systematically contacting all assigned patients that have yet to establish care and will be monitoring monthly enrollment reports that highlight newly assigned patients moving forward. During the project period, this process directly resulted in scheduling 40 new patient appointments. Additionally, review of quality data identified that the constituent of patients who utilized the health center for one time services were negatively impacting quality performance scores.

At baseline, all the pilot measures for the organization demonstrated significant opportunity for improvement. Following initiation of the process improvement to identify patients due for quality measures, it became evident that a large proportion of the unsatisfied measures for cervical cancer screening of women aged 21-29 was attributable to patients not utilizing the health center for primary care services – rather for one time services such as student health compliance. Since these patients were not expected to return to the health center after the initial encounter, the patient accounts were inactivated to resolve the inappropriate skewing of quality performance data. This provided the organization with data that one could confidently acknowledge as an accurate representation of the level of care being provided. Additionally, this data cleansing allowed staff to more efficiently identify patients truly due for services from the quality measure lists. Moving forward, to prevent skewing of quality improvement data, front office staff adopted a process to proactively inactivate accounts for these patients once the services are completed.
Outcome Measures

In concordance with the objectives of this scholarly project, two major outcomes were evaluated:

- Change in quality measure performance on breast cancer screening rates, cervical cancer screening rates, and tobacco cessation counseling rates
- Change in incentivized reimbursement revenue from the two primary payers for the health center

Measurable improvement in quality performance data from the EHR was demonstrated for all pilot measures (breast cancer screening, cervical cancer screening, and tobacco cessation counseling) following the two-month implementation period. See Appendix P for a graphical depiction of the changes in quality measures. Chi-square tests, using SPSS, were conducted to compare baseline and current quality measure performance data. Statistically significant improvement was evident for quality performance scores on cervical cancer screening rates among patients aged 21-29 (44%, p<.001) and 30-64 (24%, p = .000) and breast cancer screening rates (27%, p = .021). Quality performance scores on tobacco cessation counseling improved 9%, but failed to achieve statistical significance (p = .237). Appendix Q provides a collated overview of the descriptive statistics for the pilot quality measures. Unfortunately, the impact of continuous QI on incentivized reimbursement revenue was not actualized during the project period.

Several unanticipated factors contributed to difficulties measuring the impact of continuous quality improvement on incentivized reimbursement revenue. With the project period scheduled around the start of a new year, the initial baseline data from the January 2018 report was unexpectedly indicative of 2017 year-end data. Additionally, an unforeseen gap in reporting
from the payers in February interrupted opportunity analysis and limited the capacity to optimize systematic improvements to increase revenue from the incentive programs. Ultimately, meaningful baseline data was not accessible until the end of this project period, March 2018. Review of this report also demonstrated unanticipated changes to the incentivized measures themselves.

During the project period, tobacco cessation counseling was completely removed as an incentivized measure and the incentivized reimbursement bonus for cervical cancer screening was decreased from $25 to $15 for one payer. Additionally, towards the end of each year most practices work to reach the incentivized reimbursement benchmarks by requesting non-adherent patients be reassigned to another practice. As such, a large number (153) of patients with unsatisfied measures for one of the target payers were reassigned to this nurse managed health center in January. Since these patients were not established with the health center, this led to an appreciable reduction in quality measure scores with no opportunity to intentionally address these gaps in care until the March 2018 report was made available.

**Implications for Practice**

The successful adoption of continuous quality improvement (QI), by emphasizing structure, process, and outcomes, has several implications for this nurse-managed primary care center. First and foremost, continuous QI stands to improve the quality of care delivered to patients. Encompassing systematic population health management and care coordination efforts, this project utilized a focused approach to addressing the ubiquitous HEDIS measures for quality care. Improving follow-up care coordination and improving the rates of new patient appointments helps to mitigate organizational concerns about productivity. The relative increase in encounters from systematic patient outreach, for new and established patients, was regarded as
a significant step towards improved productivity. Additionally, the meaningful increase in new patient appointments being scheduled contributed to a favorable return on investment for the implementation period (See Appendix R). Another notable implication for this initiative is the cultural shift observed during the project period.

A prospective evaluation of this health center identified the preexisting culture as a significant impediment to establishing continuous QI. This organization has historically perceived change as a tumultuous process that was seldom individualized for the staff and patient population. Subsequently the proposed changes rarely made a significant impact and process improvements failed to be maintained long after the implementation period. Over time, this created apprehension among staff about change, particularly when facilitating personnel failed to solicit their input during the development period. By engaging staff and assigning value to their input, staff can now appreciate the impact of change that considers all the interrelated components. Successfully undergoing change is a major accomplishment for this organization that can’t necessarily be quantified, but will undeniably have lasting implications. This realization became evident during the project period when staff took initiative and independently designed a process improvement to help support continuous QI.

Prior to implementation, staffing limitations were an identified structural barrier, but perceived to not be directly amenable to resolution given the time and resource constraints of the project. The success of continuous QI at this nurse-managed health center was contingent upon work of the clinical support staff – namely identifying patients due for quality measures by reviewing patient care technology reports. Initially it was assumed that the clinical support staff, two registered nurses, did not have the capacity to assume additional work and requesting that the providers review quality measure lists did not seem practical or fiscally responsible.
Eventually the providers and clinical support staff independently conceived a process to review quality reports during down time (e.g. between patient appointments, appointment no-shows and cancellations). This proved to be more than enough time to accomplish the work. The implementation of continuous QI also put in motion the prerequisite work of restructuring care delivery to align with ongoing alternative payment models.

At the onset of the implementation process, staff were educated about changes in the external environment that necessitated a paradigm shift towards QI activities in concordance with value-based reimbursement. Beginning the work of aligning with value-based care now, before it becomes the expectation rather than an incentive, allows the organization to methodically implement the structure and processes required to support comprehensive quality care. With consideration to the primary goals of the organizations, this scholarly project aligned efforts of continuous quality improvement with criteria for PCMH recognition. The adopted process improvements during the project period comply with six previously unsatisfied criteria for PCMH recognition from NCQA (See Appendix R). Furthermore, with QI regarded as a fundamental component to comprehensive quality care, the structure and process improvements during this project period will inevitably foster other transformative work along the PCMH journey (Safety Net Medical Home Initiative, 2013). The capacity to accurately evaluate compliance with quality care measures was another significant implication for this nurse-managed health center.

The process for data cleansing is also a notable improvement actualized during this scholarly project. Although data cleansing in itself is not directly improving patient outcomes, it has provided the organization with meaningful data that can be used to systematically drive quality care processes poised to improve organizational performance and patient outcomes. It is
envisioned that meaningful quality performance data enables leadership at the health center to objectively identify opportunities for process improvement and measure the relative impact. Although an increase in incentivized reimbursement was not actualized during this project period due to extraneous variables, the lessons learned from meaningful review of incentive reports are still of significant value to the organization.

Although unexpected developments limited the anticipated increase in alternative revenue, this scholarly project demonstrated the importance of quality improvement that continuously identifies and responds to changes in the external environment. The organization now has an explicit awareness of the incentive program timeline and the significance of proactively identifying and preparing for changes from year-to-year. Through efforts to align care delivery with the incentive programs, management staff has also developed a much stronger partnership with representatives from the primary payers for this organization.

**Implications for the Nursing Profession**

Successful adoption of continuous QI in this nurse managed health center is a tremendous testament to the added value of the DNP prepared nurse. Integrating the DNP perspective that emphasizes the integration of nursing science with organizational leadership and informational and analytical sciences, the project coordinator was well positioned to design, implement, and evaluate this initiative. As a clinician with education and training to drive quality improvement, the project coordinator utilized a systematic approach to translating evidence-based care into practice. The diverse skillset of the DNP prepared nurse was integral to the necessary roles assumed by the project coordinator throughout the implementation period. Most notably the project coordinator was consulted on electronic health record redesign, standards of quality care, data analysis, and strategies to improve the financial performance of the health center. In a
Scholarly project aspiring to bring about a paradigm shift in the care delivery model of a nurse managed health center, the DNP skillset proved to be the difference between successful adoption and another soon to be abandoned initiative.

**Sustainability**

Staff buy-in as well as explicit efforts by the project coordinator to promote continued adherence are notable testaments to the sustainability of this project. Throughout the project period, staff members were engaged in the decision making for process improvements and demonstrated a sense of ownership for the work at hand (e.g. developing self-directed process improvements to ensure goals were met). Additionally, all tasks performed by the project coordinator during the initial month of the implementation period were delegated and performed without assistance by staff members within the organization. The roles of the assistant office manager and office manager were intentionally structured to enable them to continue facilitating quality improvement beyond the project period. A QI toolkit that explicitly defined the roles and responsibilities for all process improvements was also provided to the organization. The ability of this toolkit to support the sustainable adoption of QI activities was purposefully assessed during the project period. The office manager was encouraged to independently audit and analyze the performance reports required to support continuous QI. Utilizing only the toolkit to support this endeavor, the office manager independently replicated the work and verified the potential for the toolkit to facilitate the adoption of novel QI practices. This is just one of the many successes that has created the foundation for continued adherence to this innovative approach to QI.

With the early successes during the project period, staff are motivated to continue improving care. The clinical staff communicated ownership and pride in “their scores” and
regularly communicated appreciation for the efficiencies devised during the project period. Additionally, at the final QI meeting, the project coordinator facilitated a guided discussion to develop a succession plan for continuous QI following the project period.

To optimize the sustainability of expanded QI at this nurse-managed primary care clinic, it is recommended that the successor to the embedded faculty position have dedicated time to facilitate clinical innovation. Effectively allowing the embedded faculty role to function as the clinical champion will provide the assistant office manager with the necessary clinical counterpart to drive continuous QI. Although the sustainability for continuous QI in its current state is high, several recommendations can be made to facilitate expansion of this initiative.

With this scholarly project largely emphasizing preventative care (e.g. breast and cervical cancer screening) it is pragmatic to begin expansion efforts with additional preventative care measures (e.g. colorectal cancer screening, chlamydia screening). This will ensure that the next measures of focus are amenable to improvement through the roles and responsibilities established during this project period. In the absence of the project coordinator, fostering the greatest potential for early successes will be essential to the sustainability of a robust QI program. Furthermore, in an ideal state the addition of a medical assistant to the care team would allow the registered nurses to engage in more complex care processes that align with incentivized measures beyond the scope of this project (e.g. care management, diabetes management, transitions of care).

**Limitations**

Although the benefits of this scholastic endeavor are believed to far outweigh the limitations, there are certainly drawbacks that merit discussion. With a small number of participants in the pre- and post-survey, generalizability for the findings is not possible within
this project. Additionally, with the data cleansing occurring after implementation, the impact of the continuous quality improvement (QI) processes on actual delivery of care becomes convoluted, particularly for the cervical cancer screening rates of women 21-29 years old. This should not detract from the successes of the project as staff members communicated that the processes were routinely translating to improved delivery of care and the cleansing of data in itself is a significant process that needed to take place. Additionally, the expertise of the project coordinator may be difficult to consistently replicate in other care settings that have limited to no preexisting structure for QI. The measures included in this QI project were admittedly more amenable to less complex process improvements. Although this design was intentional as to facilitate early successes and staff buy-in, expanding to other quality measures may prove to be more challenging for the organization. Furthermore, with the continued vacancy of the embedded faculty position and no QI champion in the clinical arena, there is concern for expanding this initiative to additional quality measures with the current staffing constraints.

Reflection on Enactment of DNP Essentials

The DNP Essentials highlight the fundamental competencies that are required of all advanced nurse practitioner roles (American Association of College of Nurses [AACN], 2006). These Essentials are integrated throughout the scholastic journey of a DNP student, and define the unique contributions of advanced nurse practitioners. In addition to guided education in the DNP curriculum, the scholarly project work provides the necessary opportunity for a student to enact the DNP Essentials.

DNP Essential I: Scientific Underpinnings for Practice

The scientific underpinnings for the DNP program provide advanced practice registered nurses with the education and training to integrate nursing science with a multitude of other
disciplines (AACN, 2006). Essential I emphasizes this robust knowledge base that provides DNP graduate with the capacity to translate empirical evidence into clinical practice. During this scholarly project, Essential I was enacted during the gap analysis. The PCMH model was utilized to identify opportunities for transforming the care delivery model within the organization. Through this process a new approach to QI was developed and evaluated using current knowledge in the literature.

**DNP Essential II: Organization and Systems Leadership for Quality Improvement**

Essential II emphasizes organization and systems leadership as fundamental components to the DNP skillset (AACN, 2006). The care provided by DNP graduates is intended to extend beyond that of direct patient care and include leading change at the systems level. Essential II was enacted by the project coordinator during the planning phase of this scholarly project. The proposed QI work was conceived out of an organizational assessment and intentionally aligned with the organizational missions and goals to optimize the adoption of the practice improvements. Furthermore, the project coordinator used advanced communication skills to lead the development of a continuous quality improvement process and engage all staff members during the planning and implementation periods.

**DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-based practice**

Essential III highlights the importance of scholarly nursing practice and incorporating analytical methods for evidence-based practice (AACN, 2006). Scholarship and research are considered fundamental components of doctoral education, but DNP students and graduates are challenging the traditional scholarship paradigm in academia. This evolving conceptualization of scholarship in doctoral education, particularly evident in practice disciplines, has begun to
recognize the implications of knowledge application and integration (Boyer, 1990). During this scholarly project, Essential III was enacted early on while conducting a comprehensive literature review and critically appraising the current state of knowledge available for integration into practice. Current evidence was then used to design and implement quality improvement processes in the context of the nurse-managed health center.

**DNP Essential IV: Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care**

Essential IV emphasizes the capacity of DNP prepared nurses to use information systems and technology to improve patient care (AACN, 2006). For this scholarly project, extracting data from the EHR was integral during the design and evaluation periods. The EHR was utilized to analyze population health data and identify care processes amenable to improvement. The available patient care technology was also optimized to facilitate staff adherence to the process improvements. Additionally, competency in information systems/technology enabled the project coordinator to integrate order sets and text macros into the patient care technology to support quality care measures and incentivized reimbursement revenue.

**DNP Essential V: Health Care Policy for Advocacy in Health Care**

Essential V communicates the importance of expertise in health care policy and advocacy for the DNP prepared nurse (AACN, 2006). Although, policy in the legislative arena is poised to bring about change of significant magnitude, influencing organizational policy for a healthcare system can also confer to improved care for its constituents. This scholarly project provided the coordinator the opportunity to develop and implement a QI process, inclusive of formal meetings, that shaped organizational policy. The project coordinator regularly worked with key stakeholders to ensure that proposed policies aligned with the organizational goal of providing
high quality patient care. Furthermore, national trends in reimbursement policy were analyzed and integrated into the development of this scholarly project.

**DNP Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes**

Essential VI identifies interprofessional collaboration as a core component to addressing the complex needs within the healthcare environment (AACN, 2006). DNP prepared nurses have the skillset to establish and lead the diverse group of professionals required to improve patient and population health outcomes. This scholarly project was predicated upon system wide change and required collaboration with all staff members. Invaluable consultations with the office manager, biller, providers, and nursing staff contributed to the development of this quality improvement process. These collaborative efforts were intentionally designed, and led, by the project coordinator to optimize adoption and sustainability of the process improvements. Additionally, meetings with university administrative personnel allowed for collaborative discussions about project design that accounts for organizational structure.

**DNP Essential VII: Clinical Prevention and Population Health for Improving the Nation’s Health**

Essential VII underlines the importance of clinical prevention and population health to improving the Nation’s health (AACN, 2006). This scholarly project emphasized quality improvement focusing on preventative care guidelines and tobacco cessation counseling. These evidence-based measures of health promotion were systematically identified based upon the population health needs of the practice. Additionally, consideration to the social determinants of health for this population helped shape the process improvements for this project.
DNP Essential VIII: Advanced Nursing Practice

Essential VIII emphasizes the advanced level of systems thinking and capacity to design, implement, and evaluate evidence-based care delivery models to improve patient outcomes (AACN, 2006). Utilizing the advanced nursing practice lens informed the prerequisite work of analyzing the structure, process, and outcomes to develop and implement a process for continuous QI. Understanding the role of the clinician in patient care delivery allowed the project coordinator to devise process improvements in a way that limited the burden of change. Additionally, enacting the role of the advance practice registered nurse encouraged the project coordinator to facilitate complex organizational change through individualized education and support.

Plan for Dissemination of Outcomes

The impact on organizational performance as measured by HEDIS metrics and incentivized reimbursement was presented to staff and leadership personnel at all three of the QI meetings throughout the implementation period. The toolkit for a QI strategy was be disseminated to the Associate Dean for Practice, clinical staff, and office manager within the organization. Similarly, the outcomes were disseminated through a poster presentation to colleagues in the Doctor of Nursing Practice (DNP) program. The outcomes will also be disseminated to the project committee as part of the scholarship requirements for this initiative. Dissemination efforts were also expanded to a broader audience through ScholarWorks.

Conclusion

In conclusion, this scholarly project demonstrated the capacity to impact quality performance measures and staff perceptions of organizational approach to quality improvement by utilizing an evidence-based approach to project design and implementation. The
transformative work of redesigning care delivery is inherently complex and often predicated upon the preexisting structural characteristics of the organization. As such, establishing a culture of team-based QI, that emphasizes relevant process improvements, is perhaps one of the most notable accomplishments actualized from this scholarly project. Furthermore, explicit role delineation to foster sustainability demonstrated promise for continued adherence to continuous quality improvement at this nurse-managed health center. With continued adherence to the process improvements, there is significant potential for this work to translate into alternative revenue through incentivized reimbursement programs. At a fundamental level, guiding this organization through a successful complex change endeavor will invariably have lasting implications as they continue along the PCMH journey. Harnessing the current motivation among staff and continuing to build upon the accomplishments of this scholarly project will be essential to the continued growth and success of this nurse-managed health center.
References


## Appendix A

### PCMH (QI) Gap Analysis

**Competency A: The practice measures to understand current performance and to identify opportunities for improvement**

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Gap Analysis</th>
</tr>
</thead>
</table>
| **QI1 (Core):** Monitor at least five clinical quality measures across the four categories (Must monitor at least 1 measure of each type)  
  a. Immunization measures  
  b. Other preventative care measures  
  c. Chronic or acute care clinical measures  
  d. Behavioral health measures | Not satisfied  
No documented process for identified QI measures in each respective category |
| **QI2 (Core):** Monitors at least two measures of resource stewardship (at least 1 from each category)  
  a. Measures related to care coordination  
  b. Measures affecting health care costs | Not satisfied  
Although consideration is surely being given to resource stewardship, no evidence or documentation of ongoing monitoring for explicit measures is evident |
| **QI3 (Core):** Assess performance on availability of major appointment types to meet patient needs and preferences for access | Not satisfied  
No documented process |
| **QI4 (Core):** Monitors patient experience through  
a. Quantitative data: the practice conducts a survey (using any instrument) to evaluate patient/family/caregiver experience across at least three dimensions such as: access, communication, coordination, and whole person care, self-management support and comprehensiveness  
b. Qualitative data: the practice obtains feedback from patients/families/caregivers through qualitative means | Not satisfied  
a. No evidence of quantitative data survey in practice or documented in policy  
b. Policy manual details policy of patient satisfaction reviews that are completed annually during Feb/March. This is not regularly enacted |
| **QI5 (1 Credit):** Assess health disparities using performance data stratified for vulnerable populations (at least one from each section)  
a. Clinical quality | Not satisfied  
No documented process for performance data stratified for vulnerable subsets |
### Competency B: The practice evaluates its performance against goals or benchmarks and uses the results to prioritize and implement improvement strategies

| QI6 (1 Credit): | Not satisfied  
|-----------------|----------------  
| The practice uses a standardized, validated patient experience survey tool with benchmarking data available | No documented process |

| QI7 (2 Credits): | Not satisfied  
|-----------------|----------------  
| The practice obtains feedback on experiences of vulnerable patient groups | No documented process |

| QI8 (Core): | Not satisfied  
|--------------|----------------  
| Sets goals and acts to improve upon at least three measures across at least three of the four categories.  
| a. Immunization measures  
| b. Other preventative care measures  
| c. Chronic or acute care clinical measures  
| d. Behavioral health measures | No documented evidence of measures being monitored. |

| QI9 (Core) | Not satisfied  
|-------------|----------------  
| Sets goals and acts to improve upon at least one measure of resource stewardship  
| a. Measures related to care coordination  
| b. Measures affecting health care costs | No documented evidence of measures being monitored. |

| QI10 (Core): | Not satisfied  
|--------------|----------------  
| Sets goals and acts to improve on availability of major appointment types to meet patient needs and preference | No documented process |

| QI11 (Core): | Not satisfied  
|--------------|----------------  
| Sets goals and acts to improve on at least one patient experience measure | No documented process |

| QI12 (2 Credits): | Not satisfied  
|------------------|-----------------  
| Achieves improved performance on at least 2 performance measures | No documented process |

| QI13 (1 Credit): | Not satisfied  
|-----------------|----------------  
| Sets goals and acts to improve disparities in care or service on at least 1 measure | No documented process |
| QI14 (2 Credits): | Achieves improved performance on at least 1 measure of disparities in care or service | Not satisfied  
No documented process |
|------------------|-----------------------------------------------------------------|--------------------------|

**Competency C: The practice is accountable for performance. The practice shares performance data with the practice, patients and/or publicly for the measures and patient populations identified in the previous sections**

<table>
<thead>
<tr>
<th>QI15 (Core):</th>
<th>Reports practice-level or individual clinician performance results within the practice for measures reported by the practice</th>
<th>Not satisfied</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>QI16 (1 Credit):</th>
<th>Reports practice-level or individual clinician performance results publicly or with patients for measures reported by the practice</th>
<th>Not satisfied</th>
</tr>
</thead>
</table>

| QI17 (2 Credits): | Involves patient/family/caregiver in quality improvement activities | Not satisfied  
No documented process |
|------------------|-----------------------------------------------------------------|--------------------------|

| QI18 (2 Credit): | Reports clinical quality measures to Medicare or Medicaid agency | Satisfied  
Athena submits clinical quality measures to Medicare or Medicaid, as required for Meaningful Use, on behalf of providers. |
|------------------|-----------------------------------------------------------------|--------------------------|

| QI19 (Max 2 Credits): | The practice is engaged in Value-Based Contract Agreement  
   a. Practice engages in upside risk contract (1 credit)  
   b. Practice engages in two-sided risk contract (2 credits) | Not Satisfied |
|------------------------|-----------------------------------------------------------------|--------------------------|
Appendix B

The Donabedian Model

Note. The incentivized benchmark, if available, was adopted from one of the primary payers for the health center.
Appendix D

The PARiHS Framework

Appendix E

The Burke-Litwin Model of Organizational Performance and Change

### Quality Improvement Meeting Budget for Implementation Period

<table>
<thead>
<tr>
<th>Position</th>
<th>Hourly Wage</th>
<th>Dedicated Time at Three QI Meetings</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurse x2</td>
<td>$28.00</td>
<td>3 hours</td>
<td>$168.00</td>
</tr>
<tr>
<td>Nurse Practitioner x2</td>
<td>$51.36</td>
<td>3 hours</td>
<td>$308.16</td>
</tr>
<tr>
<td>Office Manager x1</td>
<td>$22.29</td>
<td>3 hours</td>
<td>$66.87</td>
</tr>
<tr>
<td>Front Office Coordinator x1</td>
<td>$22.29</td>
<td>3 hours</td>
<td>$66.87</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
<td><strong>$609.90</strong></td>
</tr>
</tbody>
</table>
Appendix G

Project Outline

1. Obtaining University Human Research Committee for IRB approval under the exempt status for quality improvement work on December 2, 2017.

2. Disseminating plan for proposed initiative to gain approval from key stakeholders to implement by December 12, 2017.


4. Establishing meaning for the initiative by reviewing the landscape of payment reform and opportunity for incentivized reimbursement with staff by January 14, 2018.

5. Engaging staff to identify quality measures of focus for supportive activities during implementation period by January 14, 2018.


7. Engaging staff to collaboratively develop process improvements to support continuous QI work at first formal QI meeting by January 14, 2018.

8. Driving change with data by developing and introducing a QI dashboard to the health center by January 14, 2018.


11. Collating and presenting updated HEDIS measures and incentivized reimbursements reports to staff at the second and third QI meeting by March 14, 2018.


Appendix H

Quality Improvement Dashboard

**Quality Improvement Dashboard**

<table>
<thead>
<tr>
<th>Incentivized Reimbursement Payer</th>
<th>Dec 2017</th>
<th>Jan 2018</th>
<th>Feb 2018</th>
<th>Mar 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority Health Bonus Paid (YTD)</td>
<td>$3,411</td>
<td>$4,951</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Priority Health Available Opportunity</td>
<td>$27,197</td>
<td>$24,787</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Meridian Health Bonus Paid (YTD)</td>
<td>$10,375</td>
<td>$9,000</td>
<td>$9,000</td>
<td></td>
</tr>
<tr>
<td>Meridian Health Available Opportunity</td>
<td>$11,785</td>
<td>$10,270</td>
<td>$10,275</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HEDIS Measure (% Satisfied per Athena Report)</th>
<th>Goal</th>
<th>Dec 2017</th>
<th>Jan 2018</th>
<th>Feb 2018</th>
<th>Mar 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer Screening</td>
<td>70%</td>
<td>49%</td>
<td>50%</td>
<td>63%</td>
<td>67%</td>
</tr>
<tr>
<td>Cervical Cancer Screening 21-29</td>
<td>73%</td>
<td>23%</td>
<td>23%</td>
<td>68%</td>
<td>67%</td>
</tr>
<tr>
<td>Cervical Cancer Screening 30-64</td>
<td>73%</td>
<td>55%</td>
<td>54%</td>
<td>76%</td>
<td>78%</td>
</tr>
<tr>
<td>Tobacco Cessation</td>
<td>60%</td>
<td>37%</td>
<td>37%</td>
<td>43%</td>
<td>46%</td>
</tr>
</tbody>
</table>
Appendix I

PCMH Readiness Assessment – QI Strategy

<table>
<thead>
<tr>
<th>Items</th>
<th>Level D</th>
<th>Level C</th>
<th>Level B</th>
<th>Level A</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Quality Improvement activities</td>
<td>1 2 3</td>
<td>4 6 6</td>
<td>7 8 9</td>
<td>10 11 12</td>
</tr>
<tr>
<td>6. Performance measures</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
<td>10 11 12</td>
</tr>
<tr>
<td>7. Quality improvement activities are conducted by</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
<td>10 11 12</td>
</tr>
<tr>
<td>8. An Electronic Health Record that supports Meaningful Use</td>
<td>1 2 3</td>
<td>4 5 6</td>
<td>7 8 9</td>
<td>10 11 12</td>
</tr>
</tbody>
</table>

## Appendix J
### Implemented Patient Care Technology Efficiencies

<table>
<thead>
<tr>
<th>Quality Measure</th>
<th>Corresponding Patient Care Technology Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cervical Cancer</td>
<td>Cervical cancer order set prompting diagnosis and lab code for age-based screening protocol consistent with ACOG guidelines.</td>
</tr>
<tr>
<td>Screening</td>
<td>Updated gynecological history template to provide consistent field for documenting cervical cancer screening history</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>Screening mammogram order set for commonly used imaging facilities with verified fax numbers and an automatic alarm prompting follow-up if no results are available after 4 weeks.</td>
</tr>
<tr>
<td>Screening</td>
<td>Updated gynecological history template to provide consistent field for documenting breast cancer screening history</td>
</tr>
<tr>
<td>Tobacco Cessation</td>
<td>Tobacco cessation counseling order sets based upon time spent counseling that generates diagnosis code, printable patient information handout, and corresponding billing code to facilitate reimbursement. Includes a text macro (&quot;.smoking&quot;) that prompts a documentation template to facilitate the counseling process and satisfy billing requirements.</td>
</tr>
<tr>
<td>Counseling</td>
<td></td>
</tr>
</tbody>
</table>
Appendix K

Results from PCMH Assessment Survey

Figure K1. Distribution of results from Patient Centered Medical Home assessment survey by developmental category on quality improvement activities at baseline (January 2018) and current (March 2018).
Figure K2. Distribution of results from Patient Centered Medical Home assessment survey on performance measures at baseline (January 2018) and current (March 2018).
Figure K3. Distribution of results from Patient Centered Medical Home assessment survey on who conducts quality improvement activities at baseline (January 2018) and current (March 2018).
Figure K4. Distribution of results from Patient Centered Medical Home assessment survey on electronic health record utilization to support quality improvement at baseline (January 2018) and current (March 2018).
Appendix L

Aggregate Results for PCMH Assessment Survey on Quality Improvement

<table>
<thead>
<tr>
<th>Survey Item</th>
<th>Baseline Average Numerical Response with Corresponding Developmental Level</th>
<th>Current Average Numerical Response with Corresponding Developmental Level</th>
</tr>
</thead>
</table>
| Quality improvement activities | 3.5 - Level C  
... are conducted on an ad hoc basis in reaction to specific problems | 9.0 - Level B  
... are based on a proven improvement strategy in reaction to specific problems |
| Performance measures | 6.2 - Level C  
... are available for the clinical site, but are limited in scope | 9.2 - Level B  
... are comprehensive, including clinical, operational and patient experience measures, and available for the practice, but not for individual providers |
| Quality improvement activities are conducted by | 3.3 - Level D  
... a centralized committee or department | 6.5 - Level C  
... topic specific QI committees |
| An electronic health record that supports Meaningful Use | 7.7 - Level B  
... is used routinely during patient encounters to provide clinical decision support and to share data with patients | 10.2 - Level A  
... is also used routinely to support population management and quality improvement efforts |

Note. Level D, Level C, Level B, Level A: in ascending order from least comprehensive, and lowest degree of PCMH readiness, to most comprehensive, and highest degree of PCMH readiness.
Appendix M

Tobacco Cessation Counseling Order Set – Toolkit Guide

Select order set...

Assign as documentation only...

This will generate the diagnosis code and counseling order

Select “documentation only” so a follow up order is not created
Use text macro in discussion note section...

Prompt text macro by typing `.smoking` in the discussion note section. (must start with a `"."`)
Review billing tab...

This order set will also generate the corresponding billable code based on time spent counseling (99406 vs 99407).
Appendix N

Quality Improvement Roles and Responsibilities – Toolkit Guide

Office Manager/Patient Services Manager

On the 1st of each month:

- Obtain enrollment lists from Meridian and update Meridian Health enrollment spread sheet on shared drive (Nursing-Data> FHC_OFFICE> Incentive Program> Meridian)
- Obtain Incentivized reimbursement report from Meridian provider portal and update Quality Improvement Dashboard on shared drive (Nursing-Data> FHC_DATA> Quality Performance Reports)

On the 15th of each month:

- Obtain enrollment list from Priority Health – PIP 075, and update Priority health enrollment spread sheet on the shared drive (Nursing-Data> FHC_Office> Incentive Program> Meridian Health)
- Obtain incentivized reimbursement reports from Priority Health (PIP 015B) and update Quality Improvement Dashboard on shared drive (Nursing-Data> FHC_DATA> Quality Performance Reports).
- Update quality report folders on shared drive by downloading individual provider reports and collective organizational reports from Athena Quality Management reporting.
  - Individual provider reports should also be exported to Excel to create a list of patients with unsatisfied measures (See Guide to Quality Reporting on the shared drive).
- Updated Quality Improvement Dashboard with data from incentivized reimbursement reports and Athena quality management report
• Review incentive opportunity worksheets from Meridian and Priority (PIP 011A) unsatisfied measures on the 15th of each month. Consider opportunities for care transformation based upon performance scores.

Front Office Support Staff

As needed:

• Verify assigned PCP for all scheduled appointments. Update PCP with insurer if any provider outside of the GVSU FHC using the PCP Change Form

• Utilize patient enrollment spreadsheets on shared drive to contact non-established patients and newly assigned patients (Enrollment reports available the 1st of each month).

• Notify Priority Health by fax of patients that fail to respond to three separate outreach attempts or already have a PCP with the Priority Health Patient Discharge Form on the shared drive

• Notify Meridian account representative, Melissa Kuiper, by fax (313-202-0061) of patients that indicate they are seeing another PCP.

• Contact patients on unsatisfied measures list compiled by clinical staff. Create a patient case and alert note when contacting patients. Patients should be contacted at 1 week intervals with the 3rd outreach being a mailed letter if we have been unable to reach the patient.
  
  o The case can be closed when the patient is scheduled for an appointment to address QMs or if the outreach attempts are unsuccessful.
  
  ▪ Copy the subject of the QM case into the scheduled appointment note
  
  o If the patient no-shows or cancels the QM appointment, the case should be reopened for documentation of additional outreach attempts.
• Monitor referral bin for mammogram orders not tied to results indicating the need for follow-up (default alarm is 4 weeks after order is submitted). For each unsatisfied order, contact the patient to coordinate scheduling of mammogram appointment. Outreach efforts should include at least three contact attempts separated by 1 week.

Registered Nurses

On the 15th of each month:

• Assist nurse practitioners in reviewing quality management reports.
• Assist nurse practitioners to update quality management data in Athena (e.g. GYN history) based upon review of Athena quality management list
• Assist nurse practitioners to compile a list of patients with unsatisfied measures that need to be contacted for an appointment or marked inactive within Athena. Provide this list to the front desk.

Nurse Practitioners

As needed:

• Utilize tobacco cessation template within Athena
• Utilize cervical cancer screening order sets for Quest within Athena (e.g. Pap smear age based screening protocol, Pap smear reflex HPV E6/E7)
• Utilize mammogram order sets

On the 15th of each month

• Review Athena quality management report, generated by front office, for unsatisfied measures.
  • Update unsatisfied measures if data exists in the chart (e.g. GYN history with last mammogram and pap smear date),
○ Add alert notes for those with an upcoming apt (e.g. 1/27/18 QM: due for pap and mammogram)

○ Mark patients inactive as needed (e.g. patient with one-time participation physical appointment)

• Compile a list of patients with unsatisfied measures that need to be contacted for an appointment. Provide this list to the front desk.
Appendix O

Impact of Tobacco Cessation Counseling Order Set

<table>
<thead>
<tr>
<th>Process Improvement</th>
<th>CPT Code Usage Prior to Implementation</th>
<th>CPT Code Usage After Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(average utilization)</td>
<td>(average utilization)</td>
</tr>
<tr>
<td></td>
<td>(associated monthly revenue)</td>
<td>(associated monthly revenue)</td>
</tr>
<tr>
<td>Tobacco Cessation Counseling Order Set</td>
<td>86 (2.7/month) ($21.82/month)</td>
<td>19 (9.5/month) ($77.14/month)</td>
</tr>
</tbody>
</table>

*Note. The order set simplified compliance with documentation requirements for counseling and automatically generated the corresponding billing code: 99496\(^{a}\) or 99497\(^{b}\)*

\(^{a}\)Smoking and tobacco use cessation counseling visit greater than three minutes, but not more than 10 minutes. Reimbursement = $8.12 per billed service.

\(^{b}\)Smoking and tobacco use cessation counseling visit greater than 10 minutes. Reimbursement = $15.65 per billed service.
Appendix P

Project Outcomes for Pilot Quality Measures

![Bar chart showing project outcomes for pilot quality measures.](chart.png)
Appendix Q

Statistical Analysis of Pilot Quality Outcome Measures

<table>
<thead>
<tr>
<th>Outcome Measure</th>
<th>Baseline % Satisfied (n)</th>
<th>Current % Satisfied (n)</th>
<th>Pearson Chi-Square p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breast Cancer Screening</strong></td>
<td>50% (101)</td>
<td>67% (78)</td>
<td>.021*</td>
</tr>
<tr>
<td>Female patients 50-74 years of age during the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>reporting period who had a mammogram to screen for</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>breast cancer within the past 24 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cervical Cancer Screening (21-29 years of age)</strong></td>
<td>23% (602)</td>
<td>67% (206)</td>
<td>&lt;.001*</td>
</tr>
<tr>
<td>Female patients 21-29 years of age who have had</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a cervical cancer screening within the last 3 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cervical Cancer Screening (30-64 years of age)</strong></td>
<td>54% (295)</td>
<td>78% (209)</td>
<td>.009*</td>
</tr>
<tr>
<td>Female patients 30-64 years of age who have had</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a cervical cancer screening within the last 3 years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>or cervical cancer screening with concurrent HPV testing within the last 5 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tobacco Cessation Counseling</strong></td>
<td>37% (225)</td>
<td>46% (213)</td>
<td>.237</td>
</tr>
<tr>
<td>Patients 18 years of age and older who are identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>as current tobacco users and received tobacco</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cessation counseling within the last 24 months.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant at the p<.05 level.
Appendix R

Projected Return on Investment

<table>
<thead>
<tr>
<th>Budget Item</th>
<th>Income/Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reimbursement for 40 new patient appointments scheduled from new process improvements</td>
<td>+$2416.80</td>
</tr>
<tr>
<td>Change in average monthly reimbursement from smoking cessation counseling for two-month implementation period</td>
<td>+$110.64</td>
</tr>
<tr>
<td>Staffing costs for dedicated QI meetings</td>
<td>-$609.90</td>
</tr>
<tr>
<td>Return on investment during project period</td>
<td>=$1917.54</td>
</tr>
</tbody>
</table>

Note. Relative new patient reimbursement calculated using CPT code 99203

99203: Office or other outpatient visit for the evaluation and management of a new patient, which requires these three components: A detailed history; A detailed examination; Medical decision making of low complexity. This CPT code is reimbursed at $60.42 by the primary payer for this practice.
Team Based Care and Practice Organization (TC)
- **TC-6**: Has regular patient care team meetings or a structured communication process focused on individual patient care.
- **TC-7**: Involves care team staff in the practice’s performance evaluation and quality improvement activities.

Performance Measurement and Quality Improvement (QI)
- **QI-1**: Monitors at least five clinical quality measures across the four categories: Immunization measures, other preventive care measures, chronic or acute care clinical measures, behavioral health measures
- **QI-12**: Achieves improved performance on at least two measures
- **QI-15**: Reports practice-level or individual clinician performance results within the practice for measures reported by the practice.

Patient Centered Access and Continuity (AC)
- **AC-14**: Reviews and reconciles panel based on health plan or other outside patient assignments