Depression Screening Implementation in a Primary Care Clinic

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Dedication

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Abstract

Depression is a common disorder that impacts one's quality of life. It can cause significant medical, social, and financial complications to an individual and affect others close to the person suffering from it. Depression is often underrecognized and underdiagnosed in the primary care setting, which can lead to inadequate treatment. Depression screening has been proven to be effective in detecting symptoms during an office visit. The purpose of this quality improvement project was to implement a Patient Health Questionnaire (PHQ-9) depression screening process in a rural primary care clinic. Based on the total score of the PHQ-9 screening test or if question number 9 is one or greater, the Columbia-Suicide Severity Rating Scale (C-SSRS) questionnaire was administered by the provider to further assess suicidal risk. The goal was for 100% administration of the PHQ-9 screening tool to all non-acute patient visits. Biweekly PDSA reviews were conducted, to evaluate the clinic's progress and modifications were incorporated as needed. During the 13-week project period, 312 patients completed the PHQ-9 and 13 scored high enough to be considered mild depression, and no patients met screening criteria for the C-SSRS questionnaire. The goal of 100% administration of the PHQ-9 questionnaire was achieved during the last month's implementation at week ten and week twelve. The PHQ-9 screening tool is a cost-effective way to detect symptoms sooner and allow the provider to help reduce the patient's functional impairments, reduce the risk of suicide, and increase the likelihood of adhering with medical treatment.

Key words: Depression, Patient Health Questionnaire, PHQ-9 Depression Screening, Primary Care, and Implementing Depression Screening.

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Chapter One: Introduction

Depression is a severe disorder that inflicts significant medical, social, and financial burdens on patients. Depression conditions, such as major depressive disorder, can lead to increased morbidity and, consequently, cause mortality (Smithson & Pignone, 2017). Despite the availability of effective treatments, depression in the primary care setting is often underdiagnosed (Rhee, Capistrant, Schommer, Hadsall, & Uden, 2018). Depression screening has been proven effective in detecting symptoms during an examination, thus allowing the provider to address the problem. Chapter One will explain why depression screening is important, address barriers to screening, and introduce the proposed DNP project.

Background Information

Mental health problems, especially depression, are prevalent worldwide. In the United States (US), depression affects an estimated 16.2 million adults (National Institutes of Health, 2017). Various agencies have recognized the burden of depression and have developed strategies for improvements. The World Health Organization (2019) established its UN Sustainable Development Goals and urges countries to take action to promote good mental health and well-being. Healthy People 2020 has a goal of improving mental health via prevention and providing adequate mental health services (Office of Disease Prevention and Health Promotion, [ODPHP], 2019).

In the United States, depression is among the most common psychiatric disorders leading to disability and premature mortality (Akincigil & Matthew, 2017; Meyers, Groh, & Binienda, 2014). Depression affects one's motivation to participate in health-improving behaviors. On the other hand, chronic disease can harm one's mental health and ability to seek and participate in treatment.

In special populations, such as the elderly, depression can be more challenging to detect than the younger patient. Depression can mimic physical ailments that are common in older patients, such as fatigue, insomnia, and weight loss (Smithson & Pignone, 2017). Patients with comorbidities such as cancer, neurologic problems, and cardiovascular disease are at higher risk for depression (Smithson & Pigone, 2017). Without adequate screening, detection, and treatment for depression, patients are at higher risk for self-harm.

Sheehan, Dubke, and Corrigan (2017) reported that 1.3 million Americans attempt suicide each year. Suicide is the 10th leading cause of death in the US, accounting for approximately 43,000 deaths in 2014 (Office of Disease Prevention and Health Promotion, [ODPHP], 2019) and is the second leading cause of death for ages 25-34 years (Shepard, Gurewich, Lwin, Reed, & Silverman, 2016). Kim and Lee (2017) studied risk factors that increase the elderly's suicidal thoughts and suicide attempts. Their study found that negative perceptions of one's health correlated with increased emotional instability and increased risk of a suicide attempt.

Significance of Clinical Problem

Epidemiology. Depression is widespread through all demographics. It is the most prevalent mental health disorder in the United States (Meyers et al., 2014). The approximate lifetime prevalence of major depressive disorder in US adults is 20.6%, with a yearly prevalence of 10.4% (Hasin et al., 2018). Depression occurs twice as often in women than in men, has a peak prevalence in the second or third decades of life, and then has a subsequent modest peak in the fifth and sixth decades (Malhi & Mann, 2018).

Interpersonal impact. Depression disorders can cause suffering, decreased quality of life, and impaired functioning in severe cases. Meyers, Groh, and Binienda (2014) predicted

depression to be the leading cause of disability by 2030. Depression can affect others close to the individual, including spouses, children, employees, and friends, both emotionally and financially.

Depression: economic impact. The economic impact of depression on society has an annual cost exceeding approximately $80 billion in the United States (Deneke, Schultz, & Fluent, 2015). Chow, Doane, Sheehan, Alphs, and Le (2019) explains that about 45% of the total economic burden of depression is related to higher direct medical cost, such as primary care and emergency department visits, and hospitalizations. It was estimated that for every dollar spent on direct cost, $6.60 was spent on "comorbidities, workplace cost, and suicide-related cost" (Chow, Doane, Sheehan, Alphs, & Le, 2019, p.1).

The national cost of suicide attempts and suicides in the US is approximately $58.4 billion (Shepard, Gurewich, Lwin, Reed, & Silverman, 2016). The Suicide Prevention Resource Center (2020) reported the average cost of one suicide was approximately 1.3 million dollars, with more than 97% due to lost productivity. Screening to detect depression, and prevent associated suicide, would result in a favorable cost-benefit investment for the US (Shepard et al., 2016).

Depression and chronic disease. Depression is strongly associated with chronic diseases such as cardiovascular and cerebrovascular disease, cancer, diabetes, and obesity (Meyers et al., 2014; Petrosyan et al., 2017). Depression's negative consequences increase mortality rates (Deneke et al., 2015). Depressed patients are more likely to be nonadherent with medical treatment, have decreased self-care, increased impairment, and increased medical costs compared to the general population (Meyers et al., 2014).

Depression treatment. In January 2016, the U.S. Preventative Services Task Force (USPSTF) recommended screening for depression in the general adult population with "adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up" (Siu et al., 2016, p. 380). Primary care is where most people seek healthcare, and where often, depression is managed (Petrosyan et al., 2017; Zivin & Katon, 2015). The efficacy of depression screening increases with access to treatment and collaborative care (Narayana & Wong, 2015). Treatment with antidepressants or psychotherapy improves one's overall health and decreases the risk of self-harm (Olfson, Blanco, & Marcus, 2016). Depression increases the risk of self-harm, and primary providers should be able to accurately screen for suicidal risk as well (Viguera et al., 2015). Akincigil and Matthews (2017) reported the percentage of people experiencing symptoms of depression in primary care settings to be up to 8%, and up to 45% of people who died by suicide visited a primary care provider within one month before the suicide.

Depression screening. Screening for depression is an essential step in diagnosing and managing this disorder. There are multiple mental health screening tools available for use in the outpatient setting. These tools include two forms of the Patient Health Questionnaire (PHQ-2 and PHQ-9), the Geriatric Depression Scale, the Edinburg Postnatal Depression Scale for postpartum women, and the Columbia-Suicide Severity Rating Scale (C-SSRS). The optimal time to screen for depression is not well established in the literature. Narayana and Wong (2015) explained that screening would be most beneficial at an early stage or treatable stage of the depression. Therefore, a practical approach, in a primary care practice, would be to screen all adults at their regular wellness visit (Savoy & O'Gurek, 2016).

Question Guiding Inquiry (PICO)

The proposed project site, a primary care clinic in rural North Carolina, currently does not screen patients for depression. The clinic is interested in implementing a depression screening process to improve overall well-being for their patient population.

Population. A primary care provider, certified medical assistant, and a secretary will be responsible for screening patients for depression. The clinic has approximately 2,000 active patients. The clinic's population consists of adults ages 18 years and older, living in the surrounding area. Approximately 75% of their clients are Medicare recipients. Other clients include disabled, Medicaid, private insurance, or self-pay individuals.

Intervention. Before implementation, the staff will be educated on the purpose and procedures for administering the PHQ-9 and C-SSRS screening tools. The secretary will administer the depression screening tool when he/she prepares the patient for a non-acute appointment. The certified medical assistant will collect the PHQ-9 screening tool during her patient check-in process and enter the score into the electronic medical record. The provider will review the screening and calculate the final score. If the total score of the PHQ-9 is 14 or greater or if item 9 number is one or greater, the provider will administer the C-SSRS questionnaire. During the patient assessment, the provider will discuss the screening results and determine, if indicated, an appropriate treatment plan. The provider can then determine resources that will be beneficial to the patient at the time of diagnosis. The secretary will ensure the screening is coded correctly to receive reimbursement from governmental or insurance agencies.

Comparison. The clinic site does not currently use any tool for depression screening. The goal of the project will be to implement screening with 100% of the clinic's established patients at non-episodic appointments.

Outcome(s). Evidence-based screening of patients will take place during a 13-week period. Based on the score of the PHQ-9 and C-SSRS screening, interventions will be implemented for patients exhibiting evidence of depression. The anticipated long-term outcome is to increase early identification of depression in the clinic's established patient population, along with successful treatment interventions for patients experiencing depression.

Summary

Depression has a significant negative impact on affected individuals. It is a debilitating disease that may lead to a financial burden. The World Health Organization and the U.S. Preventative Services Task Force set goals to improve the quality of care for people with depression. Primary care is a direct avenue for achieving these goals. An essential first step is becoming better at detecting depression, then managing the treatment plan. The purpose of this project is to implement a depression screening process on an initial or annual physical exam for all patients age 18 years and older. The goal is to transition the depression screening into the clinic to become standardized care.

Chapter Two: Overview of the Literature

The goal of this project is to implement an evidence-based depression screening tool for recognizing depression in the primary care setting. A review of the literature supports the importance of depression screening and the impact it can have on a patient's plan of care and overall well-being. This chapter will highlight the methods, findings, and conclusions of the literature review.

Literature Appraisal Methodology

Sampling strategies. A literature review performed in PubMed resulted in 413,250 articles related to "depression." When MESH terms were narrowed to "major depressive disorder" and "patient health questionnaire," a total of 131,977 articles emerged. Further narrowing of criteria specific to primary care setting, within five years of publication, and adults 19 years + in age, decreased the number of articles significantly to 2,055. Another search term of "PHQ-9 depression screening" was added to the last MESH and produced 35 peer-reviewed articles published within the past five years.

Another search was performed via the One-Search database. The initial keywords used were "adults and older adults with depression," which yielded 854,328 results. Advanced search with peer-reviewed, last five years, and English language criteria decreased the results to 123,504. Additional keywords of "depression screening" and "implementing depression screening" decreased the results further to 4,262. Adding advanced search terms "process measures," "depression screening instruments," "PHQ-9," "primary care," and "improvement in depression screening" resulted in 83 articles. After combining the two searches, removing duplicate articles, and reviewing abstracts of potentially eligible articles, 32 articles were identified for the literature review (Appendix A).

Evaluation criteria. Inclusion and exclusion criteria were employed for the review process on screening for depression. Articles selected were based in primary care settings in both rural and urban areas, adult population, and evidence surrounding best practices and guidelines for depression screening. The level of evidence from articles reviewed ranged from Level I to Level VII (Appendix B).

Articles excluded in the review were studies done in other countries or tertiary care settings. Exclusion criteria eliminated populations related to pregnant women, adolescents, and children. Other articles excluded were comprised of research focused solely on treatment modalities rather than screening.

Literature Review Findings

Depression is prevalent in both genders, all ages, races, and is among the leading causes of disability in people 15 years and older (Agency for Healthcare Research and Quality [AHRQ], 2019). The World Health Organization reported depression to be the leading cause of disability among women, causing a loss of billions of dollars in productivity and annual medical care costs in the US (AHRQ, 2019). Zivin and Katon (2015) state that depression is a predominant mental condition in primary care clients, especially ones with chronic medical conditions. Depression is common in older adults as well, with approximately 10-15% of geriatric patients having a depressive disorder (Samuels et al., 2015).

Despite effective treatments being available, depression is significantly under-diagnosed (Jiao, Rosen, Bellanger, Belkin, & Muennig, 2017; Pfoh, Mojtabai, Bailey, Weiner, & Dy, 2015). Improving the screening of depression could decrease the burden of the disorder by providing adequate treatment (Jiao et al., 2017). Three common trends supported by the

literature review are that depression screening is underutilized, the PHQ-9 screening tool is effective, and screening is useful only if treatment is readily available to the patient.

Depression screening. The first recurrent finding in the literature review is screening for depression in primary care settings is low. A small percentage of patients with depression are treated in the primary care setting (Kearney, Wray, Dollar, & King, 2015; Olfson et al., 2016; Petrosyan et al., 2017). Pfoh, Mojtabai, Bailey, Weiner, and Dy (2015) performed a cross-sectional study to evaluate depression screening compliance with Medicare beneficiaries aged 65 years and older and discovered screening to be minimal. In the study, Medicare or low-income patients had the smallest percentages for depression screening in the primary care setting (Pfoh et al., 2015).

Routine primary care screening is an integral part of improving diagnosis rates and reducing the overall burden of depression (Jiao et al., 2017; Narayana & Wong, 2015). The USPSTF guidelines were established when agencies targeting the mental health needs of the American population found that screening improves the accuracy of identifying depression in primary care settings (Siu et al., 2016). Rhee et al. (2018) point out that the function of the screening tool is to alert the primary care provider of the possible presence of depression. Thus, should the PHQ-9 screening tool alert the possibility of suicidal thoughts, it is of utmost importance for the provider to screen for this as well. As many as 45% of suicide victims saw a physician within a month preceding their death (Viguera et al., 2015). Screening for both depression and, if needed, suicide risk will enhance approaches to evaluate the condition and improve patient safety (Viguera et al., 2015).

Screening tools. The second recurrent finding in the literature review is that there are many depression screening tools available. The most commonly used is the PHQ-9 because it

has been proven to be high in sensitivity and specificity and cost-effective (Jiao et al., 2017; Mitchell et al., 2016). Jiao et al. (2017) studied the cost-effectiveness of the PHQ-2 and PHQ-9 tools in New York City. In the study, the authors found that using the PHQ2/9 screening with collaborative care was significantly less expensive than most clinical preventative interventions, such as HIV lab tests to screen for high-risk patients. Beard, Hsu, Rifkin, Busch, and Björgvinsson (2016) utilized the PHQ-9 in a large sample of patients, and the tool was found to correlate well with other established tools and considered the PHQ-9 to be a valid screening tool.

The PHQ-9 is the most commonly used screening tool in primary care settings (Mitchell, Yadegarfar, Gill, & Stubbs, 2016) (Appendix C). The authors performed a meta-analysis to determine the validity of the PHQ-9 tool. Overall, their results, along with other meta-analyses, confirmed high sensitivity and specificity for the PHQ-9 screening tool (Mitchell et al., 2016; Narayana & Wong, 2015). The PHQ-9 is a self-assessed questionnaire tool that screens for and measures depression severity (Barnacle, Strand, Werremeyer, Maack, & Petry, 2016). This reliable screening tool is popular due to its ease of patient completion, ease of provider interpretation, and free availability to providers. The PHQ-9 has been used across different medical populations, in multiple countries, and is available in various languages (Beard, Hsu, Rifkin, Busch, & Björgvinsson, 2016). Item 9 of the PHQ questionnaire assesses the presence of recent thoughts of death and self-harm.

The C-SSRS is a screening tool designed to assess suicidal ideation (Appendix D). This tool is also a quick questionnaire, evidence-supported, appropriate for all ages, and is available to the provider free of charge (The Columbia Lighthouse Project, 2016). It measures whether potential suicide risk is present and has separate assessments for suicidal thoughts and behaviors. A limitation with this tool is associated with differences in the consistency in ratings by

providers. Nonetheless, the Food and Drug Administration has recommended this tool to be used in suicidal risk clinical trials (Viguera et al., 2015). The Columbia Lighthouse Project (2016) endorses the C-SSRS as a validated tool for the primary care setting after the PHQ-9 has warranted further assessment.

Viguera et al. (2015) performed a retrospective analysis of PHQ-9 and C-SSRS data over four months and found both the screening tools identified suicidal risk with high sensitivity. However, when compared to clinical assessments, the researchers found the specificity of the C-SSRS to be higher than item 9 of the PHQ-9. The researchers recommend using a more efficient 2-step process when screening for suicide risk. They suggest administering the C-SSRS only if item 9 on the PHQ-9 is one or greater, or if the provider's assessment warrants a suicidal risk potential. This 2-step approach will decrease the false-positives of suicide risk and decrease the service demands for follow-up (Viguera et al., 2015).

Resource availability. A third recurrent finding in the literature review is that screening is useful only if there are resources readily available for the patient with a depression screening positive for symptoms (Deneke et al., 2015; Jiao et al., 2017; Viguera et al., 2015; Zivin & Katon, 2015). Resources that can be utilized, if available, to treat patients with depression include pharmacological and nonpharmacological interventions via collaborative care. Collaborative care, defined by Deneke et al. (2015), is having systems in place to facilitate patient support and treatment. For example, support staff to help with patient education, adjusting treatment plans, follow-up conversations, serving as a link between the primary care setting and the mental health setting as needed. Collaborative care is cost-effective for long-term care of depression (Deneke et al., 2015).

Provider training. Providers are the gateway to improving the detection and diagnosis of depression in the primary care setting. Sikorski, Luppa, Konig, Bussche, and Riedel-Heller (2012) performed a systematic literature review of studies providing training to providers in sustaining an implemented generalized intervention. In their research, only providing education to the provider found no change in symptoms or improvement in treatment. By introducing additional guidelines, such as an algorithm, and more complex interventions, such as collaborative care, showed a significant change in the health outcomes of patients. The researchers concluded that providing guideline implementation with provider training enhances care for depression in the primary care setting. At the target site, the provider will be educated on the PHQ-9 diagnostic algorithm, which will notify the provider of the severity of the depression and proposed treatment actions (Pfizer, Inc., 2017).

Limitations of the Literature Review Process

Some limitations emerged during the literature review process. Most of the research was conducted in fields other than nursing. There is minimal research on the optimal timing of performing the depression screening. The effect of depression-imposed cost on an individual was rarely addressed. Finally, research on depression screening for older adults is not prevalent.

Discussion

Conclusion of finding. The current literature identifies depression as a significant public health problem. It causes suffering, decreased quality of life, disability, financial burdens, and may lead to more serious ramifications, such as self-harm (Akincigil & Matthew, 2017; Deneke et al., 2015; Meyers et al., 2014). Depression impacts others close to the affected person and can increase public economic burdens (Jiao et al., 2017). Though it is a prevalent mental disorder in the US, it is often under-detected and undertreated in primary care. (Kearnery et al., 2015).

Depression screening in primary care settings can increase the detection of depression in the general population. Agencies such as the World Health Organization, Healthy People 2020, and the U.S. Preventative Services Task Force have recognized the need to improve mental health and recommend improving depression screening rates. All patients in the primary care setting should be screened at least annually and, for patients identified with depression, during follow-up appointments to assess treatment progress (Akincigil & Matthew, 2017; Meyers et al., 2014).

Literature supports that implementing and sustaining a depression screening process is vital to improve the care of depressed patients (Smithson & Pignone, 2017). When screening tools are used with resources for the management of the illness, patient outcomes improve significantly (Smithson & Pignone, 2017). Collaborative care has been shown to enhance the patient's overall well-being (Jiao et al., 2017; Kwan, Chadha, Hamer, Spagnolo, & Kee, 2017; Zivin & Katon, 2015). Implementing PHQ-9 depression screening at the project site will be vital to improving the detection, diagnosis, and treatment of depression in the clinic's population.

Educating and training providers to implement a specific tool is crucial to implementing the screening process (Sikorski et al., 2012). Providing a guideline to adhere to may provide enhanced sustainability for depression screening at the project site.

Advantages and disadvantages of findings. There are advantages to implementing depression screening in identifying patients with depression symptoms that may otherwise go undetected. Screening will improve the rates of depression diagnosis and may eventually reduce the burden of depression on an individual (Meyers et al., 2014). The PHQ-9 has been proven to be a reliable, validated tool in screening for depression. The PHQ-9 and C-SSRS screening tools are valuable for the provider to be able to evaluate the mental state of his/her patient. The

identification of depression allows the patient to receive the advantages of treatment for the depression.

A disadvantage of implementing the PHQ-9 screening tool is that the patients will be self-reporting the results before seeing the provider. Based on the score, the provider will initiate a discussion during the patient exam. Doing so may increase the chance of under-diagnosis or misdiagnosis, which may lead to inappropriate pharmacological and psychiatric services (Rhee et al., 2018).

Other disadvantages may be secondary consequences for staff or patients. An increase in workload for the staff members of the clinic and increased provider-patient examinations may be viewed negatively by staff. Another possibility is that patients may be sensitive to the stigma related to depression and thus not want to participate in screening or answer the questionnaire honestly (Rhee et al., 2018).

Utilization of findings in the practice change. Early identification of patients with depression via PHQ-9 screening and C-SSRS in a rural primary care clinic can influence the patient population's overall well-being. Staff will be educated on the importance of depression screening, how to administer the PHQ-9, calculate the PHQ-9 score, and when to administer the C-SSRS. The provider will be educated on the diagnostic algorithm for the PHQ-9 (Pfizer, Inc., 2017). All patients, age 18 and higher, will be screened at annual non-acute scheduled exams. Providers will need to plan for extra exam time allotted for depression screening and treatment counseling. If the PHQ-9 score is 14 or higher or item number 9 score is one or greater, the C-SSRS will be administered. Ongoing follow-up will be utilized to monitor the patient's progress. PHQ-9 screening will be administered again on a patient at a follow-up exam to measure

outcome improvement. Implementing this stepwise care approach is critical to a successful integration process (Kearney et al., 2015).

Summary

The Healthy People 2020 objectives for mental health and mental health disorders are to reduce the percentage of adults aged 18 and older, with depression, increase the proportion of adults that receive treatment, and increase depression screening in primary care settings. Identifying depression with valid screening tools will allow for patients to have access to treatment, assess the quality of treatment, and increase their quality of life. Implementing the PHQ-9 depression screening will allow the clinic to help achieve the goals set by the Office of Disease Prevention and Health Promotion.

Chapter Three: Theory and Concept Model for Evidence-based Practice

The goal of this project is to design and implement a protocol for depression screening in a primary care clinic. The key concepts embedded throughout the project are depression, standard screening, primary care, and the desired project outcomes. The design of the project is guided by two frameworks: Lewin's Change Theory and the Plan-Do-Study-Act Cycle. Chapter three will define and discuss these four concepts and the two frameworks.

Concept Analysis

Depression. Depression can range from a mood occasionally experienced by an individual to a medically diagnosed, persistent condition. Any person can experience symptoms of depression, such as generalized discontent, loss of interest, or sadness resulting in a depressed mood. Having a depressed mood from time to time is ordinary and unremarkable. When the symptoms are persistent, generally lasting greater than two weeks, they are indicative of a disorder (Malhi & Mann, 2018). The onset of depression is typically gradual, and its course throughout one's life varies in an episodic series of ups and downs. Best described by Malhi and Mann (2018), depression is a lifelong cycle of feel-well periods interrupted by recurrent depressive episodes.

A medical diagnosis of depression is based on the number of symptoms that indicate a dysfunction or impairment that lasts longer than two weeks at a time (Malhi & Mann, 2018). Some symptoms are highly correlated with medical depression, such as an inability to experience pleasure from a previously enjoyable activity, feelings of worthlessness and guilt, fatigue, and suicidal ideation, plan or attempt. The Diagnostic and Statistical Manual of Mental Disorders (DSM)-5 states major depression is indicated by the exhibition of at least five of their identified

symptoms nearly every day during the same 2-week time frame (Malhi & Mann, 2018). A high number of severe symptoms increases the risk of functional impairment (Malhi & Mann, 2018).

Standardized screening. Detecting depression can be difficult because of its many different forms of manifestation. As providers increase their awareness and diagnosis of depression, their ability to implement plans will also increase (Malhi & Mann, 2018). Utilizing a standard screening tool can assist a care provider in distinguishing both the existence and severity of symptoms. The PHQ-9 is a popular tool in the primary care setting and can guide clinicians in the detection and severity of the depression.

The PHQ-9 consists of a nine-item, self-administered questionnaire that includes four possible responses for each item. According to Pfizer, Inc. (2017) PHQ Instruction manual, to calculate the scores, patient responses of "not at all," "several days," "more than half the days," and "nearly every day," are assigned scores of 0, 1, 2, 3 respectively. The PHQ-9 total score can range from 0 to 27, with benchmark scores of 5, 10, 15, and 20 representing severity cut-points for mild, moderate, moderately severe, and severe depression, respectively.

The instruction manual provides additional clinical considerations that may affect the provider's diagnosis and management of depression. Providers must assess the whole situation during the examination and use clinical judgment rather than relying solely on the PHQ-9 score (Malhi & Mann, 2018). For example, the manual suggests considering if current symptoms are triggered by stressors, how long symptoms have been present, has treatment already been provided, and is there any patient history or family history of similar conditions.

The manual further defines an algorithm for proposed treatment plans based on the severity of the total PHQ-9 score. A score 0 to 4 indicates none to minimal depression severity and requires no treatment actions. Mild depression, score 5 to 9, suggest watchful waiting and

repeat PHQ-9 at the next follow-up visit. A score of 10 to 14 is categorized as moderate depression and counseling, follow-up, and pharmacotherapy should be considered. Moderately severe has a score of 15 to 19, and active treatment is advised with pharmacotherapy and psychotherapy. A score of 20 to 27 is considered severe depression, and immediate pharmacotherapy is suggested. If the provider perceives severe impairment, he/she should quickly facilitate a referral to a mental health specialist and collaborative management.

The C-SSRS is a screening tool that assesses a person's suicide risk, suicide ideation, suicidal planning in progress, and any attempt toward self-harm. If a patient's response is a one or greater on item number 9 on the PHQ-9 tool, or the total score is 14 or greater, the C-SSRS should be given to assess suicide risk.

Primary care. Primary care is provided in an outpatient healthcare facility that offers internal medicine care for clients. Primary care includes health promotion, disease prevention, diagnosis and treatment of acute/chronic illnesses, patient education, and health maintenance (American Academy of Family Physicians, 2019).

Project Outcome. The outcome of the project is an implementation of depression screening at a primary care site. Weekly reviews will be conducted to evaluate the process toward improvement and modifications in the implementation plan will occur as the project unfolds. The outcome is to have 100% of non-acute patients screened for depression.

Theoretical Framework

Naming the theory. Changing people's behavior is difficult and sustaining the change over time can be a challenge. The extent to which staff and patients at the target site implement new screening procedures and embrace associated change will depend on the ability of the project implementation process to alter the environment and culture in which the individual

function. Anticipating the difficulty of change and understanding the change process, in general, will help guide planning for the successful implementation of depression screening.

Utilizing Kurt Lewin's Change Theory as a basis for designing the DNP project will help guide the implementation of the screening process. Lewin's theory has set standards for many organizational change management programs (Butts & Rich, 2017). Lewin was a behavioral scientist who developed his model for change in the 1940s and is still in use today (Butts & Rich, 2017). His model for changing human behavior utilizes a three-step process of change known as unfreeze-change-refreeze.

Lewin described change as a driving force within an organization that is opposed by participants toward the change (Butts & Rich, 2017). It was essential to understand the process of change in order to get people's support during each stage of change. The change model can best be described by using the analogy of changing the shape of ice from a cube to a cone (MindTools, 2019). Wanting to change the shape of the ice from a cube to a cone, one would need to unfreeze the ice cube converting it to water, thus eliminating the previous shape while preserving the original elements. Then one freezes the water into a new shape, utilizing the original elements but altering the shape. (Figure 1)

Figure 1. Lewin's Change Management Model (MindTools, 2019)

Applying this model to changing an organization's practice, the first stage of the model is to "unfreeze" the original piece. Unfreezing includes preparing the organization to accept that

the change is needed. It will be important to have a powerful message to explain, in advance, why the change is necessary (MindTools, 2019). The second stage of applying the model is "change," or reshaping the original elements from the old shape to the new shape. Change is when people will begin to accept the absence of the original state of being and start participating in re-assembling the existing elements into a new form and support the new intervention. The last stage is "refreeze," or the solidification of the new shape of elements, or the institutionalization of change. To bring closure to this stage, people must have internalized the transition and made the new way of things part of their culture. When this state is solidified, participants will feel comfortable with the new ways of working, and the change will become sustainable in practice (MindTools, 2019).

Application to practice change. Lewin's Change Theory has been utilized to format the DNP project and to guide the transition from a state of no depression screening to incorporating a screening process. When the topic of depression was discussed initially with staff, it was discovered that no screening was provided. The first step was to identify a project champion, who is also the clinic's physician, and to receive site approval for planning and to implement a standardized depression screening process (thawing the cube). The remainder of the clinic staff, the certified medical assistant and secretary, were then engaged in the initial introduction and explanation of the use of a depression screening tool (working with the existing elements to create a new shape). This was the beginning of establishing the need and shaping changes the DNP project would bring to clinic operations. The next reshaping step will include staff education on the PHQ-9 and C-SSRS screening tools and the provider education on the PHQ-9 treatment algorithm. Administering the tools, evaluating the process based on the results, and formulating a treatment plan for identified patients will be the next steps in the change process

(refreezing the water). The project goal will be accomplished when the staff incorporates the screening tools into everyday workflow.

EBP Change Theory

Naming the change model. Lewin's Change Theory provided a context in which to shape the DNP project. The Plan-Do-Study-Act (PDSA) change model will help guide clinical decision-making during the implementation of the project's intervention. The PDSA model aids in evaluating and making mid-course adjustments based on a small test of change. This model allows one to test a concept, evaluate the change, improve it, and then test again. Coury et al. (2017) acknowledged that the PDSA model is often used in the health care setting to improve the quality of patient care.

The Institute of Healthcare Improvement (2019) recommends using the PDSA for a quick, small test of change. Keeping the test on a small scale will allow the evaluator to adjust the process throughout the test. Calderwood, Mahoney, and Jacobson (2015) used the PDSA model to improve bowel preparation for colonoscopy procedures. The researchers performed several rapid PDSA cycles over one year. They found a progressive improvement in percentages of bowel preparation after adjusting PDSA cycles throughout the year.

The PDSA cycle can be illustrated as a circle comprised of four quadrants. (Figure 2) Each quadrant represents a step in the cycle, beginning with the upper right quadrant and progressing in a clockwise direction. The "plan" quadrant involves determining and defining the change that will take place in the practice setting. Benchmark data from other sources will facilitate setting outcome goals and comparing the project's performance against goals. It is best if the method of measuring outcomes and determining the degree of change is objective and easy to evaluate (Morelli, 2016). The change implementation process needs to be outlined,

responsibilities delegated appropriately, and one person in charge of overseeing the process (Morelli, 2016). The "do" quadrant involves implementing the intervention plan. Collecting data will be part of this step as well. The "study" quadrant involves determining the degree to which the intervention was successful by comparing performance data with predictions and target goals. If desired results are not achieved, then adjustments are needed, and the "act" quadrants involve identifying needed adjustments and moving back to the "plan" quadrant to construct modifications that will facilitate improved movement toward desired outcomes. The cycle is repeated until satisfactory outcomes are achieved.

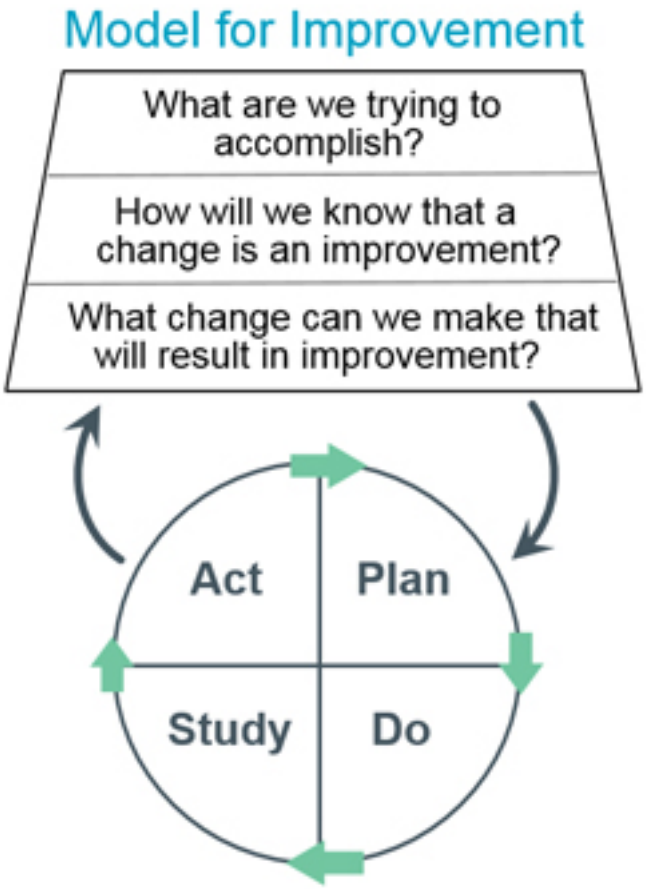

Figure 2. Model of Improvement (Institute for Healthcare Improvement, 2019)

Application to practice change. Planning for the DNP project began with assessing the need for depression screening at the target site. Discussion with the project champion and office

staff illuminated an absence of depression screening and a need to implement a screening tool. Educating staff on the incidence rates of depression and the negative consequences of untreated depression helped prepare and motivate them for future change. The project goal is 100% administration of the screening tool for all non-acute patient visits. Weekly data collection will occur over a 13-week implementation period. A review of weekly data will determine if any adjustments are needed in the intervention to achieve a higher success rate. If adjustments are indicated, necessary changes will be instituted with the continued weekly evaluation of the process.

Summary

Theories and models emerging from research have historically been instrumental in the evolution of the nursing practice. Research and its associated application to change in practice have provided a foundation for improving clinical practice and decision-making. Adhering to a theoretical framework keeps the change initiative focused, and a change model keeps a change initiative organized. Organizational and institutional change is difficult and can only be successful when skillfully planned with a keen focus on stakeholders' buy-in and individuals whose behavior needs to change.

Lewin's Change Model is a simple and straightforward framework to manage change. Recognizing the three distinct stages of change, unfreeze-change-refreeze, will enhance change through communication and allow people to embrace the new ways of working. To ensure the change is developed systematically, the PDSA method will help to improve the change process and will be essential to conclude the intervention's effectiveness.

Chapter Four: Pre-implementation Plan

This chapter will describe the purpose of this project, how it will be implemented, data collection tools that will be used, and how to evaluate if the process has made improvement. The ethical aspects of project implementation and financial analysis in the feasibility of the project will be described.

Project Purpose

The purpose of this project is to implement a depression screening process in a primary care practice. The PHQ-9 depression screening tool was used for diagnosing, monitoring, and evaluating the severity of depression. Additionally, the C-SSRS questionnaire will be given to assess suicide risk in patients who answer positively to item number nine on the PHQ-9, or if the total score is higher than 14. The provider assessed the patient and determined the best treatment plan based on his/her assessment and findings.

Project Management

Organizational readiness for change. The organization's provider, who is also the owner, was approached regarding implementing a standardized process in depression screening when it was identified that screening was not currently being done. The provider verbalized that there was a need present for the patient population and agreed to support the implementation of the project at the primary care site and serve as project champion. The project leader discussed the implementation of a depression screening process with the certified medical assistant (CMA) and secretary. All three participants were interested in learning about the PHQ-9 screening tool and receptive to participating in implementing a screening process.

Interprofessional collaboration. Initiating discussion of the screening tool process with all three participants helped to improve implementation coordination and communication. The

secretary and CMA described a typical workday, and through discussion, a decision on when to administer the PHQ-9 screening tool was decided. Obtaining the participants' input and buy-in is vital for the implementation of the screening tools to be successful and sustainable.

As the patient approaches the front desk to check-in for his/her scheduled appointment, the secretary requested the patient to fill out the PHQ-9 screening tool while waiting to be seen. The secretary will verbally explain the purpose of the screening and steps on how to answer the questions. Patients were assessed by the secretary on the need for a translated version of the questionnaire or if assistance was needed to complete the form.

The certified medical assistant ensured the screening was fully completed and calculated the total score. The CMA recorded the score in the patient's electronic chart and informed the provider of the patient's score. The score will also be recorded on a data collection tool by the medical assistant for use in evaluating the project process toward improvement.

The provider was responsible for interpreting the PHQ-9 scores and administering the C-SSRS as needed. The best plan of care was based on the screening score(s) and the provider's assessment of the patient.

Risk management assessment. A SWOT analysis was used to identify the organization's strengths and weaknesses, as well as external opportunities and threats. It is crucial to identify potential problems in order to plan interventions to mitigate adverse effects on achieving a goal.

Strengths. A strength is that this is a small organization, and the staff has a well-established rapport with their clients. With a minimal number of staff members, the possibility of consistency in the administration of the screening will be increased. The provider and staff

have the willingness to participate in the project and feel it will be beneficial for their patient population.

Weaknesses. A potential weakness is that the increased patient appointment allotment may be perceived as cumbersome to the provider and staff. Increased appointment allotment may cause an increase in wait time for patients in the lobby or may decrease the total amount of patients seen per day. There will be additional charting for both the medical assistant and the provider related to screening, diagnosis, and plan of care. The secretary may perceive an increased workload when the patient checks-in with the additional task of asking the patient to complete a PHQ-9 screening.

Opportunities. A unique quality of this organization was that it is in a rural location, which enables the opportunity to screen for depression in an underserved area. The patient population may feel an increase in thoughtfulness and compassion from the clinic by the opportunity of being screened for depression. Providing an environment for mental health consideration and support may increase patient willingness to seek help for depression.

Threats. However, a potential threat is the lack of local resources for patients needing additional psychological counseling. The closest psychological counseling centers are approximately 20 to 30 miles away from the clinic's area. Patients may not have the means of transportation to attend referral appointments. Patient's paying out of pocket may perceive there to be an added cost of the screening to be burdensome and request not to take the screening(s).

Organizational approval process. During the spring semester, the project leader had a geriatric clinical rotation located at a rural clinic as a nurse practitioner student. A few patients were observed to have depression and needed additional treatment, such as pharmacological or psychological assistance. Depression screening was not a standard process in the organization,

and the project leader approached the physician about starting a quality improvement project to change the current practice. The provider was interested and willing to serve as a project champion for the project. As the owner of the clinic, the physician provided an organizational approval letter to support the implementation of a depression screening project at the site (Appendix E).

Information technology. The organization uses Amazing Charts, LLC as their Electronic Health Record (EHR). Amazing Charts, LLC is a subsidiary of Pri-Med (Amazing Charts, 2019). Amazing Charts EHR system is designed for small practices in need of an easy and affordable electronic health system. The CMA will chart the score of the PHQ-9 in each individual's electronic chart. The physician will write a note regarding his interpretation of the screening tool(s) and plan of care. The data collected during the project implementation will be entered into an Excel worksheet for data analysis. Graphs displaying demographic information and project progress will be created using an Excel program.

Cost Analysis of Materials Needed for Project

For this project, the estimated cost is relatively low. The PHQ-9 and C-SSRS are free for providers to use in their practice. Printing of the screening tools for patients to complete is estimated at approximately $7.50 (one pack of letter-size print paper of 500 sheets). Educating the staff will occur during a weekday morning prior to patients being seen. This educational plan strategy creates cost savings by allowing staff to attend during a regularly scheduled day eliminating the need for additional work time for extra training. Approximately $30 for food will be provided during the training session (Appendix F).

Plans for Institutional Review Board Approval

The project site does not have a formal Institutional Review Board (IRB) process for project approval. Therefore, the University IRB verification process was completed. The first step was completing the IRB Quality Improvement/Program Evaluation Self-Certification Tool. After obtaining approval from the Faculty Lead, the tool was submitted on-line. The project was deemed quality improvement, and immediate response was received, stating that no further IRB was required (Appendix G).

Plan for Project Evaluation

Demographics. Staff at the primary clinic consist of a physician, secretary, and certified medical assistant. All non-acute patients will be screened for depression by the clinic staff. Patient demographic data to be collected will include gender, race, and age.

Outcome measurement. The first project outcome is to evaluate staff adherence in administering the PHQ-9 depression screening tool for non-acute patient visits, calculate the score, and record the score. A second project outcome is to have the provider administer the C-SSRS screening tool, based on the total PHQ-9 score or if item nine is greater than zero, and record the C-SSRS score. The third outcome is to have all non-acute patients complete the PHQ-9 depression screening tool at the primary care clinic.

Evaluation tool. The PHQ-9 Daily Depression Screening Data Collection Tool (Appendix H) will be jointly completed by the secretary and the certified medical assistant each day. Data elements to be documented include a patient's gender, race, age, if the patient was seen as non-acute or acute, PHQ-9 score for non-acute visits, and C-SSRS score if administered.

The project leader will utilize the Weekly Staff Compliance Data Tool (Appendix I) to compile data from the PHQ-9 Daily Depression Screening Data Collection Tool, for all patient

visits each week. Weekly data to be collected will include: the number of patients seen, the number of non-acute patient visits, the number of PHQ-9 screenings completed, the number of screenings not completed, and the reason. Additional data collected will include the number of total PHQ-9 screenings by score intervals and the number of C-SSRS questionnaires administered.

Data analysis. Data will be evaluated weekly in reviewing percentages and frequencies in the number of patients screened for depression. The data from the daily collection tool information will be entered into an excel spreadsheet weekly, analyzed, and displayed in graphs. If there is a negative trend or indications of poor adherence in administering the depression screening tool, the project leader will adjust using the PDSA review cycle process. Additionally, C-SSRS questionnaire utilization will be tracked and trended every week. There are no existing organization benchmarks; however, the goal is to have 100% administration of the depression screening tool to all non-acute patients and administration of the C-SSRS questionnaire when indicated.

Data management. No personal health information or personal patient identifiers will be collected for the project. The PHQ-9 Daily Depression Screening Data Collection Tool for the medical assistant use will be hard copy to provide a smooth daily workflow. The tool sheets will be kept in a locked drawer and completed without patients present. Each week, the project leader will visit the site, collect and review the daily sheets, and clarify any concerns with the certified medical assistant. Once reviewed, the data will be entered into an Excel program for data analysis. Only the clinic staff and the project leader will have access to completed data collection tools. The hard copy and digital data will be retained until the DNP project is completed. Hard copies of the data tools will be kept in a locked drawer in a locked office at the

project site. The Excel document will be stored on a password-protected computer in a locked office. After the project, hard copies of the data tools will be shredded, and electronic data files will be deleted.

Summary

The purpose of this project is to implement a standardized depression screening process using the PHQ-9 and C-SSRS screening tools in a clinic setting. Organizational readiness was assessed in collaboration with the clinic provider and staff. A SWOT analysis identified strengths, weaknesses, opportunities, and threats, and the project received organizational site approval. A cost analysis revealed minimal cost to the site and outweighed the potential risks identified.

Staff will be asked to complete a data collection tool to track the number of patients screened and the results of the screening. Weekly reviews will be conducted to evaluate the project process and outcomes.

Chapter Five: Implementation Process

Chapter Five describes the project setting, participants, implementation plan, and any variations in the plan. The implementation plans include discussion on how participants were identified and recruited, actual implementation, and concludes with a discussion of how, and to what extent, actual implementation varied from planned implementation.

Setting

The project took place in a rural private Internal Medicine practice. The practice is located in a town with a total population of approximately 1,000 residents, situated in a predominantly agricultural area. The clinic's service area includes patients residing in surrounding small towns and rural areas as much as 30 miles away from the clinic. The clinic's patient population consists of adults ages 18 and older, with the majority of the clients having multiple chronic conditions. Common examples of health conditions treated at the clinic are hypertension, adult-onset diabetes, chronic obstructive pulmonary disease, thyroid disease, hypercholesterolemia, and obesity. The clinic is funded almost exclusively through insurance reimbursements. The clinic and its staff members are devoted to improving overall care for the residents of this rural area.

Participants

Participants in the project included all three staff members at the primary care clinic. The first participant was a physician, the owner of and sole provider in the clinic. The physician has been practicing medicine for 25 years and has been operating the clinic for 16 years. The second participant was a certified medical assistant (CMA). The CMA checks the vital signs, updates the electronic patient chart with data on the purpose of the visit, medication list, and allergies. The CMA also performs any procedures that are needed, such as lab draws or urinalysis. The

third participant was the secretary. The secretary checks the patients in upon their arrival, updates sections in the chart regarding insurance and personal contact information, checks the patient out upon completion of the visit, calls referrals as ordered, and schedules future appointments. These three individual participants constituted the entire staff of the clinic. Consequently, no staff was excluded from participation in the project.

Recruitment

The project leader approached the clinic provider regarding implementing a depression screening process. Discussions between the provider and project leader established a need for depression screening, the value of using the PHQ-9 screening tool, and the role of the follow-up C-SSRS questionnaire depending on the PHQ-9 results. Next, the project leader discussed implementing a PHQ-9 depression screening process with the CMA. The secretary was then approached and contributed significant information regarding the coding process for insurance reimbursement for depression screening. The secretary was amenable to participating in distributing the PHQ-9 screening tool when patients check-in for their non-acute visit.

The three participants expressed a commitment to participating in the project. Potential difficulties that may emerge once project implementation begins were increased staff workload relative to new paperwork for patients, increased paperwork for the staff, and increased patient appointment time allotment.

Implementation Process

Planned implementation began with ordering, duplicating, and having available for staff the PHQ-9 screening tool and the C-SSRS questionnaire. Scripts were constructed to assist the secretary and the CMA in explaining the screening process to patients (see Appendix J). The project leader created data collection tools, both digital and a paper copy, to be utilized by both

the clinic staff and the project leader as the project unfolded. Also, the project leader, in collaboration with the project champion, established a date for the beginning of patient screening and the completion date for data collection by the staff.

The next step in project implementation was education for the provider, CMA, and secretary. Education for the provider included an overview of the project's purpose, scoring, and interpretation of the PHQ-9 and C-SSRS questionnaires. The focus of the education included preparing staff for the potential of allotting increase patient time for patient education on depression and suicide prevention. The physician was instructed on where to document the results and interventions completed in the EHR.

The CMA was educated on how to calculate the PHQ-9 score, identify an at-risk score, and how to ensure the provider administers the C-SSRS during the patient-provider visit. Education included where the CMA will document the screening scores in the EHR. A script was provided to the CMA as guidance for any patient questions or concerns regarding the depression screening tool.

The secretary was educated to assure that each patient is given a PHQ-9 screening tool for all non-acute patient visits. A script, for guidance, was provided to the secretary for patients who were checking in for the non-acute visit. The secretary was reminded of the responsibility of coding for the screening tool in the electronic chart. The project leader conducted training sessions with the secretary and the CMA regarding the data collection tool to evaluate the project.

As the depression screening tool was implemented into practice, the daily data collection tool provided raw data for the project leader to enter weekly into a project Excel spreadsheet to track and trend the project progress. This procedure was part of the Plan-Do-Study-Act cycle. It

was designed to identify as early as possible needed corrections in project implementation as well as to provide data to evaluate project outcomes. Weekly follow-up with staff occurred. As an intervention was needed to be changed or added, the project leader communicated with staff on the needed changes.

The success of the project was determined by the extent to which the two project goals were met. The goals were to have 100% administration of the PHQ-9 screening tool to all patients undertaking a non-acute visit to the clinic and to have 100% administration of the C-SSRS questionnaire when indicated by the PHQ-9 screening tool score.

Plan Variation

There were five PDSA worksheets completed throughout the project implementation phase, approximately two weeks apart. At the beginning of the project, staff compliance with administering the tool was less than 65% and did not overtly improve as predicted. During the PDSA cycle reviews, barriers to compliance were explored. The original plan for the depression screening process did change due to staff preference. The secretary voiced concern with having to explain and give out the PHQ-9 screening tool during patient check-in because of the multiple tasks that needed attention. A meeting was held with all staff members, it was agreed that if the CMA asked the questions, the patients would be more willing to participate. The staff believed most of the patient population would either refuse to take the screen or would be unable to complete the screening due to illiteracy. The new plan consisted of the CMA verbally asking the PHQ-9 questions during the visit work-up for the scheduled appointment. There was an increase in staff compliance giving the depression screening tool during non-acute visits after the staff changed the process.

Another barrier revealed during project implementation was the CMA's anxiety in giving the PHQ-9 screening tool. Re-education of the purpose of the screening, using the script provided, and providing role-playing for her to practice asking questions increased her compliance with giving the screening tool.

Summary

The need for depression screening was identified, and the project champion agreed to support the implementation of the PHQ-9 tool during non-acute visits. In order to obtain support from staff and implement the change process, education, a process plan, and script were provided. The implementation process was evaluated approximately every two weeks using the PDSA worksheet, and decisions were made to abandon or adopt new process procedures. Staff compliance increased with changes in process based on feedback provided and adapting to meet the identified staff needs.

Chapter Six: Evaluation of the Practice Change Initiative

It is not sufficient to simply report the details of planning the project, implementing the change, and gathering outcome data. This information must also be analyzed in the context of project outcomes and goals. Chapter Six will present the results of the PDSA cycles, areas of project successes, and areas where improvement is needed, all in the framework of project outcomes and goals. Information regarding the demographics of the project participants and patient population will also be included.

Participant Demographics

All patients who were seen at the clinic during the project period were 18 years of age and older. During the 13-week implementation period, a total of 352 patients were seen for non-acute reasons. Of the 352 patients, 87% (312) completed the PHQ-9 depression screening tool. Of the 312 patients that completed the screening tool, 143 were females (45.8%) with an average age of 61.7 years. The average age for the 169 males (54.2%) was 60.33 years. The ethnicity of the aforementioned patients was 68% (212) white, 31% (96) African American, and 1% (4) other, such as Portuguese and Native American.

Intended Outcome(s)

The desired outcome for this project was to introduce a depression screening process into this clinic's standard operating procedure. The short-term goal was to change the process of checking in patients for an appointment and include a standard screening tool for identifying patient depression. The intermediate goals were to give the provider an indication whether or not the patient is actively depressed and afford the provider an opportunity to address suspected depression during a non-acute appointment. The long-term goals are to have the provider

integrate the PHQ-9 screening tool as a standard diagnostic procedure, treat identified patient depression, and assess if treatment is effective.

Findings

Of the 312 patients who completed the PHQ-9 screening tool, 96% (299) scored 0-4 on the PHQ-9 screening, and 4% (13) received a score between 5-9. These score ranges are significant in that a score of 0-4 indicates minimal depression, and quarterly monitoring is suggested. A score of 5-9 indicates mild depression, in which the use of the provider's judgement in appropriate treatment with quarterly monitoring is recommended. To further delineate the PHQ-9 scores, 46% (144) scored a zero, 18% (57) scored a one, 15% (48) scored a two, 9% (29) scored a three, 6% (20) scored a four, 3% (8) scored a five. Of the patients, three scored a six, two scored an eight, and one scored a nine. The medical assistant calculated the PHQ-9 score for each patient, entered the score into the chart, and informed the physician of the score. The physician evaluated the score and adjusted his patient assessments according to the score. There were no patients that met the criteria for the follow-up C-SSRS questionnaire to be given.

Overall, there was a steady progression towards the ultimate goal of 100% compliance in administering the screening tool (Appendix K). Week 6 revealed a drop in the rate of compliance to 83%. Upon further investigation, during a PSDA cycle, causative obstacles were identified. The secretary was overwhelmed with multiple tasks and did not want to give out the screening tool upon patient check-in. As a corrective measure, the medical assistant agreed to start giving the screening tool during her workup for the patient visit. After that change was implemented, improvement resumed but still did not achieve 100% as expected. During another PDSA cycle, it was determined that the medical assistant felt the patients did not read the

questionnaire, either by choice or due to illiteracy. As a corrective measure, the medical assistant started reading the questions to the patients and clarifying the responses as needed. Based on that change, 100% compliance was achieved during weeks 10 and 12. The provider was able to address depression issues with all patients whose PHQ-9 screening tool scores indicated potential depression symptoms.

Summary

The depression screening procedure was introduced and implemented as part of patient check-in procedures at the clinic. Biweekly PDSA cycles were conducted to assess the progress of the project implementation. Based on data and feedback derived from the PDSA cycles, procedural changes were implemented, and outcomes improved. The project's goal of reaching 100% weekly compliance in administering the PHQ-9 depression survey was achieved twice during the later weeks of the 13-week project implementation process. The majority of the patients scored a zero on the PHQ-9 questionnaire. The physician was provided an opportunity to further assess potential depression with each patient whose PHQ-9 questionnaire score was sufficiently high. Finally, no patients met criteria for the provider to administer the C-SSRS questionnaire.

Chapter Seven: Implications for Nursing Practice

The American Association of Colleges of Nursing (AACN) describes the Doctor of Nursing Practice (DNP) as a practice-focused terminal degree (2006). DNP graduates are innovative clinicians who lead by applying evidence-based practice to improve patient health outcomes (Edwards, Coddington, Erler, & Kirkpatrick, 2018). Eight core DNP essentials create the foundational competencies to be mastered by all graduates to prepare them for their advanced nursing practice roles (AACN, 2006). These eight essentials have guided this quality improvement (QI) project, the goal of which has been to implement a depression screening process in a primary care clinic. Chapter Seven will define each of these eight essentials and explain how it applies to this QI project.

Essential I: Scientific underpinnings for practice. The first essential describes the scientific foundations, or the knowledge base, for advanced nursing practice. Advance nurse practitioners need to be able to confront current and future issues that affect healthcare. This requires a firm scientific foundation (AACN, 2006). Scientific underpinning includes integrating nursing science with knowledge from both natural and social sciences, including biology, physiology, psychology, and ethics (AACN, 2006). Theories and development of mid-range theories to guide and enhance health care delivery are also scientific underpinnings for advance nursing practice (Chism, 2013).

Scientific underpinnings of this QI project include an extensive literature review and additional research on depression screening in the primary care setting. The Change Theory, by Kurt Lewin, guided the structure of this QI project. This theory states that in order for change to be successfully implemented, people involved need to be prepared and educated on the importance of the change desired. The research supported the development of the project by

showing depression to be a public health issue that is often under-diagnosed and under-treated in the primary care setting. Research provided evidence that screening tools are sensitive and cost-effective methods of evaluating depression in the primary care population.

Based on the literature review and findings from this QI project, one future area of study that would be beneficial is a project including not only the identification of but also the treatment plan for patients that meet criteria for a diagnosis of depression. Collaboration between multiple interdisciplinary team members engaged in both diagnosis and treatment of depression could bolster the patient's overall health and mental health.

Essential II: Organization and systems leadership for quality improvement and systems thinking. DNP graduates must be skilled in assessing an organization's issues, evaluating the cost-effectiveness of change, and executing the implementation of an organization-wide change to improve patient care delivery based on scientific findings (AACN, 2006). This QI project was developed based on the need to implement a depression screening at a primary care clinic. Practical strategies were developed for the health care clinic, finances were considered, and using the Plan-Do-Study-Act model allowed for an accurate evaluation of the project's implementation. Patient safety initiatives were implemented to protect confidentiality and provide additional screening for suicide if warranted.

Essential III: Clinical scholarship and analytical methods for EBP. The third essential explains that the DNP graduate should intently apply evidence-based research in practice (AACN, 2006). This project leader applied the third essential throughout this QI project. First by researching and critically analyzing existing literature to identify the best screening tool for depression. The levels of evidence were considered when finding research to support the validity of the PHQ-9 and C-SSRS screening tools. Secondly, by designing a

process to implement and evaluate if there was an increase in patients identified with depression. Lastly, the third essential was used by disseminating the findings and providing information for the practice to improve healthcare outcomes of their patient population.

Essential IV: Information systems/technology and patient care technology for the improvement and transformation of healthcare. The AACN (2016) defines this essential as using information technology in ways to improve clinical decision-making and ultimately improve patient outcomes. Essential IV was used throughout this QI project, as well. Data mining was used for researching depression and screening. Technology was used to identify the tools for screening depression and staff compliance for administering the tool. Excel was used for data collection and organization, as well as making graphs to display findings. Also, communication between the project leader and staff was done via technology as needed, such as utilizing email, texts, or phone calls.

Essential V: Healthcare policy for advocacy in healthcare. The AACN describes the importance of DNP graduates being able to analyze healthcare policies and then carefully implement those policies (2006). Advocating for effective health care policy is necessary for the DNP graduate to ensure social justice and equity in health care (AACN, 2006). The Healthy People 2020 objectives for mental health and mental health disorders were reviewed for this QI project. The policy goals included increasing depression screening in primary care settings. Identifying depression with a valid screening tool, such as the PHQ-9, allowed the clinic to achieve the goals set by the Office of Disease Prevention and Health Promotion by increasing their population's access to adequate treatment, assessment of the quality of treatment, and increase their quality of life. The DNP graduates are prepared to advocate for the changes in healthcare policies and ensure social equity in health care.

Essential VI: Interprofessional collaboration for improving patient and population health outcomes. Essential VI prepares the DNP graduate for being able to communicate with multiple interdisciplinary professionals in an efficient, effective, and patient-centered manner (AACN, 2006). Advanced nurse practitioners will need to frequently collaborate among professionals from other professions (Chism, 2013). This essential is the core of this QI project. Communicating with a team to create, implement, and evaluate the intervention has been the catalyst for making the project come to life. Examples of the different professionals involved in this project are professors, research collaborators, librarians, the site champion, and staff of the clinic. During the implementation of the depression screening tool, this project leader encouraged participants, participated as a team member, and acted as a consultant during the time of change.

Essential VII: Clinical prevention and population health for improving the nation's health. This DNP essential prepares the advanced nurse practitioner to "analyze epidemiological, biostatistical, occupational, and environmental data in the development, implementation, and evaluation of clinical prevention and population health" (AACN, 2006, p.15). Healthy People 2020 supports the promotion of mental health in the population of 18 years and older. This project leader assumed the role of promoter of early detection of depression screening in a primary care clinic, thus reducing the risk of decreased quality of life for the clinic's population.

Essential VIII: Advanced nursing practice. The final DNP essential explains the foundational practice requirements necessary for all graduates. Per AACN, the DNP professional should be competent in performing a systematic assessment and incorporate culturally sensitive strategies to complex situations (2006). DNP graduates should be able to

start and maintain professional relationships with patients and other healthcare affiliates to provide the best patient-centered care. Evaluating evidence-based research and use clinical judgment when delivering care is essential for the DNP graduate to educate, guide, and mentor patients and other nurses through complex health problems (AACN, 2006). The DNP program prepares the nurse specialist to design, implement, and evaluate interventions completed using evidence-based science. Ultimately, the advanced nurse practitioner is the leader to initiate change for patient-centered and organizational-improvement goals.

Summary

Over the past forty years, nursing education at the doctoral level has evolved, and more nursing related doctoral degrees have developed (Chism, 2013). The DNP program prepares a nurse at the highest level of advanced practice to improve patient health outcomes (Chism, 2013). In today's complex healthcare system, DNP programs must produce advanced nurse specialists committed to a practice career and leadership across diverse practice settings. The AACN developed these eight Essentials of Doctoral Education for Advanced Nursing Practice to provide a foundation of competencies that all graduates must achieve. DNP graduates are responsible for being knowledge navigators, practice experts, and caring holistically for patients via continuous interactions and evaluations of outcomes.

Chapter Eight: Final Conclusions

Depression is a common disorder that is underdiagnosed and undertreated. Agencies worldwide and nationally have recognized this inadequacy in healthcare and have set goals of improving depression recognition and treatment. Active screening for depression allows primary care providers to detect depression and begin to treat this condition at their care visits. This chapter draws upon all that has been planned, organized, implemented, analyzed, and discovered through the life of this DNP project. Chapter Eight will present the project's significant findings, strengths, weaknesses, limitations and benefits, and recommendations for practice.

Significance of Findings

Screenings for depression are as vital as screening for other physical diseases, such as high cholesterol and diabetes. Often the first indication a patient needs mental health help is identified through screenings (Genesight, 2019). As described in Chapter Six, 312 patients completed the PHQ-9 screening during the 13-week project implementation period. All of the patients were provided an opportunity to assess their symptoms as related to depression. During the project, only 13 patients scored 5-9 on the PHQ-9, which was associated with mild depression. The patient's self-reporting of symptoms associated with depression allowed the provider to further evaluate for signs of depression, offer assistance in providing referral information, and initiating treatment plans as needed.

A significant finding was that, fortunately, none of the patients met the criteria to take the Columbia-Suicide Severity Rating Scale (C-SSRS). Nonetheless, screening for suicidal thoughts in primary care puts providers at unique positions to make a difference in someone's life. The questionnaire takes a few minutes to complete and it helps the provider accurately identify the

level of support the patient requires. Both the PHQ-9 and C-SSRS screenings open the door to earlier diagnosis and treatment (Genesight, 2019).

Project Strengths and Weaknesses

The project strengths included: (1) positive staff support in implementing the depression screening, (2) low cost, and (3) an easy-to-interpret screening tool. Support and collaboration from the project champion and office staff allowed the project idea to come to fruition. Throughout the project, during the PDSA cycles, staff were receptive to discussing how changes could improve compliance with the protocols for the administration of the PHQ-9 screening tool. Overall, the screening process proved cost-effective because Pfizer Inc. (2017) grants permission to use the PHQ-9 questionnaire for free. The tool makes it easy to calculate the score and to interpret the depression severity based on the score that would guide further evaluation. Recommendations for treatment of each severity of depression are provided and clinical judgment of the course of treatment is encouraged.

A weakness identified was that many of the patients were not willing to or unable to read and understand the nine-item questionnaire. This led to an increased workload for the secretary, and she was unable to ensure everyone completed the questionnaire upon check-in to the clinic. Ultimately the certified medical assistant (CMA) began asking the questions during her check-in process to ensure completion of the questionnaire. Initially, the CMA experienced a learning curve in adjusting to and feeling comfortable with asking the questions of the patients. After discussing these adjustments during a PDSA cycle, the CMA was able to overcome feeling of being uncomfortable and assist the patients in responding to the questionnaire accurately. This process added to the CMA's overall workload as she was spending more time administering the

questionnaire, calculating the score to inform the provider, and entering the PHQ-9 score into the EHR.

Project Limitations

Limitations of the project were identified to mainly revolve around time restraints. One limitation was based on the time constraints of the project's 13-week implementation period. There were steady improvements during the implementation with project tweaking based on the PDSA cycle reviews. Compliance improved toward the end of the 13-weeks and may have continued to stay at the goal of 100% if the project was conducted over a longer period.

The second time constraint was the staff adjusting to a new initiative incorporated into their usual daily routine. The secretary's role was to give the PHQ-9 during check-in, but she became overwhelmed with multiple tasks and requested not to do it. The CMA assumed responsibility for the screening and, in doing so, had to extend her patient check-in process. Once she was more familiar with the questionnaire administration, her check-in process became quicker. The CMA was also responsible for completing the PHQ-9 Daily Depression Screening Data Collection Tool daily. This was done by writing out the information needed for data collection on paper format. This task did, indeed, add time and responsibilities to the CMA's daily routine.

A third time constraint or limitation was the length of the screening tool. Through a PDSA cycle, the staff decided the CMA asking the patients the PHQ-9 questions would ensure better compliance of depression screening. Assisting the patients to fill out the questionnaire was time-consuming for the CMA and extended her check-in time, impacting patient throughput. Some primary care practices screen with the PHQ-2 questionnaire, which consists of just two questions and, depending on those results, possible follow-up administration of the PHQ-9.

Patients may be more receptive to a quicker, less intimidating questionnaire, and this would be less time consuming for the CMA's check-in process.

Project Benefits

Early interventions can improve lives and may save a patient from harming themselves. This project impacted the community by providing a standardized approach in screening for a potentially debilitating mental health illness and triggered a conversation between patient and provider, often leading to effective treatment plans. With effective treatment plans, depression can decrease, which will increase the patient's self-efficacy to adhere to their medical treatment (Adam & Folds, 2014).

Implementing the PHQ-9 depression screening allows the clinic to meet goals associated with the Healthy People 2020 objectives for mental health by increasing the frequency of depression screening in the primary care setting, which may increase the number of adults that receive treatment. The PHQ-9 depression screening also meets the IHI's Triple Aim goals by providing exceptional quality of care at an efficient cost, while improving the health of the population. Depression creates a more considerable economic strain by increasing healthcare resources and decreasing work productivity (Chow et al., 2019). Chow et al. (2019) performed a retrospective analysis to determine if this economic strain differed among the severities of depression, as defined by the PHQ-9 questionnaire. In this analysis, the PHQ-9 scores were categorized as 0-4 (no to minimal depression), 5-14 (mild to moderate), and 15-27 (moderately severe to severe). Overall, the authors found that the more severe the depression correlated with higher work productivity impairment, increased direct cost (increased ED visits and hospitalizations) and increased indirect cost (absenteeism-related cost). By early screening for

depression and starting treatment sooner, the total cost and functional impairment can be reduced for each patient, and thus the population.

The Suicide Prevention Resource Center (2020) explains that every $1.00 spent on interventions to improve interprofessional collaboration between clinicians to provide psychotherapeutic interventions would save $2.50 in the cost of suicides. The cost savings that can result from screening for suicidal ideations will save US dollars as well as save lives.

Practice Recommendations

Based on the findings, strengths, weaknesses, limitations, and benefits of the project, continuing depression screening in this community-based practice is essential to improving the care provided at this clinic. This project's focus was on implementing a process to screen for depression. It would be beneficial to have an alert system in the EHR at the clinic to ensure that PHQ-9 screenings are done yearly, and if there were changes in a patient's depression treatment plan, alert the provider to screen at the follow-up visits to assess for effectiveness.

However, recognizing and diagnosing depression is just the first step in treating mental illness. One recommendation is to develop an inter-professional network with other specialties to meet the patient needs holistically. For example, a team or coordinator who can connect patients to social workers, psychiatrists, physical therapy, occupational therapy, or community centers, is needed for the extended care of the patient. Collaborative care has been shown to significantly improve patient outcomes and enrich patient's overall well-being (Smithson & Pignone, 2017; Jiao et al., 2017; Kwan et al., 2017; Zivin & Katon, 2015).

Another recommendation is to continue to use the PDSA cycle to implement change in this clinic. The staff has proven to be receptive to new ideas that benefit their patient population.

If more changes are desired, the PDSA cycle was proven to be a useful tool in tracking the clinic's progress in implementing an intervention to improve patient outcomes.

Final Summary

Depression is a mental illness that affects one's thoughts, feelings, and actions. It does not discriminate against age, race, ethnicity, and gender. Having depression does increase the risk of suicidal ideation. Depression expands beyond the patient and can have adverse effects on others, such as family members and employers. Screening for depression has been proven to be effective in early recognition and diagnosis. Integrating depression into routine primary care screening will benefit the patient population in this rural clinic by initiating conversations of depression, early identification, treatment plans, and referrals.

Physical and mental health are intertwined. Unmanaged depression can worsen a patient's chronic physical health problems. Early identification and treatment of depression may reduce personal financial medical costs, increase the self-efficacy of one's health plan, and enhance the patient's overall well-being.

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health conditions in older adults: A difference-in-difference analysis. *Journal of Managed Care & Specialty Pharmacy, 24*(8), 769-776. Retrieved from https://www.jmcp.org/doi/pdf/10.18553/jmcp.2018.24.8.769

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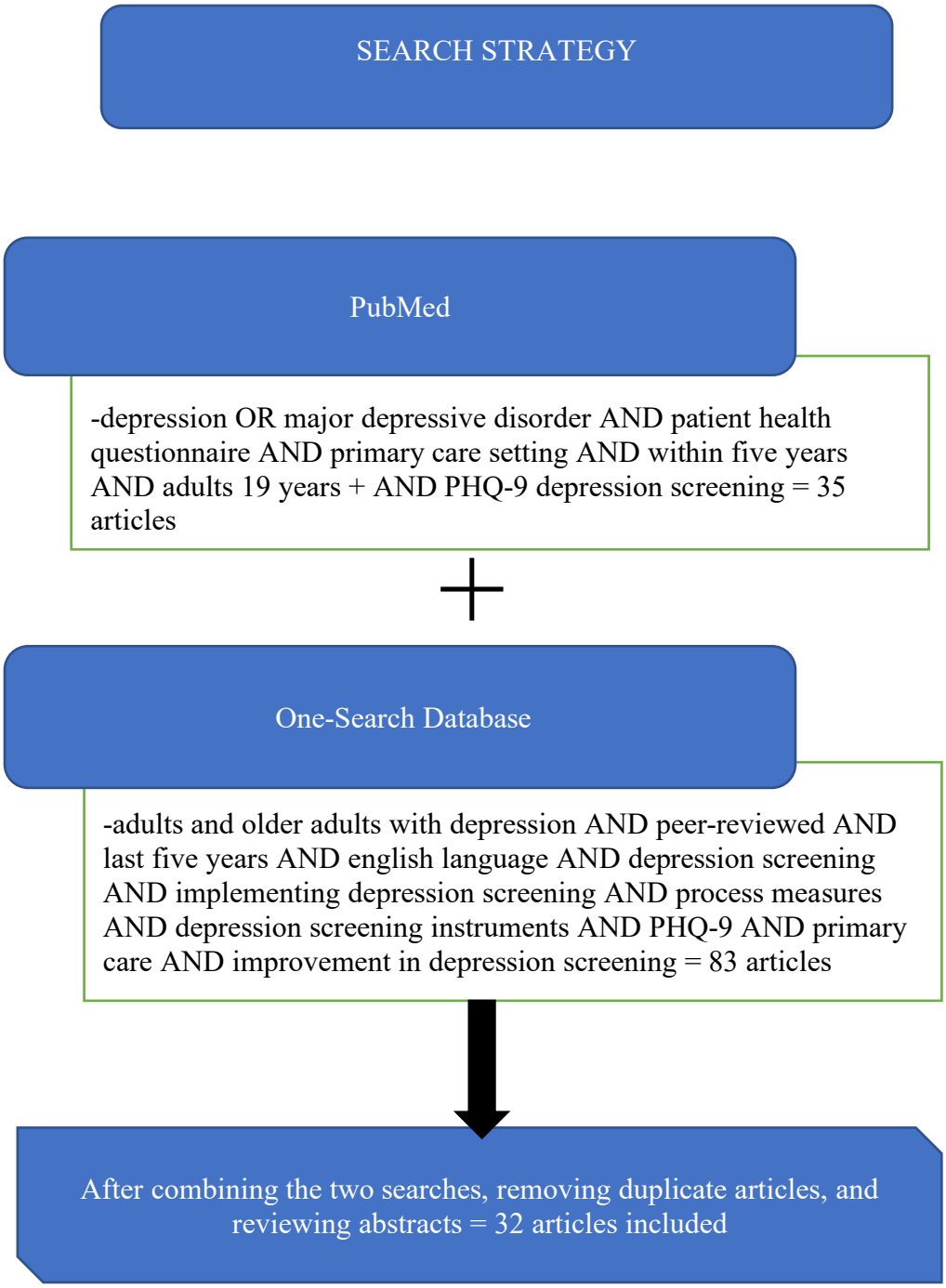
Appendix A

Literature Search Strategy



Appendix B

Literature Review Matrix

NURS 8269: DNP Project I Literature Review Matrix				
Student: Schuyler Williams			**Date of Submission : 3/17/19**	
Faculty: Dr. Dianne Marshburn				
Project Title: Depression Screening in a Primary Care Clinic				
Article (APA Citation)	**Level of Evidence** (I to VII)	**Data/Evidence Findings**	**Conclusion or Summary**	**Use of Evidence in EBP Project Plan** *(Include your evaluation, strengths/limitations, and relevance to your project <u>and</u> other information that you would like to make a note of)*
Akincigil, A., & Matthews, E. B. (2017). National rates and patterns of depression screening in primary care: Results from 2012 and 2013. *Psychiatric Services, 68*(7), 660-666. Doi:10.1176/appi.ps.201600096	Level VI	The overall rate of depression screening was 4.2%.AA was 1/2 likely to be screened. Pts with chronic conditions more likely to be screened than not. The use of EHR increased screening prevalence.	Rates of depression screening are low. EHR systems may be an effective way of improving screening rates.	Include all patient populations when screening.

Aleem, S., Torrey, W. C., Duncan, M. S., Hort, S. J., & Mecchella, J. N. (2015). Depression screening optimization in an academic rural setting. *International Journal of Health Care Quality Assurance, 28*(7), 709-725. Doi:10.1108/IJHCQA-01-2015-0012	Level VI	Depression screening improved significantly with using the EHR and redesigning workflow in 2 adult primary care practices.	Primary Care Providers (PCP) have difficulty correctly identifying pts with depression. By implementing a standardized depression screening program and assure appropriate follow-up, pt outcomes are better.	Studies show that using a validated tool for screening for depression is beneficial for pt's overall well-being.
Beard, C., Hsu, K. J., Rifkin, L. S., Busch, A. B., & Björgvinsson, T. (2015;2016;). Validation of the PHQ-9 in a psychiatric sample. *Journal of Affective Disorders, 193*, 267-273. Doi:10.1016/j.jad.2015.12.075	Level III	Large sample of pts (n=1,023) took the PHQ-9 & the tool showed a strong correlation with another well-established measure of depression.	The PHQ-9 was developed as a means to screen depression in primary care. The large sample study supported its use by PCPs	The PHQ-9 is an adequate measure technique to detect depression symptom severity. May consider using higher cut-off scores than other screening tools for the same outcomes.
Bhattacharjee, S., Goldstone, L., Vadiei, N., Lee, J. K., & Burke, W. J. (2018). Depression screening patterns, predictors, and trends among adults without a depression diagnosis in ambulatory settings in the united states. *Psychiatric*	Level VI	The national level screening rate was 1.4% of all adult primary cares. The year, MD specialty, region, and times spent with the pt were sig	The authors studied national patterns and trends in depression screening in adults without a dx of depression	Screening increased significantly after 2009, correlating with WHO push for better mental health treatment.

Services, 69(10), 1098-1100. Doi:10.1176/appi.ps.201700439		associated with screening.	from 2005-2015.	
Brenes, G. A., Danhauer, S. C., Lyles, M. F., Hogan, P. E., & Miller, M. E. (2015). Barriers to mental health treatment in rural older adults. *American Journal of Geriatric Psychiatry, 23*(11), 1172-1178. Doi:10.1016/j.jagp.2015.06.002	Level VI	The most common barrier was the personal belief that one should not need help. Others were cost, distance, uncertainty of where to get help, mistrust in mental health providers, and stigma. Oldest adults had the least barriers.	The purpose of this study was to determine what barriers exist for older adults to seek mental health tx and if barriers differed by age.	Multiple barriers exist for older adults of diff age groups. Providing screening will help to overcome the most common barrier by normalizing depression with a standardized screening.
Corrigan, P. W. (2016). Lessons learned from unintended consequences about erasing the stigma of mental illness. *World Psychiatry, 15*(1), 67-73	Level VII	There has been research done on stigma of having mental illness.	There are benefits to educating people in order to decrease stigma and replace it with feelings of normalcy.	Providers can show sensitivity and professionalism to better assist erasing metal illness stigma.
Deneke, D. E., Schultz, H. E., & Fluent, T. E. (2015). Screening for depression in the primary care population. *Psychiatric Clinics of North America, 38*(1), 23-43.	Level VII	Depression in common in the primary care setting. Screening is useful if reliable, collaborative	Use of collaborative care in the primary care setting is cost-effective.	New evidence-based collaborative care models for depression are hard to get started due to lack of funding and conflicts with current culture.

		care is established.		
Hasin, D. S., Sarvet, A. L., Meyers, J. L., Saha, T. D., Ruan, W. J., Stohl, M., & Grant, B. F. (2018). Epidemiology of adult DSM-5 major depressive disorder and its specifiers in the united states. *JAMA Psychiatry, 75*(4), 336-346. Doi:10.1001/jamapsychiatry.2017.4602	Level III	In-person interviews were done with adults 18-yr+ & data were collected one year. Most lifetime MDD is moderate & about 70% received some type of tx.	In US adults, DSM-5 MDD is very prevalent and disabling. Most receive treatment, but a significant amount did not.	Explains the lifetime prevalence of depressive disorder over a lifetime for US adults–use to describe the epidemiology of depression.
Jiao, B., Rosen, Z., Bellanger, M., Belkin, G., & Muennig, P. (2017). The cost-effectiveness of PHQ screening and collaborative care for depression in new 70ffi city. *PloS One, 12*(8), e0184210. Doi:10.1371/journal.pone.0184210	Level II	The 2-stage screening process with followed up collaborative care was more cost-effective than any other strategy.	Two-stage screening process with PHQ-9 & PHQ-2 in NYC with f/u collaborative care for those who are positive on screen.	Screening is not only better with collaborative care available for pt outcomes; it is also cost-effective overall.
Kearney, L. K., Wray, L. O., Dollar, K. M., & King, P. R. (2015). Establishing measurement-based care in integrated primary care: Monitoring clinical outcomes over time. *Journal of Clinical Psychology in Medical*	Level V	Implementing an excellent program to screen for illness requires more than just starting a screen–it will involve cultural shifts and education. However, the benefit of an	The article is to help primary care providers develop a reliable procedure for screening and follow-ups to improve pt outcomes.	Discussed economic benefits of screening, decisions on whether to screen, and will assist in the implementation part of DNP project.

Settings, 22(4), 213-227.		effective screening/tx process far outweighs the challenges of change.		
Kim, J. W., & Lee, Y. S. (2017). Risk factors for suicide in the late-life depression: Age and sex-related differences. *European Neuropsychopharmacology, 27*, S744-S745. Doi:10.1016/S0924-977X(17)31365-2	Level IV	Urban areas have high-risk factors for men & women in their 60s & 70s. Poor self-esteem was a significant risk factor that increased ideation of all ages. Males did not show a specific factor to suicide ideation.	It is challenging to predict suicidal attempts in the elderly. The authors studied the socio-demographic things that influence suicide ideation and attempts in the elderly. The study group was selected based on GDS scores & then research socio-demographic info.	Suicide ideation is a real issue in older adults, as much as in younger ages. The negative perception of one's health has a significant risk factor for most ages and sexes.

Kwan, B. M., Chadha, S., Hamer, M. K., Spagnolo, D., & Kee, S. (2017). Mixed methods evaluation of a collaborative care implementation using RE-AIM. *Families, Systems & Health: The Journal of Collaborative Family Healthcare, 35*(3), 295-307.	Level III	Two practices in NY used mixed methods of evaluating collaborative care implementation (for ages 18+).PHQ-9 was used as one of the screening tools.	Using the RE-AIM framework may help systematically evaluate programs for managing depression.	Implementation of collaborative care in primary care. Screening is only beneficial if treatment is of high quality and readily available.
Malhi, G. S., & Mann, J. J. (2018). Depression The Lancet, 392(10161), 2299. Doi:https://doi-org.jproxy.lib.ecu.edu/10.1016/S0140-6736(18)31948-2	Level VII	The prevalence of depression vary, course & prognosis varies b/c of symptoms. It is often missed due to the underlying dx.	Major depression is common, 3rd cause of the burden of dz worldwide by 2030. In practice, there are challenges to detect, dx, & manage.	Defines depression, detection, screening, pathology, management, and psychological therapies.
Meyers, M. A., Groh, C. J., & Binienda, J. (2014). Depression screening and treatment in uninsured urban patients. *Journal of the American Board of Family Medicine: JABFM, 27*(4), 520-529. Doi:10.3122/jabfm.2014.04.130254	Level II	There were 674 subjects, and depression prevalence was significantly higher in those screened than at baseline. All groups showed a reduction in depression scores over a 6-mo period & all tx interventions were = effective.	The authors wanted to determine if depression screening & tx improved depression scores in the uninsured, mostly AA, primary care population.	Screening increases the rate of diagnosis of depression in this population, and treatment significantly reduces the burden of depression.

Mitchell, A. J., Yadegarfar, M., Gill, J., & Stubbs, B. (2016). Case finding and screening clinical utility of the patient health questionnaire (PHQ-9 and PHQ-2) for depression in primary care: A diagnostic meta-analysis of 40 studies. *BJPsych Open, 2*(2), 127-138.	Level I	The PhQ-9 and PHQ-2 are functional 1st step assessments in the primary care setting. However, neither is adequate to confirm a depression diagnosis–will need provider judgment.	Did a meta-analysis on the accuracy of PHQ-9 and PHQ-2 depression screening tools. Best estimates for sensitivity and specificity were 81.3% for PHQ-9,	This validates the PHQ-9 is a useful screening tool for depression in the primary care setting.
Narayana, S., MD, & Wong, C. J., MD. (2015). Office-based screening of common psychiatric conditions. *Psychiatric Clinics of North America, 38*(1), 1-22	Level VII	The PHQ-9 and PHQ-2 were useful screening tools due to the ease of pt self-administration and good sensitivity and specificity scores.	Screening is efficient by preventative health guidelines and is cost-effective in a high prevalence setting (such as primary care) and available resources for collaborative care.	Screening is vital to reduce the burden of depressive disorders. Describes several conditions needed to have an effective screening process. The efficacy of screening is increased with access to treatment.

O'Connor, E. A., United States. Agency for Healthcare Research and Quality, Oregon Evidence-based Practice Center (Center for Health Research (Kaiser-Permanente Medical Care Program. Northwest Region)), & U.S. Preventive Services Task Force. (2016). *Screening for depression in adults: An updated systematic evidence review for the U.S. preventive services task force*. Rockville, MD: Agency for Healthcare Research and Quality.	Level I	Screening programs increased remission of depression as well as the treatment response in the general adult population.	Screening is beneficial in the general public in the presence of additional treatment supports and trained depression providers. Evidence is lacking in the older adult population. Updated the benefits and harms of screening for depression in general, older adults, as well as pregnant/postpartum women.	The author's systematic review showed screening for depression to be beneficial.
Office of Disease Prevention and Health Promotion (2019). Mental health and mental disorders. In Healthy People 2020. Retrieved from https://www.healthypeople.gov/2020/topics-objectives/topic/mental-health-and-mental-disorders	Level VII	Mental health is directly related to physical health. Mental illness can affect people's ability to participate in healthy living.	Mental health disorders are among the most common reasons for disability. The federal government has a better understanding of the importance of screening and treating mental	Understanding mental health issues, such as depression, will allow better detection, protection, and treatment. Having positive mental health is important for pt's well-being and interpersonal relationships.

			health illnesses.	
Olfson, M., Blanco, C., & Marcus, S. C. (2016). Treatment of adult depression in the united states. *JAMA Internal Medicine, 176*(10), 1482-1491.	Level V	About 8.4% of adults screened + for depression and 28.7% received tx.Conversely, adults already tx for depression were 29.9%+on screen and 21.8% had serious mental distress.	Most of the pts who screen + for depression did not receive tx, but those who were already being tx did not screen + on the screening.	Shows the importance of improving efforts to keep depression care patient-specific.
Petrosyan, Y., Sahakyan, Y., Barnsley, J. M., Kuluski, K., Liu, B., & Wodchis, W. P. (2017). Quality indicators for care of depression in primary care settings: A systematic review. *Systematic Reviews, 6*(1), 126-14.	Level V	The review identified 53 quality indicators for the evaluation of depression. Most of the indicators focused on the process in the primary care setting.	Overall, the evaluation of depression care in primary care is scarce. However, the identified set of indicators in this article is a good starting point. More research needs to be done to implement the	Discuss how assessing the quality of depression care will hold healthcare providers accountable and help improve outcomes for the pts.

			identified set of quality indicators.	
Pfoh, E. R., Mojtabai, R., Bailey, J., Weiner, J. P., & Dy, S. M. (2015). Conformance to depression process measures of Medicare part B beneficiaries in primary care settings. *Journal of the American Geriatrics Society, 63*(7), 1338-1345. Doi:10.1111/jgs.13483	Level IV	Depression screening in Medicare pts was low (17%). All sites varied with depression screening adherence. Small % of Medicare pt's received screening and follow-up care in the primary care setting.	Evaluated the compliance with depression screening, management & quality outcome in 34 clinics in one healthcare system.	Overall, depression screening in the primary care setting is challenged. Medicare and low-income pts seem to have decreased screening and opportunities for help.
Rhee, T.G., Capistrant, B.D., Schommer, J.C., Hadsall, R.S., & Uden, D.L. (2018). Effects of the 2009 USPSTF depression screening recommendation on diagnosing and treating mental health conditions in older adults: A difference-in-difference analysis. Journal of Managed Care & Specialty Pharmacy, 24(8), 769-776. Retrieved from https://www.jmcp.org/doi/pdf/10.18553/jmcp.2018.24.8.769	Level VI	The depression screening rates were nearly the same prior to the 2009 group and the after 2009 group. May have been due to PCP uncertain of screening concerning evidence to support it. Since the implementation of guidelines, there was a significant	Examined if the USPSTF depression guidelines in 2009 effected dx of mental health issues, antidepressant Rx, & other psychiatric serves in office-based settings in adults age 65-yr+.	The USPSTF guidelines did have an impact on PCP awareness of mental health issues needing to be addressed but did not give any specific direction on which screening tool should be used.

		increase in time with the pt-MD exam.		
Sheehan, L., Dubke, R., & Corrigan, P. W. (2017). The specificity of public stigma: A comparison of suicide and depression-related stigma. *Psychiatry Research, 256*, 40-45. Doi:10.1016/j.psychres.2017.06.015	Level II	Based on correlations, people who believe in the recovery of people with mental illness are more likely to believe they can recover from a suicide attempt. Stereotype varies for family members of mental illness.	The Suicide Stigma Assessment Scale (SSAS-44) and Recovery Scale (RS) were used in randomized groups.	People with a known suicide attempt may experience stigma related to both mental illness & suicide.

Shepard, D. S., Gurewich, D., Lwin, A. K., Reed, G. A., & Silverman, M. M. (2016). Suicide and suicidal attempts in the united states: Costs and policy implications. *Suicide and Life-Threatening Behavior, 46*(3), 352-362. Doi:10.1111/sltb.12225	Level VI	The author's estimate is higher than previous reports due for adjustment of underreporting, and their estimates are more recent.	They explained the US cost of suicides and attempts.	The estimates reinforce the importance of addressing suicidal prevention measures.
Siu, A. L., Bibbins-Domingo, K., Grossman, D. C., Baumann, L. C., Davidson, K. W., Ebell, M., . . . and the US Preventive Services Task Force (USPSTF). (2016). Screening for depression in adults: US preventive services task force recommendation statement. *Jama, 315*(4), 380-387. Doi:10.1001/jama.2015.18392	Level VI	There are gaps in the evidence of screening in older adults. More research is needed for optimal screening time, and to assess barriers to starting an adequate collaborative care system.	Reviewed the USPSTF 2009 guidelines and the benefits and harms of screening for depression in the adult population.	Discusses the burden of depression, the accuracy of screening, and its effectiveness with treatment. Pros and Cons of screening.
Smithson, S. & Pignone, M. (2017). Screening adults for depression in primary care. *Medical Clinics of North America, 101*(4), 807-821.	Level VII	Evidence supports the benefit of screening for depression in all adults.	Developing, implementing, and maintaining a screening process in an essential initial step for improving the care of patients	Describes the epidemiology, special populations, screening tools (PHQ-9), who and when to screen, Benefits, and harms to screening.

			with depression.	
Stark, A., Kaduszkiewicz, H., Stein, J., Maier, W., Heser, K., Weyerer, S., . . . Scherer, M. (2018). A qualitative study on older primary care patients' perspectives on depression and its treatments – potential barriers to and opportunities for managing depression. *BMC Family Practice, 19*(1), 2. Doi:10.1186/s12875-017-0684-3	Level VI	The education level on depression varied in this population. There were misconceptions re depression and treatments. They avoided talking about it socially to avoid stigma.	Qualitative data was received from semi-structured interviews in 12 primary care patients.	This study gives the patient's perspective of depression and management in primary care patients 75-yr and older. Educating older adults on depression may help them received the attention they need.
U.S. Preventive Services Task Force (2019). USPSTF A and B recommendations by date. Retrieve February 15, 2019, from: https://www.uspreventiveservicestaskforce.org/Page/Name/uspstf-a-and-b-recommendations-by-date/	Level VII	"Screenings should be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up."	In Jan 2016, The USPSTF recommends screening for depression in the general adult population, including pregnant women.	Updated USPSTF guidelines in 2016.

Valenstein, M., Vijan, S., Zeber, J. E., Boehm, K., & Buttar, A. (2001). The cost-utility of screening for depression in primary care. *Annals of Internal Medicine, 134*(5), 345.	Level IV	When yearly depression screening is compared to no screening, 82 more quality-adjusted days are gained/1000 pts, which represents a cost-utility ratio of $225, 467 QALY gained.	For annual screening to cost-effective compared to no screening, there are 4 variables that need to be considered: 1.effecient screening process 2. High pt pop need 3. Tx need to be on at least 80% of pts 4. Achieve remission of 85% pts treated.	Describes how depression screening can be cost-effective and how to achieve the best bang for your buck.
Vilagut, G., Forero, C. G., Barbaglia, G., & Alonso, J. (2016). Screening for depression in the general population with the center for epidemiologic studies depression (CES-D): A systematic review with meta-analysis. *PloS One, 11*(5), e0155431. Doi:10.1371/journal.pone.0155431	Level I	It is an acceptable screening tool with good accuracy but, should be used as a diagnostic measure alone.	Meta-analysis of the validity of the Center for Epidemiologic Studies Depression (CES-D) for detecting depression in a primary care setting.	Different depression screening tool (than PHQ-9) evaluated. Like the PHQ-9, it should be used to solely diagnosis depression.
World Health Organization (2019). Mental health included in the UN sustainable development goals. Retrieved February 2019), from	Level VII	"By 2030, reduce by one-third premature mortality from noncommunicable disease through prevention and	World leaders recognize a need to promote mental health and overall well-	Making this a worldwide commitment will improve the stigma against mental health issues and allow people to receive the

https://www.who.int/mental_health/SDGs/en/		treatment and promote mental health and well-being."	being. The inclusion of mental health was added in Sept 2015.	help they need for improved well-being.
Zivin, K., PhD, & Katon, W., MD. (2015). Further policy changes are needed to improve depression care. *General Hospital Psychiatry, 37*(4), 368-369.	Level VI	There are gaps in the quality of mental health care. Collaborative care focuses on acute care needs and maintaining treatment.	New healthcare policies could improve depression outcomes by requiring integrative, evidence-based systems to improve depression treatment.	Collaborative care includes systematic screening with a validated tool.

Appendix C

PHQ-9 Questionnaire

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)

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 in some way	0	1	2	3

FOR OFFICE CODING 0 + _____ + _____ + _____

=Total Score: _____

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**
☐	☐	☐	☐

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc. No permission required to reproduce, translate, display or distribute.

Appendix D

Columbia-Suicide Severity Rating Scale

COLUMBIA-SUICIDE SEVERITY RATING SCALE
Primary Care *Screen with Triage Points*

SUICIDE IDEATION DEFINITIONS AND PROMPTS:	**Past month**	
Ask questions that are in bold and underlined.	**YES**	**NO**
Ask Questions 1 and 2		
1) Wish to be Dead: Person endorses thoughts about a wish to be dead or not alive anymore, or wish to fall asleep and not wake up? ***Have you wished you were dead or wished you could go to sleep and not wake up?***		
2) Suicidal Thoughts: General non-specific thoughts of wanting to end one's life/commit suicide, "*I've thought about killing myself" without general thoughts of ways to kill oneself/associated methods, intent, or plan.*" ***Have you had any actual thoughts of killing yourself?***		
If YES to 2, ask questions 3, 4, 5, and 6. If NO to 2, go directly to question 6.		
3) Suicidal Thoughts with Method (without Specific Plan or Intent to Act): Person endorses thoughts of suicide and has thought of a least one method during the assessment period. This is different than a specific plan with time, place or method details worked out. "*I thought about taking an overdose but I never made a specific plan as to when where or how I would actually do it....and I would never go through with it.*" ***Have you been thinking about how you might do this?***		
4) Suicidal Intent (without Specific Plan): Active suicidal thoughts of killing oneself and patient reports having some intent to act on such thoughts, as oppose to "*I have the thoughts but I definitely will not do anything about them.*" ***Have you had these thoughts and had some intention of acting on them?***		
5) Suicide Intent with Specific Plan: Thoughts of killing oneself with details of plan fully or partially worked out and person has some intent to carry it out. ***Have you started to work out or worked out the details of how to kill yourself? Do you intend to carry out this plan?***		
6) Suicide Behavior Question ***Have you ever done anything, started to do anything, or prepared to do anything to end your life?*** Examples: Collected pills, obtained a gun, gave away valuables, wrote a will or suicide note, took out pills but didn't swallow any, held a gun but changed your mind or it was grabbed from your hand, went to the roof but didn't jump; or actually took pills, tried to shoot yourself, cut yourself, tried to hang yourself, etc. **If YES, ask:** ***Was this within the past 3 months?***	**Lifetime**	
	Past 3 Months	

Response Protocol to C-SSRS Screening (Linked to last item marked "YES")

Item 1 Behavioral Health Referral
Item 2 Behavioral Health Referral
Item 3 Behavioral Health Consult (Psychiatric Nurse/Social Worker) and consider Patient Safety Precautions
Item 4 Behavioral Health Consultation and Patient Safety Precautions
Item 5 Behavioral Health Consultation and Patient Safety Precautions
Item 6 Behavioral Health Consult (Psychiatric Nurse/Social Worker) and consider Patient Safety Precautions
Item 6 3 months ago or less: Behavioral Health Consultation and Patient Safety Precautions

Appendix E

Community Letter of Support

[redacted]

Date: 3/21/2019

To East Carolina University College of Nursing:

We at [redacted] have reviewed Schuyler Williams' DNP Project Proposal "Depression Screening Implementation in a Primary Care Clinic". Ms. Schuyler Williams has organizational support and approval to conduct their project within our institution. We understand that the timeframe for this project is from the date of this letter through April 30, 2020. Implementation at the project site will occur August/September through November 30, 2019, unless otherwise negotiated. We understand that for Ms. Schuyler Williams to achieve completion of the DNP program, dissemination of the project will be required by the University which will include a public presentation related to the project and a manuscript submission will be encouraged.

Our organization has deemed this project as an initiative program. Our organization is aware that this project will be processed first through our organizational IRB and then through the University and Medical Center Internal Review Board of East Carolina University (UMCIRB). Our organization does not have an Internal Review Board (IRB).

Thank you,

[redacted]

Gurinder Sandhu, MD

Appendix F

Project Budget

Item		Units	Quantity	Unit Price	Budget Amount	Actual Amount	Difference
Supplies and Materials		Pack of letter size print paper	1	$ 7.50	$ 7.50		
Materials Reproduction		Sheets	500	$ 0.10	$ 50.00		
Food		Refreshments for education session	1	$ 30.00	$ 30.00		
TOTAL					$ 87.50		

Appendix G

Quality/Program Evaluation Worksheet

Quality Improvement/Program Evaluation Self-Certification Tool

Purpose:
Projects that do not meet the federal definition of human research pursuant to 45 CFR 46 do not require IRB review. This tool was developed to assist in the determination of when a project falls outside of the IRB's purview.

Instructions:
Please complete the requested project information, as this document may be used for documentation that IRB review is not required. Select the appropriate answers to each question in the order they appear below. Additional questions may appear based on your answers. If you do not receive a STOP HERE message, the form may be printed as certification that the project is "not research", and does not require IRB review. The IRB will not review your responses as part of the self-certification process.

Name of Project Leader:
Schuyler Williams

Project Title:
Depression Screening Implementation in a Primary Care Clinic

Brief description of Project/Goals:

Depression is a common disorder that severely impacts one's quality of life. It can cause significant medical, social, and financial ramifications to an individual and affect others close to the person suffering from depression. Depression is often underdiagnosed in the primary care setting, which can lead to inadequate treatment. Depression screening has been proven to be effective in detecting symptoms during an office visit. The intent of this quality improvement project is to implement a Patient Health Questionnaire (PHQ-9) depression screening process at Vanceboro Internal Medicine. Based on the total score of the PHQ-9 screening test or if question number 9 is one or greater, the provider will also administer the Columbia-Suicide Severity Rating Scale (C-SSRS) questionnaire to further evaluate suicidal risk. The provider will be educated on the purpose and process of implementing the screening tools. Additional staff will be educated on the purpose, administration, and billing of the screening tool. The goal is to have 100% administration of the PHQ-9 screening tool to all non-acute patient visits. Once the project has been started, weekly reviews will be conducted, over a 12-week period, to evaluate the clinic's progress and if modifications are needed as the project unfolds. Implementing the project in a step-wise fashion will be important to assist the clinic in having a successful integration of a depression screening process as a standard of practice.

Will the project involve testing an experimental drug, device (including medical software or assays), or biologic?
No

Has the project received funding (e.g. federal, industry) to be conducted as a human subject research study?
No
Is this a multi-site project (e.g. there is a coordinating or lead center, more than one site participating, and/or a study-wide protocol)?
No
Is this a systematic investigation designed with the intent to contribute to generalizable knowledge (e.g. testing a hypothesis; randomization of subjects; comparison of case vs. control; observational research; comparative effectiveness research; or comparable criteria in alternative research paradigms)?
No
Will the results of the project be published, presented or disseminated outside of the institution or program conducting it?
Yes
Would the project occur regardless of whether individuals conducting it may benefit professionally from it?
Yes
Does the project involve “no more than minimal risk” procedures (meaning the probability and magnitude of harm or discomfort anticipated are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests)?
Yes
Is the project intended to improve or evaluate the practice or process within a particular institution or a specific program, and falls under well-accepted care practices/guidelines?
Yes

Based on your responses, the project appears to constitute QI and/or Program Evaluation and IRB review is not required because, in accordance with federal regulations, your project does not constitute research as defined under 45 CFR 46.102(d). If the project results are disseminated, they should be characterized as QI and/or Program Evaluation findings. Finally, if the project changes in any way that might affect the intent or design, please complete this self-certification again to ensure that IRB review is still not required. Click the button below to view a printable version of this form to save with your files, as it serves as documentation that IRB review is not required for this project. 6/20/2019

Powered by Qualtrics

Appendix H

PHQ-9 Daily Depression Screening Data Collection Tool

PHQ-9 Depression Screening

Date: _____

	Gender	Age	Race	Non-Acute or Acute Visit	PHQ-9 Score	C-SSRS Score
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

If a patient presented for a non-acute visit and did not complete a PHQ-9 screening tool, indicate below the patient number (from above) and the reason why the tool was not completed.

Appendix I

Weekly Staff Compliance Data Tool

Project Week _____ Dates _____

- Total number of patients seen this week _____
- Total number of non-acute visits this week _____
- Number of PHQ-9 screenings done this week _____
- Number of screenings not completed during non-acute visit _____
- Of the PHQ-9 screenings completed, what were the number of cut-off scores?
    - 1-4 _____
    - 5-9 _____
    - 10-14 _____
    - 15-19 _____
    - 20-27 _____
- If a depression screening was not conducted, list an individual date of visit and reason.

- Number of C-SSRS questionnaires administered _____

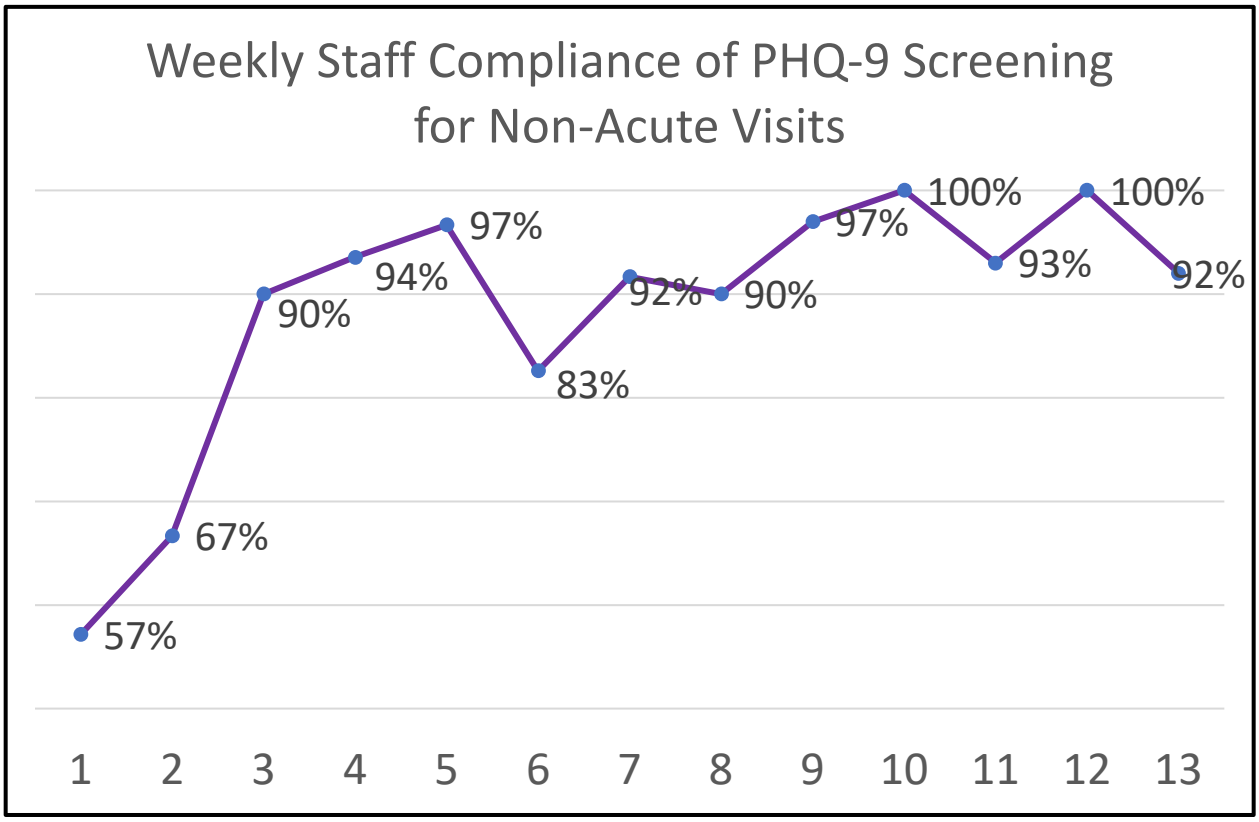
Appendix J

Secretary script:

Please fill this form out while you wait to be check-in with the Certified Medical Assistant. This form will allow your doctor to see if you have any symptoms of depression and, if you do, how he can help you manage your symptoms to help you feel better. If you are unable to complete the form without assistance, please allow me to help you.

CMA script:

Thank you for filling out this form. I will notify the doctor of your score, and he will discuss the results of this form with you during your visit.

Appendix K

Weekly Staff Compliance of PHQ-9 Screening for Non-Acute Visits