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Improving Depression Screening and Follow-up in Primary Care through Implementation of an Evidence-Based Protocol

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Improving Depression Screening and Follow-up in Primary Care through Implementation of an
Evidence-Based Protocol

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Abstract

Depression is a leading cause of disability in adults and is a major contributor to burden of disease (World Health Organization [WHO], 2018). The United States Preventative Services Task Force (USPSTF) provides evidence-based recommendations to promote disease prevention. Among these, is the recommendation that all adults, regardless of risk factors, should be screened for depression in the primary care setting with adequate systems in place to allow for appropriate diagnosis and management (USPSTF, 2016). The purpose of this Doctor of Nursing Practice (DNP) student project was to develop and implement an evidence-based protocol in the primary care setting with aims to improve the recognition and treatment of depression. The project's objectives included increasing the frequency of depression screening at annual wellness visits, utilizing the Patient Health Questionnaire-2 (PHQ-2) or Patient Health Questionnaire-9 (PHQ-9) screening tool for continued monitoring of depressive symptoms, and improving depression management. This student-led quality improvement project was based upon evidence-based interventions. Implementation of the protocol in an urban primary care clinic resulted in a significant improvement in rates of use of the PHQ tools, supported consistent accurate documentation of depression management plans, and significantly improved accurate billing for the service provided.

Keywords: Depression, screening, management, quality improvement

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Improving Depression Screening and Follow-up in Primary Care through Implementation of an
Evidence-Based Protocol

Introduction

Depression is a leading cause of disability in adults and is a major contributor to burden of disease (WHO, 2018). In 2016, over 16 million adults in the United States experienced at least one major depressive episode during a 12-month period (National Institute of Mental Health, 2017). Social determinants of health, or the circumstances in which individuals are born, grow, work, and live, such as socioeconomic status (SES), are responsible for health inequities and also play an important role in the prevalence of depression (WHO, 2019; Weinberger et al., 2018). The USPSTF (2016) reports individuals suffering from depression are at higher risk of mortality related to suicide; have a diminished ability to manage other health conditions; and are burdened by reduced quality of life impacting not only the individual, but also their family. Depression imposes substantial economic burden related to cost of medical care and treatment, time away from work and lost wages for the individual and reduced productivity and increased medical care costs to society (USPSTF, 2016). Because of the significant impact depression imparts on the well-being of individual and population health in the United States, the promotion of screening for depression is included in several national initiatives (Institute for Healthcare Improvement, 2018; Centers for Medicare and Medicaid Services, 2018). The USPSTF provides evidence-based recommendations to promote disease prevention including the recommendation all adults, regardless of risk factors, should be screened for depression in the primary care setting with adequate systems in place to allow for appropriate diagnosis, treatment, and follow-up (USPSTF, 2016). The purpose of this DNP student project was to develop and implement an evidence-

based protocol in the primary care setting with aims to improve the recognition and management of depression.

Assessment of the Organization

Organizational assessment is defined as a means of obtaining information about the performance of an organization and the factors affecting the organization's performance utilizing a systematic approach (Moran, Burson, & Conrad, 2017). The organizational assessment allows for an understanding not only of how an organization functions, but also how an attempt at a quality improvement initiative within the organization might take place and if the initiative has the potential for sustainability (Burke & Litwin, 1992; Moran et al., 2017). The organizational assessment was conducted at a university-affiliated, nurse-managed, urban health center providing primary care to community members as well as university staff, faculty, and students. The Burke and Litwin model for organizational performance and change was used as a framework to guide the assessment of the identified primary care clinic.

Framework: Burke and Litwin Model

The Burke and Litwin (1992) model for organizational performance and change provides a framework for assessing causal linkages between factors within an organization and the organization's environment impacting the organization's performance and effectiveness of efforts to implement change within the organization (see Appendix A). Burke and Litwin (1992), propose two dynamics impacting organizational performance: climate and culture. Climate refers to the perception of individuals within the work unit of how effective day-to-day proceedings in the work unit run and how the unit is managed (Burke & Litwin, 1992). Culture is the underlying beliefs and values of the organizational members (Burke & Litwin, 1992). The factors directly impacting the climate of an organization are referred to as transactional. Transactional factors are

the everyday interactions and exchanges and include the structure, management practices, systems, tasks and individual's skills, motivation, individual's needs and values, and individual and organizational performance (Burke & Litwin, 1992). The factors more directly impacting culture, and are required to impart real organizational change, are called transformational factors. Transformational factors include the external environment, leadership, mission, strategy, and organizational culture (Burke & Litwin, 1992).

Transformational factors. A number of transformational factors were identified during the assessment of the organization. Initiatives in the external environment of the organization such as the IHI Triple aim, which seeks to improve the effectiveness, efficiency, and quality of the healthcare system in the United States, are changing the way healthcare is delivered (IHI, 2018). Initiatives such as the Triple Aim have led to legislation such as the Medicare Access and Children's Health Insurance Program Reauthorization Act (MACRA) to incentivize quality outcomes for providers over the quantity of patients that are seen and evaluated within an organization (CMS, 2018). In accordance with the external drive for quality, the mission of the organization is "to provide accessible, quality healthcare and promote an innovative learning environment through an academic nurse-managed approach" (xxx, 2014). The mission statement is exemplified by the staff in a small work environment. The staff value creating quality relationships with patients and are invested in providing high quality, evidence-based care. The organization is invested in providing students with quality educational experiences and providing students the support needed to embark on scholarly projects within the context of the university.

Transactional Factors. Transactional factors are the day-to-day dynamics and interactions primarily impacting the climate of the organization and focus on the work unit effectiveness as well as the perception of the individual staff members (Burke & Litwin, 1992).

An important factor impacting the systems, workflow, and efficiency of the organization is the staffing. The clinic is small with only four nurse practitioners (NPs), two registered nurses (RNs), a practice manager, and an office manager who oversees a handful of front office staff which includes student workers. Each individual is responsible for a number of tasks, which sometimes hinders the efficiency of the workflow. The staff indicated any new initiatives should be cognizant that time is a limited resource within the organization. The practice manager is also new to the practice and is working on reviewing current practice policies and procedures. At the time of organizational assessment there was not a formal policy or protocol covering routine screening for depression in the organization.

The prior depression screening practice within the clinic took place when the RN was completing the intake process in the exam room. The RN collected the reason for visit, as well as updated the medications, medical, and social history of the patient. Embedded in the social history portion of the electronic health record (EHR) there were the two questions of the PHQ-2. These questions are asked to the patient orally by the RN, answered by the patient, and then documented electronically by the RN in the EHR. If the patient responded positively to either of the questions, the RN would then proceed to administering the PHQ-9, which allows for a more in-depth screening of depressive symptoms (Arrol et al., 2010). During the patient visit, the NP reviewed the responses and proceeded accordingly based upon the assessment score and patient feedback. The PHQ-9 was typically administered as a paper form and required manual scanning by clinical staff to the patient chart. This practice is incongruent with the intention of the PHQ-2 and PHQ-9 which is designed and validated as a self-administered assessment allowing the patient to indicate the presence and frequency of feelings of depression or anhedonia over the

past two weeks (Arroll et al., 2010). An additional area identified for quality improvement was the scanning process of the screening documents did not allow for the data to be queried.

Data is an essential transactional element. A two-week audit demonstrated inconsistencies in administration of PHQ screening tools. Members of the organization reported inconsistent use of the PHQ-9 in the screening, diagnosis and management of patients with a new or established depression diagnosis. While the PHQ-9 is a screening tool, the questions within it align with the American Psychiatric Association's (APA), *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* (DSM-V) criteria for major depressive disorder, which can guide the provider to accurate diagnosis in use as a meaningful tool for follow up monitoring of symptoms at subsequent visits (APA, 2013). Discussion with the NPs and observation of transactional workflow showed that often times the PHQ-9 was completed at depression follow-up visits after a treatment plan was discussed and agreed upon between the provider and patient, if it was utilized at all, which is incongruent with the current protocol.

The EHR being utilized by the clinic includes an electronic depression screening tool in the PHQ-2/PHQ-9 format accessible by all members of the organization's team; however, the option is rarely utilized by the clinical team. Some staff reported being unaware of this tool's availability, while other members of the team preferred paper forms over the EHR format. A recent initiative attempting to utilize a computerized screening tool in the adolescent population of the clinic was cumbersome and unsuccessful, leaving the organizational team averse to pursuing solely computerized depression screening and measurement.

Ethics and Human Subjects

An application for review and exemption of this project was submitted to the University Institutional Review Board (IRB) and was deemed to not meet the criteria for research,

indicating no further need for IRB oversight (see Appendix B). The purpose and capacity of this project was limited to improvement of evidence-based practice, standards of care as defined by the USPSTF, and quality improvement. Although identifiable patient information was reviewed, all collected data was de-identified and maintained in a secure setting. Compliance was upheld within Health Insurance Portability and Accountability Act (HIPAA) standards. No physical, social, psychological, legal, or economic threats to patients are associated with this project. Thus, it was anticipated that the impact of the project will pose minimal or no risk to participants.

Stakeholders

A stakeholder is an individual or entity who is impacted in some way by the outcome of a project (Moran, et al., 2017). There are a number of key stakeholders within and impacting the organization. The health center is run by the university's college of nursing, with the Dean of the college of nursing and the Assistant Dean of Practice overseeing the function of the site. The practice manager, nurse practitioners, registered nurses, and clerical staff, including student workers, are stakeholders within the organization. The patients of the health center are also important stakeholders as the procedures and workflow of the health center directly impact the health outcomes for these individuals. Another stakeholder is the local community mental health program, which is required to receive all referrals for patients who have medical coverage through Medicaid. The stakeholders of an organization influence the ability to make meaningful change within the organization by either helping or hindering such efforts (Moran et al, 2017).

SWOT Analysis

A strength, weakness, opportunity, and threat (SWOT) analysis is a tool used to assess both the internal and external traits that may help or hinder the phenomenon of interest for an organization (Moran, et al., 2017). Strengths refer to the internal attributes that are helpful to the

quality improvement initiative (Moran et al, 2017). In contrast, weaknesses are the internal traits that may serve as a barrier to the implementation of the proposed change (Moran et al., 2017). External factors are also assessed as opportunities or threats, the helpful and hindering influences respectively, to acknowledge the impact that they may have and develop strategies to utilize or overcome them in the process of project development (Moran, et al., 2017). A SWOT analysis was performed at the identified organization (see Appendix C).

Strengths. There are many identified strengths within the organization in the context of the phenomenon of interest. One strength is the current focus and push for achieving quality measure outcomes. Depression screening and follow-up was a new quality measure effective in 2018 for provider incentive programs driving improved quality as well as increasing revenue for the practice (National Committee for Quality Assurance, 2018). Another strength is the supportive staff dedicated to providing meaningful educational experiences to students and implementing evidence-based care into practice. The small, cohesive staff is an added strength limiting the number of employees to educate, train, and obtain buy-in for a proposed change. The support of the providers and the practice manager in improving depression screening, reimbursement, and follow-up, is an additional strength.

Weaknesses. A weakness of the organization is the limited number of staff to implement change. There are only two nurses who are charged with the intake of patients for up to three providers on any given day. The staffing limitations create time constraints for patient interactions and can further hinder the efficiency when an additional task is added to a visit, such as depression screening.

Front office staff includes students who do not always consistently work and often have knowledge gaps about the tasks for which they are responsible. Furthermore, there are new staff

in leadership roles including a new practice manager and NP. New leadership staff are tasked with learning the workflow of the organization and his/her own role within it, resulting in decreased time to assist with change initiatives. Another potential weakness is the pre-existing focus on specific quality measure currently being implemented by the clinic including cervical cancer screening rates, body mass index assessment, and smoking cessation counseling which may deter the focus from a depression screening initiative.

Opportunities. There are a number of external opportunities available to support the improvement of depression screening and follow up. Programs such as MACRA incentivize the improvement of care quality for practices that exceed quality standards by linking reimbursement and clinic viability to patient outcomes and quality measures (CMS, 2018). Individuals with low socioeconomic status (SES) are at high risk for mental health issues including depression (Weinberger et al., 2018). The primarily low SES community the organization serves was identified as another opportunity in the SWOT analysis supporting the need for improved depression screening in the organization.

Threats. Threats to the implementation of a project aimed to improve depression screening and follow up in this organization include the limited mental health resources for Medicaid recipients. The vast majority of the patients seen by the organization have Medicaid as the primary payer for health care coverage this low. Individuals with Medicaid must be referred to the contracted community mental health organization for counseling and psychiatric services in the county where the clinic is located (Michigan Department of Health and Human Services, 2018). The high-volume demands on the community mental health agency contracted with the clinic may limit the ability to follow up with appropriate referrals for positive screenings in a timely fashion. The inequity in availability of services to the low SES population served by the

clinic is an important social determinant of health to be considered. Further, significant stigma surrounding mental health issues and diagnoses in the United States culture is another threat to improvement in depression screening and management (Weinberger et al., 2018).

Clinical Question

An evidence-based project to answer the following clinical question was proposed: does the implementation of a protocol for depression screening and management in a small, urban, primary care clinic improve the rate of depression screening and follow-up management of adults, aged 18 and older?

Review of the Literature

A literature review is a systematic appraisal of the available evidence about a phenomenon of interest in order to support the need to study the phenomenon and identify the gap between the current and desired state for the phenomenon (Moran, et al., 2017). In order to do a thorough, logical literature review a clearly defined aim for the search must be defined and an organized strategy must be developed. When performing a database search, appropriate search terms are identified and utilized to organize the inquiry (Moran, et al., 2017). A literature review was performed to identify evidence regarding the efficacy of depression screening tools for diagnosis, treatment of depression in primary care settings; therefore, the use of a protocol is necessary and valid.

Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guideline served as the framework for this review (Moher, Liberati, Tetzlaff, Altman, & PRISMA Group, 2009) (see appendix D). A comprehensive electronic search was conducted in the psycINFO and Cochrane Review databases. The review was limited to systematic reviews in

the English language during the period of 2000 to 2018. The keywords used were depression, major depression, screening/screening tools, improvement, recognition, and diagnosis. Results were limited to meta-analyses and systematic reviews.

Summary of Results

The search yielded 30 articles in Cochrane Reviews and 24 articles in PsycINFO, all of which were recorded in a detailed spread sheet. No duplicates were found. Each review was screened using inclusion and exclusion criteria according to PRISMA criteria (Moher et al., 2009). Review of titles and abstracts resulted in removal of 29 Cochrane Reviews and 15 articles because they did not meet the inclusion criteria. In addition, seven articles were excluded after in-depth examination of content, as they did not meet inclusion criteria. The remaining three articles containing meta-analyses and systematic reviews were included in this review (see appendix E).

The current literature does not provide much guidance on improving the implementation of depression screening in primary care. The literature does, however, provide insight on the needed structure to ensure that depression is adequately detected, managed, and that follow-up care is in place. Two of the papers highlighted in this review underscore the need for structured, systematic procedures to be in place for consistent, quality care to be ensured (Archer et al., 2012; Badamgarav et al., 2003). Badamgarav et al. (2003), identified that a specific screening component within a structured care program for depression management improved detection of depression. A theme was identified related to interdisciplinary management to include engagement with the primary provider, nursing staff, and mental health specialists in providing better depression care outcomes (Archer et al., 2012; Badamgarav et al., 2003).

There appears to be some flexibility in determining the structure of the screening process as one study showed lack of consensus on where in the encounter depression screening is initiated, whether it be at check-in or directly with the provider (Wissow, et al., 2013). Ensuring that providers are well educated on the use and scoring of the utilized depression screening tool plays an important role in the effectiveness of detecting depression, but it is important to note that for proper diagnosis, further evaluation and examination is necessary. Wissow et al. noted a variation in positive screening rate to referral rate likely indicative of the provider's judgement based upon the examination that followed assessment of the screening tool.

The findings from this literature review provide insight into the need for resolution of a practice problem identified in an urban, low-income primary care clinic. Collaborative care models and disease management programs share the qualities of systematic, evidence-based approaches to care. An opportunity to improve depression screening and follow-up in this setting, was supported by the evidence and the organizational assessment with the need to have a formal protocol in place (Archer et al., 2012; Badamgarav et al., 2003). The research also supports the need to formally educate providers and those involved in administrating or initiating the screening process with patients to improve screening rates and ensure follow-up planning takes place (Wissow, et al., 2013).

Model to Examine the Phenomenon

Theoretical models can assist practice by facilitating understanding of an individual's behavior, suggest appropriate interventions, and provide possible explanations for the degree of effectiveness of the interventions chosen (Peterson & Bedrow, 2013). The model used to explore the phenomenon of depression screening and follow up management in primary care is the Health Promotion Model (HPM) developed by Nola Pender (Pender, Murdaugh, & Parsons,

2015). The HPM defines health not as the absence of illness, but instead as the “actualization of the inherent and acquired human potential through goal-directed behavior, competent self-care, and satisfying relationships with others, while adjustments are made to as needed to maintain functionality and improve quality of life” (Peterson & Bedrow, 2013, p.226). As shown in the illustration, the HPM (see appendix F) seeks to depict the multi-dimensional nature of how an individual interacts with their interpersonal, intrapersonal, and physical environment as they pursue health (Pender et al, 2015). The HPM recognizes that motivation for healthy behavior can be based on an aspiration to prevent illness or to promote health.

Specific to this project, the HPM proposes that interpersonal influences affect an individual’s likelihood of engaging in health-promoting behavior directly and indirectly by establishing social norms, social support, and modeling (Pender et al., 2015). Most commonly these influences are provided by family, peers, and healthcare providers (Pender et al., 2015). In the process of depression screening, the healthcare provider serves as an interpersonal influence (Pender et al., 2015). Screening allows for the recognition of signs or symptoms of depression and allows the provider to encourage the individual to commit to a plan of action (Pender et al., 2015). According to the HPM, commitment to a plan of action pushes the individual into and through a behavior unless a competing demand interferes (Pender et al., 2015). The follow-up component of the phenomenon includes developing a treatment plan for depression which is maintained by the patient and the provider. The HPM suggests that successful interventions and commitment to the plan will result in more frequent healthy behaviors and improved wellness (Pender et al., 2015).

Project Plan

Purpose of the Project and Objectives

The primary goal of the DNP student project was to facilitate use of a screening protocol to improve the detection and management of depression in the primary care setting in order to improve patient outcomes. The project aim was to implement a protocol in line with the USPSTF recommendation that all adults, regardless of risk factors, should be screened for depression in the primary care setting, with adequate systems in place to ensure that accurate diagnosis, effective treatment, and adequate follow-up take place (2016). The American Academy of Family Physicians (AAFP) endorses the USPSTF recommendation as the guideline for depression screening in family practice (Maurer, Raymond, & Davis, 2018). Additionally, the American Psychiatric Association (APA, 2010) guideline for depression treatment advises the ongoing use of quantitative measurement tools like the PHQ-9 to systematically assess symptoms of depression and effects of treatment. Per these recommendations and guidelines, the project's objectives included:

- increasing the frequency of depression screening at annual wellness and new patient visits using the PHQ2/PHQ-9 depression screening tool,
- increasing the frequency of measurement of depressive symptoms in all patients with new and existing diagnoses of depression utilizing the PHQ-9 screening tool
- improving the development of depression management plans for patients with depression and,
- improving billing for the provided service of the depression screening.

Design for the Evidence-Based Initiative

The purpose of the DNP student project was to improve quality of screening and care for persons suffering from depression. Quality improvement is defined as an “intentional change in systems and processes of care that takes place in a methodical, reflective, and iterative manner as a means to improve patient care and outcomes” (Katakam & Suresh, 2017, p. 1161). The role of the DNP as defined by Essential II of the Essentials of Doctoral Education for Advanced Nursing Practice requires proficiency “in quality improvement strategies and in creating and sustaining changes at the organizational and policy levels” (American Association of Colleges of Nursing, 2006, p.10). The aim of this project was to establish a sustainable protocol to improve more frequent depression screening and management. The implementation dates for this project were from February 11, 2019 through March 8, 2019.

Setting

The project took place in an urban, university-affiliated primary care clinic. The clinic offers preventative and primary care services to students, faculty, and members of the community. The clinic has one medical director, four NP providers, two RNs, a practice manager, an office manager, a front office manager, and student workers. The site strives to serve vulnerable populations including medically underserved individuals in the community (xxx, personal communication, March 12, 2018). The site is located within a converted local historic building, which is also home to a low-income housing complex. Based on data from 2017, the organization serves nearly 3,500 patients, accounting for over 6,000 annual patient visits. The majority of the patients served by the organization are Medicaid recipients, though the site participates with various insurance carriers as well as self-pay (xxx, personal

communication, March 12, 2018). Administrative approval was obtained to conduct this project at this clinic location (see appendix G).

Participants

The participants in this project were all adults, age eighteen years and older, meeting the following criteria:

1. Scheduled for an annual wellness or new patient visit.
2. Scheduled for a routine encounter with an NP with an established diagnosis of depression, defined as International Classification of Disease Tenth Edition, Clinical Modification (ICD-10-CM) codes F32.0-F32.9 and F33.0-F33.9 (APA, 2013).

Model Guiding Implementation

Kurt Lewin's change model was the guide for the implementation process of the project (see appendix H). Lewin developed a three-step model in 1947 that is still used as a guiding framework for planned organizational, group, and societal change today (Burnes, 2004). According to Lewin, human behavior is based upon an equilibrium of driving and restraining forces (Burnes, 2004). Lewin identified three specific steps for change implementation which include unfreeze, change, re-freeze. (Manchester et al., 2014).

Unfreezing. The first step in moving towards a successful, planned change is called unfreezing; wherein, the equilibrium must be destabilized before old behavior can be discarded and new behavior can be introduced (Burnes, 2004). Driving forces for change must overcome the resisting forces to maintain the status quo (Manchester et al., 2014).

Implementation of a new protocol for depression screening and follow-up in the organization, required the development of driving forces and momentum for change. Gaining an understanding of the doubts and concerns for the proposed change was required to obtain support

from the providers and staff of the organization (Manchester et al., 2014). The organizational assessment revealed a culture motivated toward quality improvement and that the organizational team was compelled to improve the depression screening and management protocol. Direct communication with management, providers, RNs, and office staff individually and collectively allowed the DNP student to gain an understanding of the impact a change in the depression screening protocol would have on each role within the workflow and propose a protocol to fit their needs. Education was provided to the clinic team to support the need for change and address concerns. A resisting force identified was the solely electronic documentation of the PHQ screening tool. For this reason, it was proposed that a paper PHQ form would be completed by the patient to then be documented in the EHR by the NP and still allow for the paper form to be scanned to the EHR, if desired, by the NP. By addressing the identified concerns and doubts of the organizational team, the conversion of resisting forces to driving forces allowed for change to occur.

Change. The second step is movement or change. Once the driving forces exceed the resisting forces change can begin to take place (Manchester et al, 2014). Lewin suggests that some trial and error must take place around the new practice to identify areas that may need improvement (Burnes, 2004). Tentation must occur in order for the proposed change to work best for the organization, build favorable attitudes towards the change, and reinforce the new behavior (Burnes, 2004; Manchester et al., 2014).

After approval and support of the clinical team was obtained for the project, frequent checks were performed, as scheduled, with the organizational team to discover challenges, successes, and potential adjustments required to accommodate the needs of the organization, by increasing efficiency and simplifying the process. Shortly following implementation of the

depression screening protocol in this practice, the front office manager identified that the process of scanning the paper PHQ forms was still inefficient, even though NPs were forgoing the scanning process. A solution was identified that the PHQ forms could be generated by the EHR with a barcode that would increase efficiency of the scanning process in the future. It was then decided that for all patients meeting inclusion criteria for the protocol, the PHQ form would be generated by the EHR for the check-in process, thus improving efficiency.

Refreezing. Refreezing, the final step, is the reinstatement of equilibrium, which is achieved when the forces are once again stabilized (Burnes, 2004; Manchester et al., 2014). The new process alters the organization by forcing it to accommodate procedurally and socially (Burnes, 2004). If reinforcement does not take place for the new behavior, it is likely that the change will not be sustainable (Manchester et al., 2014). Continued reinforcement and celebration of successes allows for the solidification and normalization of the new process within the culture of the organization (Manchester et al., 2014). By anchoring the change into the culture of the organization, the likelihood of sustainability increases by making the new process the new status quo (Manchester et al., 2014).

Reinforcing the simplicity and efficiency of workflow for the organizational team with the new protocol was essential in establishing the new protocol as the new status quo (Manchester et al., 2014). The organization utilizes a white board in the providers' office space where previously established quality measures that are tracked via EHR are recorded and updated monthly by one of the NPs. Depression screening and follow-up was added to the white board beginning in January of 2019 to serve as a tool to allow the staff to celebrate successes and normalize the behavior within the workflow of the organization. Based on the organizational assessment completed, the availability of the data on the whiteboard provides the organization

with motivation to sustain efforts to maintain achievement of the previously implemented measures.

Implementation Steps and Strategies

The following are the steps that were taken in the implementation of this project:

Step 1. A draft of a proposed protocol for depression screening was presented to the organizational staff for feed-back. Collaboration with the practice manager, NPs, RNs, and front office staff was essential in the process of developing the protocol and tailoring it to the organization's needs as directed by the unfreezing stage of the change model (Manchester et al. 2014).

Step 2. An educational meeting was conducted with the practice manager, NPs, RNs, and clerical staff regarding the project plan. The prevalence and implications of depression, the use and scoring of the PHQ-9 (see appendix I), summary of APA (2010) guideline recommendations for selection of appropriate depression treatment interventions, and the participation criteria were reviewed. To promote efficiency and simplification of the process, feedback was obtained from the organizational team regarding placement of the depression screening within the workflow of the encounter, corresponding documentation, and storage of depression screening data in the EHR.

In accordance with Lewin's implementation model, where staff buy-in is an important part of unfreezing, the organizational team's input was essential in addressing their concerns and doubts (Manchester et al., 2014). The initial educational meeting was conducted on December 17, 2018. Feedback obtained from staff at that time was the request to add new patient encounters to the screening protocol, in addition to annual wellness exams, as well as to have the front desk staff

initiate the screening and depression management protocol at time of check-in by placing the PHQ-9 measurement tool in the patient's encounter folder.

Step 3. Order sets and macroinstructions (macros) were created and made available in the EHR based on current APA depression management guidelines to aid in the efficiency and simplification of depression management plan documentation. Order sets are defined as the configuration of commonly used sets of orders in correlation to a diagnosis in the assessment and plan documentation of an encounter (Athenahealth, 2018a). Macros are defined as a configuration within the EHR to auto-populate passages of text commonly used in the documentation process (Athenahealth, 2018b). Easy access to interventions and documentation required for depression management improve efficiency in a simplified manner (McGonigle & Mastrian, 2018).

Step 4. Correct billing codes were linked to the screening tool and diagnostic order sets within the EHR for insurance reimbursement of depression screening and monitoring.

Step 5. The input from the organizational staff was incorporated into the finalized protocol and was presented to the organization staff prior to implementation. It was planned to present the protocol in an in-person session during the regularly scheduled staff meeting in January; however, staff scheduling conflicts and severely inclement weather delayed this meeting several times. Therefore, the practice manager, two of the NPs, DNP student, and front office manager determined that the project could move forward without an all staff meeting. This was communicated to all of the staff via email which included the final protocol (see appendix J) as well as additional educational information including review of APA depression screening guidelines and the newly available macros and order set to aid in ease of documentation (see appendix K). Implementation began on February 11, 2019 and was concluded on March 8, 2019.

Although the implementation timeframe was shorter than initially proposed, it was deemed adequate given the circumstances. Throughout the implementation phase the DNP student was in communication with organizational staff with frequent check ins to ensure no adjustments needed to be made to the workflow as advised by Lewin in the change phase of implementation.

Step 6. Pre-implementation data was collected from the EHR for all patients meeting the participation criteria, who were seen between February 11, 2018 through March 9, 2018 to account for seasonal transportation issues that impact the population seen by this practice as well as seasonal affect changes specific to the implementation timeframe. Specific data collected was in four areas:

- Existence of a depression screening (PHQ-2/PHQ-9) at annual wellness and new patient visits,
- Existence of a PHQ-9 for all patients at routine visits with an existing depression diagnosis,
- Existence of depression management plan correlating to current practice guidelines (APA, 2010), and
- Was the depression screening and monitoring billed?

Step 7. Data was collected throughout the implementation period in the same manner as the pre-implementation data. The collected data was combined and analyzed with the assistance of a graduate assistant statistician.

Step 8. Following the completion of data analysis, the final project documents were prepared, and the final defense will be presented. The final data was communicated to the organization staff in a closing meeting to allow for celebration of successes and identification of ongoing opportunities.

Measures

There are a number of indicators that were used to measure outcomes of the project from the identified participants. The first measure was the number of annual wellness and new patient visits with documentation of a completed depression screening tool. The second measure was the number of participants with an existing diagnosis of depression who received a PHQ-9. In addition, the proportion of encounters showing positive screening or measurement results with a documented treatment plan was measured. Finally, the rate of billing for the use of the screening tool was measured. A purposive sample of scheduled clinic patients was used.

Data Collection Procedures

Pre-implementation and post-implementation data were collected using the same process by the DNP student. Initial extraction of data occurred via manual review of patient records of all patients meeting participation criteria during the designated timeframes. Each identified chart was first reviewed to determine if screening was performed. Of the identified charts with a PHQ-2 performed, it was determined if a PHQ-9 was indicated and used. Of all charts requiring a PHQ-9 review will be completed to determine if a guideline-based plan was implemented in chart. Finally, for all charts in which depression screening was utilized, review was completed to determine if the service was billed.

Data Management

Data was managed by the DNP student. The data was de-identified and entered in to a spreadsheet and stored in a password protected, file stored on a jump drive. Data was organized by the measures as noted above. A graduate assistant statistician student was consulted and assisted with the transfer of the de-identified data to statistical software for analysis.

Analysis

Analysis of the project data was based upon comparison of pre- and post-implementation data. The data is reported as rates of use of the PHQ-9 screening tool, as well as percentages of visits with diagnosis and management plans, as indicated. Collaboration with the statistician determined any further descriptive statistics appropriate to the project. Tables were used, as appropriate, to display the outcome evaluation data.

Resources and Budget

The primary resource needed for the completion of this project was the in-kind time donation from the DNP student. Time spent in visits discussing depressive symptoms between provider and patient will also be a potential cost to the organization in addition to the time needed for the patient to complete the PHQ-9. A benefit of improving the use of depression screening with the PHQ-9 is that it is a billable service with a reimbursement rate of about six dollars per screening (Priority Health, 2018). A visual anticipated expense report for time donations of the DNP student, organizational staff, and materials was designed to aid in the understanding of the expected costs of the project in comparison to possible revenue (see Appendix L). The table demonstrates an overall net profit as the majority of the expenses were in the form of in-kind donations from the DNP student and organizational staff. All trainings were limited to scheduled meeting times as to avoid unnecessary costs. The improvement of billing for depression screening services led to an increase in revenue for the practice.

Timeline

The DNP project began in December 2018 with the collection of pre-implementation data as well as delivery of educational information and presentation of the proposed protocol to the project manager, NPs, RNs, and front office staff. Implementation of the project began on

February 11, 2019 and ended on March 8, 2019. Within two weeks following completion of implementation, data was accumulated and finalized. Following analysis with assistance of the statistician report results of the project was reported to the organization and a project defense was completed in April of 2019.

Results

Pre-implementation

Pre-implementation data review revealed 60 encounters meeting participation criteria for either the screening cohort, the annual wellness visits and new patient encounters ($n=40$), or the routine visits for patients with an existing depression diagnosis ($n=20$). The average age of these patients was 37 years old. For comparison of participant age, see Table 1. Of the 60 total encounters identified, 23 (38.3%) had documented PHQs completed during the encounter. All of the 32 patients with a positive screening or new or existing diagnosis of depression had an appropriate documented management plan. There were 16 visits identified for which a PHQ was billed.

Post-Implementation

Post-implementation data showed a similar mean age of 35 years of age amongst 94 eligible patient encounters. Of the 94 identified encounters including both new patient/annual wellness visits ($n=68$) and routine visits with pre-existing depression diagnosis ($n=26$), 57 patients received a PHQ (60.6%). Fifty-two of the PHQs that were completed were billed appropriately. All patients with a positive screening or new or existing depression diagnosis had a documented management plan consistent with APA (2010) guidelines.

Analysis

Comparison of the pre- and post-implementation revealed that there was sufficient evidence to support a difference in proportion of patients receiving administration of the PHQ pre- and post-implementation (Chi Square test, $X^2=7.3$, $df=1$, $p=.0069$) the new patient/annual wellness visits and depression follow-up visits combined. There were significantly more patients who received administration of the PHQ tool following implementation (60.6%), than prior to implementation (38.3%). Post-implementation, the odds of patients in the office for annual wellness visits, new patient visits, or routine visits with existing depression diagnoses was 2.5 times (95% CI: 1.27, 4.82) the odds of getting screened in the pre-implementation timeframe. A Breslow-Day test was completed to determine homogeneity of the odds ratios for use of the PHQ pre- and post-implementation and found that the odds of being screened did not differ by visit type, new patient/annual wellness visit versus routine follow-up, ($X^2= 0.03$, $df=1$, $p=.8502$).

In review of PHQ use at annual wellness and new patient visits alone, a significant improvement was found following the implementation of the protocol as well ($X^2=5.718$, $df=1$, $p=.017$). There were similar findings for depression follow-up visits with further statistically significant results with improvement post-implementation ($X^2= 5.25$, $df=1$, $p=.0219$). The odds of getting screened post implementation with the PHQ in patients with known depression diagnosis were 3.09 times (95% CI: 1.16,8.23) the odds of getting screened pre-implementation.

Although there was no difference found in the frequency of development and documentation of depression diagnosis follow-up planning, there was found to be an increase in diversity of choices of interventions for depression in accordance with APA (2010) guidelines. Prior to implementation, 50% of encounters with depression follow-up plans included

medication management alone. Post-implementation, medication alone accounted for only 21% of documented follow-up plans. See Tables 2 and 3 for complete details of intervention choices.

Analysis of the billing for documented PHQ screening tools showed that there was sufficient evidence to say that the proportion of services billed for patients screened with a PHQ differed between pre-and post-implementation (Fisher's Exact test, $p = .0437$). A higher proportion of PHQ screens were billed post-implementation (89.5%) than pre-implementation (69.6%).

Discussion

Depression is recognized as a leading cause of disability in the United States (WHO, 2018), leading to a decreased quality of life, diminished capacity to manage other health conditions, and significant economic burden on the healthcare system (USPSTF, 2016). Approximately half of all patients with depression do not seek treatment (Centers for Disease Control and Prevention, 2018), underscoring the importance of screening for this condition as recommended by the USPSTF. Additionally, the social determinants of health, including low SES, of the population served by the practice, increases the risk for depression in for these individuals. In the DNP student-led quality improvement project in this paper, an evidence-based protocol was implemented in a small, urban, primary care clinic with hopes of improving the depression screening and follow-up management process. The implementation of this protocol led to significant improvement in the use of the PHQ-9 screening tool for both routine screening of patients either new to the practice or presenting for annual wellness visits, as well as for use in measuring depressive symptoms in patients with known a depression diagnosis. It was found that there was no difference in documentation of follow-up management plan as both pre-and post-

implementation documentation revealed sufficient appropriate follow-up was planned. Finally, there was a significant improvement in billing for the service provided.

The improvement in rate of billing for use of the PHQ-9 tool has the potential to provide an important return on investment for the clinic. At an estimated rate of six dollars per PHQ-9 administered, the increase in revenue can be estimated at about 250 dollars in the one month of the implementation period. With continued improvement in use of the PHQ and billing for the service by utilizing the depression screening protocol, the clinic can project an increase of over 3000 dollars annually.

Discussion with the NPs during and following the implementation of the protocol revealed overall satisfaction with the interactions and conversation that the depression protocol initiated with patients. Two of the NPs described specific accounts where using the formal screening tool identified depressive symptoms in patients that had not ever disclosed experiencing in the past but had been feeling for some time. The NPs described perceived value in recognizing possible depression in patients who may not have been screened using their previous workflow.

Limitations

While the project was successfully implemented and resulted in improved screening rates, there were several limitations. First, the project was implemented over a period of only four weeks making it hard to distinguish if the results found are sustainable in the practice over a more significant period of time. The circumstances that led to the shortened implementation period also led to limited formal, in-person communication and education with the organizational team prior to implementation. Further, the data collected did not allow for a more in-depth dive

into the factors that may have hindered further improvement in depression screening rates such as tracking screening rates by NP or RN involved in each encounter included in the project.

Conclusion

Depression is a commonly occurring condition in the United States that can negatively impact patients and their families physically, mentally, and financially. Thus, standardized, routine screening is recommended for all adults regardless of their risk factors. A small, urban primary care practice sought to improve its depression screening and management protocol with aims to meet current national quality measure benchmarks and follow current practice guidelines. Organizational assessment was completed and identified areas for improvement within the practice's workflow. In alignment with the organization's preferences with guidance from current literature a protocol was created and implemented within the practice's workflow with the guidance of Lewin's change model. The project resulted in significant improvement in use of the PHQ for both routine screening and follow-up measurement of depressive symptoms allowing for the practice to more readily detect depression within the practice and appropriately manage patients with known depression.

Implications for Practice

The protocol was well received by the organizational staff allowing for ease of implementation. The promising results found from this project support the use of a formal protocol to ensure consistency in practice for depression screening leading to improved diagnosis and management of this common disorder. Implementing this protocol helped to bridge the gap between the practices used in the organization and the practice standards defined by the USPSTF and APA for depression screening and management. The organization is working to cash in on practice incentives for reaching benchmarks in quality measures particular quality measures. One

such quality measure for Priority Health (2018) is depression screening and follow-up care for all patients age 12 and above. Utilizing the current protocol will help to make strides in this endeavor but expanding the current protocol to include the adolescent population served by the practice could lead to achievement of this incentive for the practice.

Sustainability Plan

At the request of the organization, a protocol for depression screening and management was developed to be sustainable within the organization. An evidence-based protocol based on the current APA guidelines was performed in an efficient and simplified manner as identified by the priorities by the organizational team. The driving forces to ensure sustainability included a reduction in burden to the clinic workflow and unnecessary incurred costs. The ease of use of the screening tool contained within the EHR combined with the reimbursement for the service will also be motivating factors for routinely using this tool in the clinic. Further, by incorporating this initiative in the current organizational practice of tracking quality measures using their whiteboard, ongoing efforts will be made by organizational staff for continued improvement in this effort.

Dissemination Plan

Outcomes of this project were disseminated to the organizational team at a routine staff meeting on April 16, 2019. The project was also disseminated at the student oral defense on April 10, 2019 to the student's advisory team, additional faculty, and students. Finally, the project paper will be posted to Scholarworks, where it can be accessed by any interested party.

Reflection on the DNP Essentials

The DNP project is intended to be a program deliverable demonstrating that the DNP student has achieved competency in doctoral level scholarship and advanced knowledge a

particular topic (Moran et al., 2017). This DNP student-led quality improvement project required proficiency in many of the American Association of Colleges of Nursing (AACN, 2006) DNP Essentials.

Essential I: Scientific Underpinnings for Practice

This essential was achieved by completing a literature review on depression screening in the primary care setting and utilizing the knowledge gained to facilitate a quality improvement initiative. Further, this project utilized theories derived from nursing science as well as other disciplines to guide understanding of the phenomenon of depression screening, facilitate implementation of a new protocol, and assessment of the organization's strengths and weaknesses to help ensure success of the project.

Essential II: Organizational and Systems Leadership

Leadership is a key component in the process of quality improvement initiatives as well as characteristic expected from a DNP prepared NP (AACN, 2006). This essential was accomplished in the process of this project by completing a thorough assessment of the organization and utilizing the findings to identify the need to improve the depression screening process. Leadership was also presented by the DNP student in the development, planning, and communication in regard to the depression screening protocol within the primary care practice in working with the organization's team to improve the practice's adherence to evidence-based standards of care surrounding depression screening and management.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-based Care

Essential III entails translating research into evidence-based care. The current DNP student project required competency in this area in order to analyze current evidence in the form of a literature review and discriminate the best evidence to improve the depression screening

protocol in the setting of the current organization. Information technology was utilized in the form of the organization's EHR in order to collect the data used to analyze outcomes. This quality improvement project was intended to facilitate a protocol that would improve patient and healthcare outcomes within the practice specific to the management of depression.

Essential IV: Information/Systems Technology

The use, selection, and evaluation of information systems and technology resources to improve care and support practice is a proficiency expected of DNP graduates (AACN, 2006). Technology was an important component of the depression screening protocol outlined in this DNP student project. Utilizing the EHR's integrated PHQ screening tool, allowed for ease of documentation, ability to query results, and improved billing rates. The DNP student also utilized email as a medium for educational communication with the organization. Finally, Excel was used for organizing and analyzing project data while following ethical guidelines to maintain patient confidentiality and data de-identification.

Essential V: Healthcare Policy for Advocacy in Healthcare

Healthcare policy can impact the framework of healthcare at the institutional, local, state, federal, and international levels. It is expected that DNP-prepared advance practice nurses act as advocates in the development and influence of healthcare policy to help shape health care delivery, regulation, and financing to ensure social justice and equity (AACN, 2006). The DNP student project outlined in this paper did not impact formal policy of the institution. However, the implementation of the depression protocol put in place efforts to advocate for the individuals served by the organization who suffer from depression by putting a system in place to detect the condition and provide better management. The DNP student also advocated for the staff within

the organization, particularly the RNs, by ensuring the implementation of the protocol would not impart burden to their already strained workload.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health

Essential VI focuses on the need for the advanced practice nurse to have exceptional communication skills in order to collaborate with other professionals both within the nursing field and in other specialties. This DNP project required the student to lead an interprofessional team of NPs, RNs, and office staff in order to facilitate the implementation of the depression screening protocol. By communicating with and incorporating feedback from each of the disciplines, an understanding of the organization's needs, strengths, and barriers, the project was able to be successfully implemented by the DNP student.

Essential VII: Clinical Prevention and Population Health

The AACN (2006) set the expectation that DNP graduates have the ability to analyze epidemiological, biostatistical, and environmental data related to individual and population health, as well as the understanding of the use of the concepts of clinical prevention and population health to address health promotion and disease prevention. The DNP student identified that the organization serves a population that is comprised mostly of low SES individuals, an important social determinant of health, of the community. For this reason, the population served by the organization is at higher risk for mental health issues, including depression. Seeking to improve population health and patient outcomes, the depression protocol was implemented in practice to screen for depression with hopes of early detection and improvement in structured monitoring of the condition.

Essential VIII: Advanced Nursing Practice

This essential encompasses the competency of DNP prepared nurses surrounding the ability to conduct assessment of health and illness parameters, design, implement, and evaluate interventions based upon current evidence, and develop therapeutic relationships with patients and other professionals to facilitate improved outcomes (AACN, 2006). This DNP student project began with an organizational assessment. Findings from the assessment and systems thinking led to the development and implementation of the depression protocol in practice. Therapeutic relationships with the NPs, RNs, and office staff were developed and maintained to facilitate successful implementation of the protocol and aid in sustainability of the project.

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Table 1.

Participant Demographics by Age

group	N	Mean	Std Dev	Lower Quartile	Median	Upper Quartile
Pre-Intervention	60	37.7	16.4	24.0	33.5	47.0
Post- Intervention	94	35.1	13.8	24.0	32.0	44.0

Note. Std. Dev= Standard Deviation.

Table 2

Pre-Protocol Implementation Depression Interventions

Intervention	Frequency	Percent
Non-pharmacological	2	5.88
Non-pharmacological and counseling/referral	2	5.88
Medication	17	50.00
Medication and counseling/referral	11	32.35
Counseling/referral	2	5.88

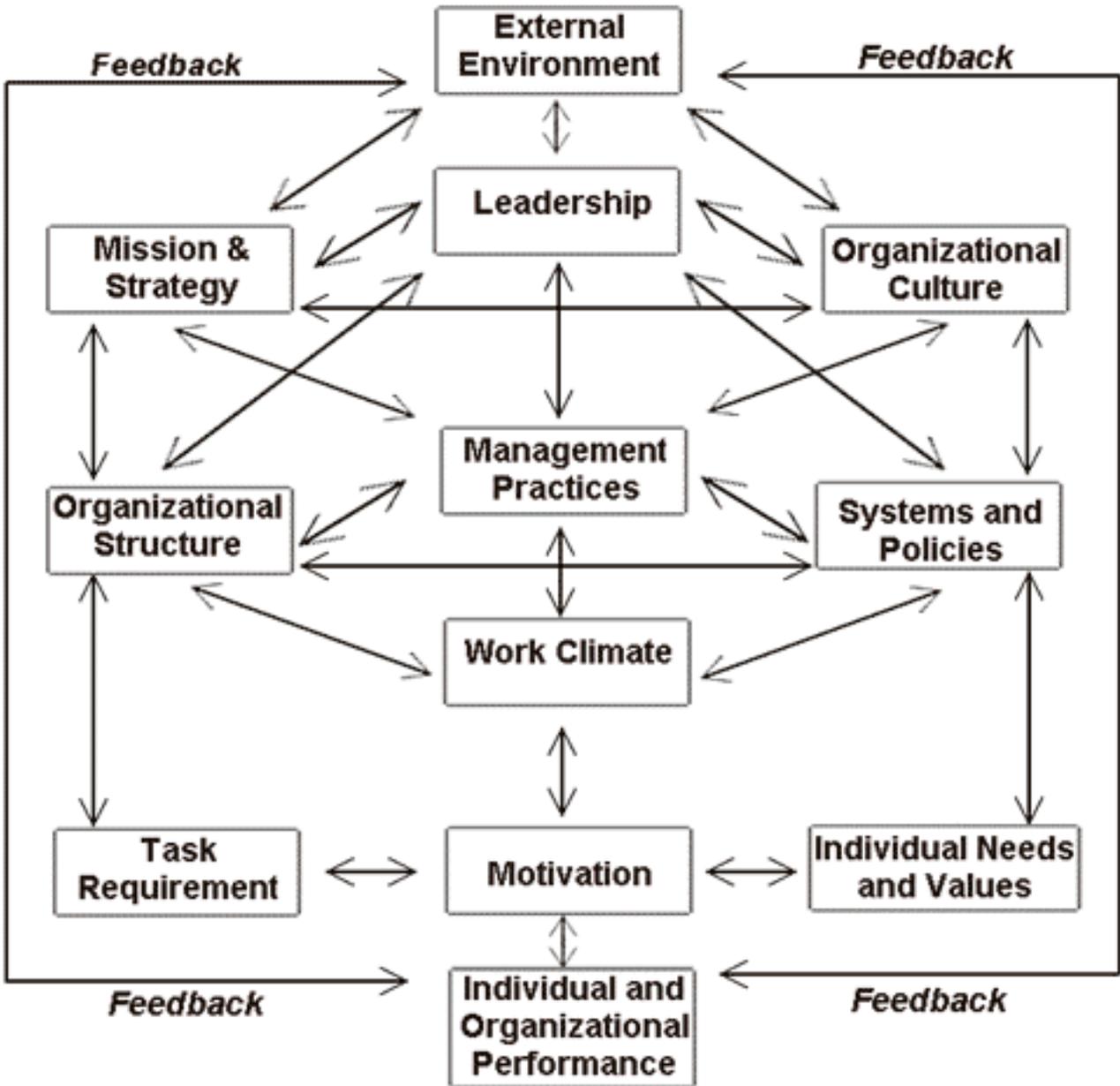
Table 3

Post-Protocol Implementation Depression Interventions

Intervention	Frequency	Percent
Non-pharmacological	6	14.29
Non-pharmacological and medication	2	4.76
Non-pharmacological, medication and counseling/referral	1	2.38
Non-pharmacological and counseling/referral	2	4.76
Medication	9	21.43
Medication and counseling/referral	12	28.57
Medication and follow-up visit/call	6	14.29
Counseling/referral	3	7.14
Follow up visit/call	1	2.38

Appendix A

Burke and Litwin Model for Organizational Performance and Change



Reprinted from "A Causal Model of Organizational Performance and Change," by W. W. Burke and G. H. Litwin, 1992, *Journal of Management*, 18, 528. Copyright 1992 by Southern Management Association.

Appendix B

Grand Valley State University IRB Determination



DATE: October 29, 2018

TO: Dianne Slager
FROM: HRRC
STUDY TITLE: Improving Depression Screening and Follow-up in Primary Care through Implementation of an Evidence-based Protocol.
REFERENCE #: 19-123-H
SUBMISSION TYPE: HRRC Research Determination Submission

ACTION: Not Research
EFFECTIVE DATE: October 29, 2018
REVIEW TYPE: Administrative Review

Thank you for your submission of materials for your planned scholarly activity. It has been determined that this project does not meet the definition of research* according to current federal regulations. The project, therefore, does not require further review and approval by the Human Research Review Committee (HRRC).

A summary of the reviewed project and determination is as follows:

The purpose of this project is to increase the proportion of visits in an urban primary care practice that include depression screening to increase recognition of depression and ensure that appropriate follow up interventions are initiated and documented accordingly. While this is a systematic investigation, it is not designed to create new generalizable knowledge. Therefore, it does not meet the federal definition of research and IRB oversight is not required.

An archived record of this determination form can be found in IRBManager from the Dashboard by clicking the "_ xForms" link under the "My Documents & Forms" menu.

If you have any questions, please contact the Office of Research Compliance and Integrity at (616) 331-3197 or rci@gvsu.edu. Please include your study title and study number in all correspondence with our office.

Sincerely,
Office of Research Compliance and Integrity

*Research is a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge (45 CFR 46.102 (d)).

Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains: data through intervention or interaction with the individual, or identifiable private information (45 CFR 46.102 (f)).

Scholarly activities that are not covered under the Code of Federal Regulations should not be described or referred to as research in materials to participants, sponsors or in dissemination of findings.

Appendix C

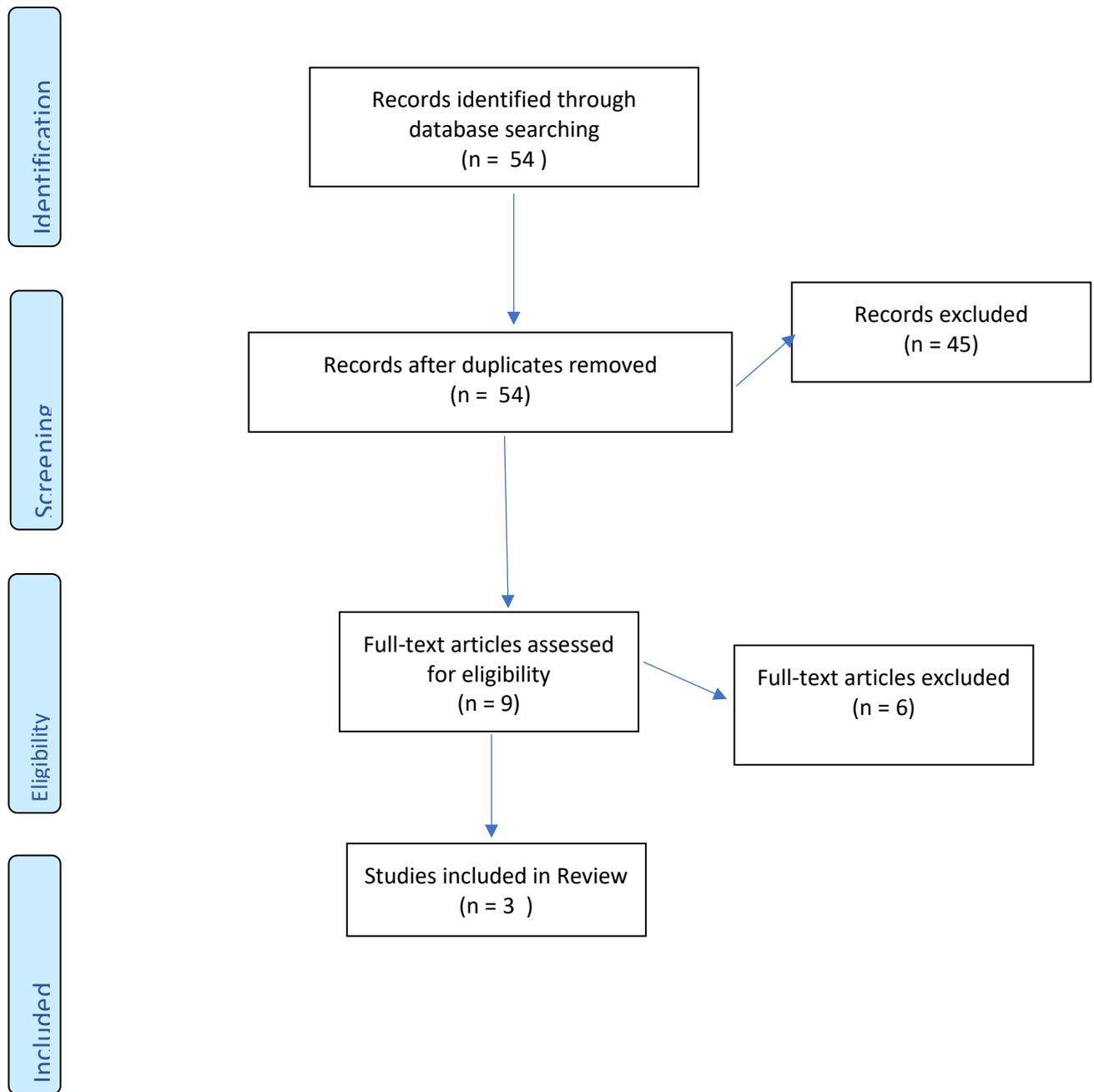
SWOT Analysis

<p style="text-align: center;">Strengths</p> <ul style="list-style-type: none"> • Small Practice • Quality improvement focus • Team-based approach • Encouraging and supportive of students • Evidence-based practice • Support of phenomenon of interest 	<p style="text-align: center;">Weaknesses</p> <ul style="list-style-type: none"> • Limited staff and financial resources • Student staff • Current initiatives in place • New leadership
<p style="text-align: center;">Opportunities</p> <ul style="list-style-type: none"> • MACRA • MIPS • Incentive programs • Low SES community 	<p style="text-align: center;">Threats</p> <ul style="list-style-type: none"> • Limited community mental health resources for Medicaid recipients • Stigma surrounding mental health diagnoses

SWOT Analysis of XXX Organization

Appendix D

PRISMA Flow Diagram of Systematic Search



Flow diagram of search selection process. Adapted from “Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement,” by D. Moher, A. Liberati, J. Tetzlaff, D. Altman, and PRISMA Group. Copyright 2009 by PLoS Medicine.

Appendix E

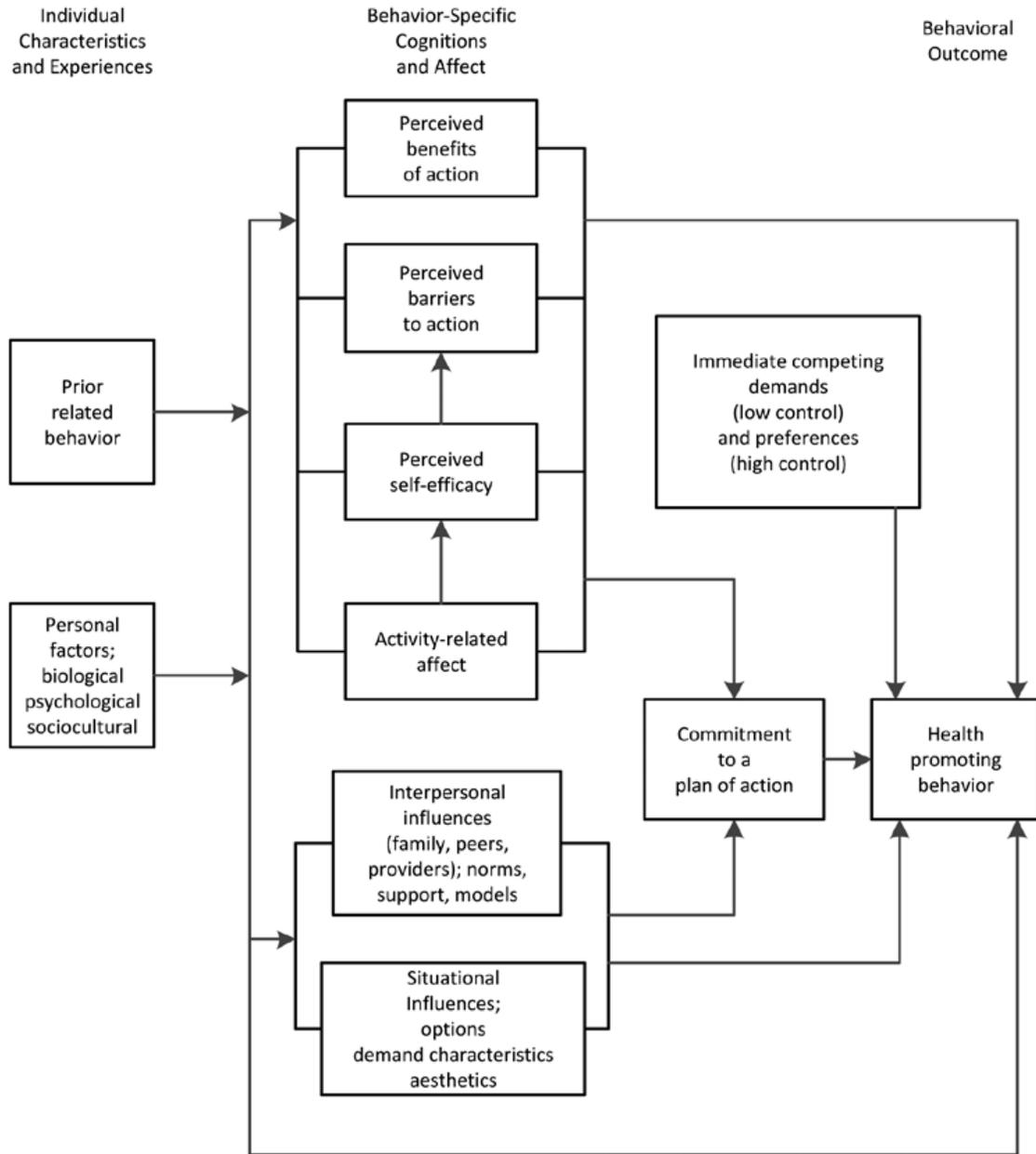
Literature Review Table

Author (Year) Purpose	Design (N)	Inclusion Criteria	Intervention vs Comparison	Results	Conclusion
Archer et al. (2012) Determine efficacy of collaborative care in patients with identified depression	Systematic Review of RCTs (n=79)	Intervention in identification and follow up for depression	Collaborative care vs standard care	Patients who received collaborative care were significantly more likely to have better outcomes for identified depression than those who received standard care both in the short and long term.	Collaborative care (utilizing providers and support staff ie nurses or MAs) is an effective follow up intervention for depression.
Badamgavarav et al. (2003) Evaluated the effectiveness of a disease management approach to depression management	Systematic Review and Meta-Analysis of (n=17) RCTs	Interventions in primary care to improve depression detection and management	Disease management systematic approach vs standard care	The studies that implemented a program including depression screening showed a statistically significant improvement in detection of depression.	Disease management programs, defined as using a systematic, evidence-based approach to manage or prevent a chronic condition, are effective in detecting depression and improving outcomes.
Wissow et al. (2013)	Systematic Review of	Interventions and	Comparison of different	No consensus on any role	The results of this

<p>Explored explanations of slow uptake and sub-par follow up for universal screening for depression in pediatric primary care.</p>	<p>(n=38) observational, pre-post, and randomized control studies.</p>	<p>processes that improve depression screening and follow up in primary care of adolescents.</p>	<p>staff initiating screen Provider education in scoring of screening tools vs no formal education</p>	<p>being more effective than another in initiating the screening process Improved rates of referral for for patients with positive screen results with those providers that received formal education</p>	<p>systematic review were helpful in that determining that depression screening can take place successfully not just between provider and patient but may be initiated by support staff. The education of providers in the correct scoring of the screening tool is important to ensure proper follow up plans are created. Further, families and adolescents are more likely to feel positively about screening and provide honest feedback when screening is framed as universal.</p>
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Appendix F

Pender's Health Promotion Model



Reprinted from "Health Promotion in Nursing Practice (7th Ed.)" by Nola Pender, Carolyn Murdaugh, and Mary Ann Parsons. Copyright 2015 by Pearson Education Inc.

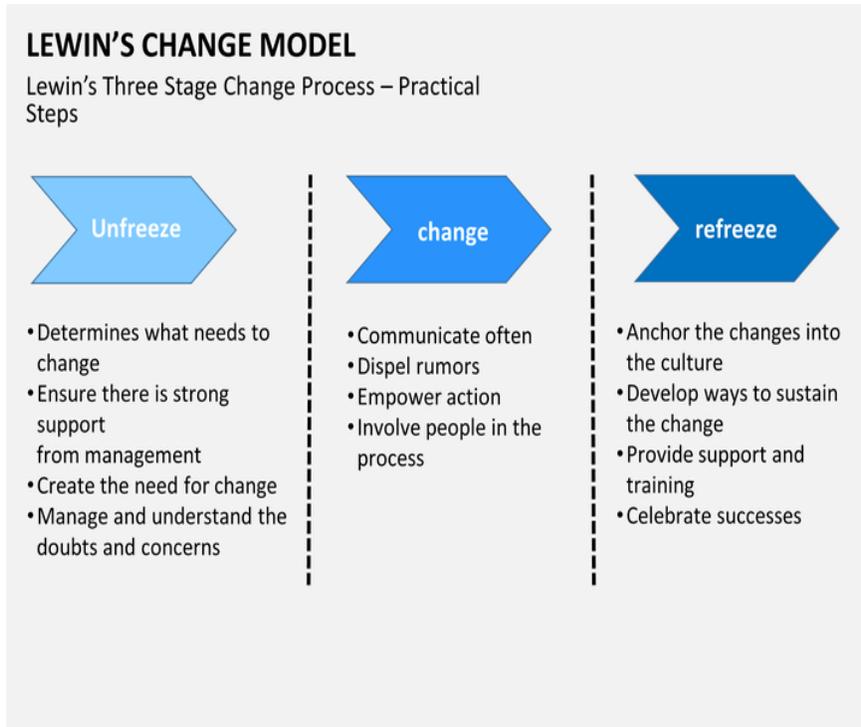
Appendix G

Organization Authorization to Perform Project

Available Upon Request

Appendix H

Lewin's Change Model



Appendix I

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns + +

(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card). TOTAL:

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

PHQ-9 Patient Depression Questionnaire

1. Patient completes PHQ-9 Quick Depression Assessment.
2. If there are at least 4 √s in the shaded section (including Questions #1 and #2), consider a depressive disorder. Add score to determine severity.

Consider Major Depressive Disorder

- if there are at least 5 √s in the shaded section (one of which corresponds to Question #1 or #2) *Consider Other Depressive Disorder*

- if there are 2-4 √s in the shaded section (one of which corresponds to Question #1 or #2)

Note: Since the questionnaire relies on patient self-report, all responses should be verified by the clinician, and a definitive diagnosis is made on clinical grounds taking into account how well the patient understood the questionnaire, as well as other relevant information from the patient. Diagnoses of Major Depressive Disorder or Other Depressive Disorder also require impairment of social, occupational, or other important areas of functioning (Question #10) and ruling out normal bereavement, a history of a Manic Episode (Bipolar Disorder), and a physical disorder, medication, or other drug as the biological cause of the depressive symptoms.

To monitor severity over time for newly diagnosed patients or patients in current treatment for depression:

1. Patients may complete questionnaires at baseline and at regular intervals (eg, every 2 weeks) at home and bring them in at their next appointment for scoring or they may complete the questionnaire during each scheduled appointment.
2. Add ups by column. For every: Several days = 1 More than half the days = 2 Nearly every day = 3
3. Add together column scores to get a TOTAL score.
4. Refer to the accompanying **PHQ-9 Scoring Box** to interpret the TOTAL score.
5. Results may be included in patient files to assist you in setting up a treatment goal, determining degree of response, as well as guiding treatment intervention.

Scoring: add up all checked boxes on PHQ-9 For every Not at all = 0; Several days = 1;

More than half the days = 2; Nearly every day = 3

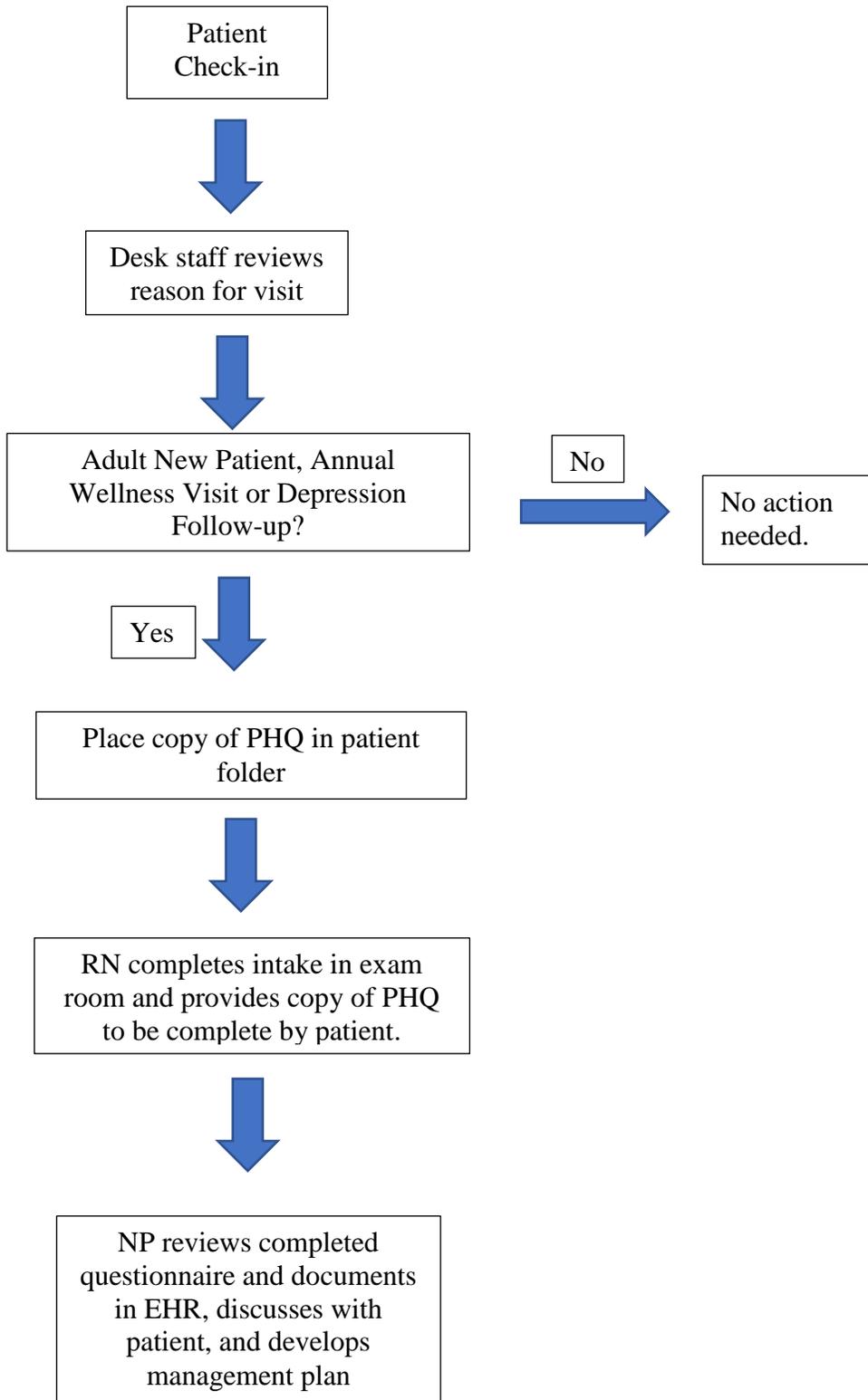
Interpretation of Total Score

Total Score	Depression Severity
1-4	Minimal depression
5-9	Mild depression
10-14	Moderate depression
15-19	Moderately severe depression
20-27	Severe depression

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Appendix J

Finalized Protocol



Appendix K

Project Educational Material

Improving Depression Screening and Follow-up in Primary Care Through Implementation of an Evidence-Based Protocol



Cheryl Fowler BSN, RN



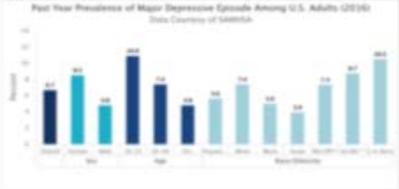
Objectives for Presentation

- Review depression screening and measurement utilizing PHQ-9.
- Review screening and management protocol for the GVSU Family Health Center.
- Ensure understanding of roles of team members.
- Begin implementation



Introduction

- In 2016 over 16 million adults in the US experienced at least one depressive episode¹



Past Year Prevalence of Major Depressive Episode Among U.S. Adults (2016)
Data Courtesy of SAMHSA



Introduction



- Increased risk for suicide
- Decreased capacity to manage other health conditions
- Decreased quality of life for individual and family
- Economic burden
 - Lost work days
 - Medical costs
 - Decreased productivity²



Order Set

- Positive screening for depression on PHQ-9 (Patient Health Questionnaire 9) (23.0.09) Encounter for screening for other disorders
 - CBC W/ MANUAL DIFF
 - BNP, SERUM OR PLASMA
 - TSH, SERUM OR PLASMA
 - PATIENT HEALTH QUESTIONNAIRE DEPRESSION ASSESSMENT
 - LEARNING ABOUT SLEEPING WELL
 - NUTRITION TIPS - HEALTHY START OR EATING SMART
 - LEARNING ABOUT PHYSICAL ACTIVITY



Measures

- Rates of use of PHQ for new patients, annual wellness visits, and depression follow up visits.
- Rate of documentation of follow up plans for positive screening results.
- Rate of billing for the service.



Implementation

- Plan to implement protocol for 4 weeks.
- Will then compare measures to the same time frame from 2018.
- Upon completion, will provide results to FHC and make recommendations for sustainability and improvement going forward.



Appendix L

Budget

Doctor of Nursing Practice Project Financial Operating Plan

Improving Depression Screening and Follow-up in Primary
Care through Implementation of an Evidence-Based Protocol

Revenue

Student Project Manager Time (in-kind donation)	\$9,000.00
Consultations	
Statistician (in-kind donation)	\$100.00
Revenue Source: Reimbursement for depression screening tool (\$6/screen @ 57 screens)	\$342.00
TOTAL INCOME	\$9,442.00

Expenses

Team Member Time:	
Nurse Practitioner (Site Mentor)	\$4,500.00
Consultations	
Meeting with Practice Manager and DNP provider	\$100.00
Cost of printing, pens, etc.	\$10.00
TOTAL EXPENSES	\$4,610.00

Net Operating Plan	\$4832.00
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