Improving Utilization of PHQ Tools for Screening Depression in a Primary Care Practice

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Abstract

Major depression is a common mental health disorder in the United States (US), and can result in substantial impairments and limitations on the quality of life. According to the National Institute of Mental Health, an estimated 17.3 million adults or 7.1% of the adult population currently experience at least one major depressive episode. Community-based studies estimate a prevalence of undiagnosed depression of 11% and higher. Early screening, diagnosis, and treatment of depression are critical for the effective management of the condition. Evidence-based studies confirm that screening is highly beneficial for the effective management of social, economic and health problems experienced by depressed patients. However, it has also been determined that primary health care facilities have remained an untapped resource for screening with only 1.4% reporting Patient Health Questionnaire (PHQ) utilization as part of standard ambulatory care. The Plan-Do-Study-Act (PDSA) cycle framed this project to improve clinical staff knowledge of depression and PHQ tools and to introduce a standardized protocol as an effort to increase PHQ utilization. A paired sample t-test estimated that participation in an in-house educational workshop lead to a 15.3% improvement in knowledge and awareness (t=3.27, p=.014) among N=8 participants. A chi-square analysis of (N=729) electronic medical records estimated a 20.8% increase in the number of patients who completed a PHQ-9 screening (X_2=21.63, P=.000). Outcomes suggest that implementation of the intervention was successful with creating short-term improvements and provide optimism for sustainable long-term change in depression screening at the project site and similar community-based primary care facilities.

Keywords: Depression, Screening, Primary Care, PHQ-2, PHQ-9, Knowledge, Educational Session, Protocol, Quality Improvement

Improving Utilization of PHQ Tools for Screening Depression in a Primary Care Practice

Depression is a common mental health challenge in the United States (US). Approximately 43.6 million American adults suffer from a form of mental illness with depression having the highest prevalence and incidence rates (Colorafi, 2017). According to the National Institute of Mental health, an estimated 16.2 million adults in the United States meet the criteria for clinical depression at one given time (SAMHSA, 2017). A number of epidemiological studies have confirmed that as many as 16 percent of the adult population experience at least one depressive symptom at one point in their lives (Akincigil & Mathews, 2017; Colorafi, 2017). The World Health Organization (WHO) estimates that by 2020, depression will be the third leading cause of disability across the globe (Sivertsen et al., 2015).

Depression, otherwise known as major depressive disorder or clinical depression, is a common and serious mood disorder which is marked by feelings of sadness, hopelessness, and a loss of interest in activities once enjoyed for at least two consecutive weeks. The DSM-5 outlines criterion to include (1) Depressed mood; (2) Markedly diminished interest in activities; (3) Significant change in weight or appetite; (4) A slowing down of thought or physical movement; (5) Fatigue or loss of energy; (6) Feelings of worthlessness or excessive guilt; (7) Diminished ability to think or concentrate; and (8) Recurrent thoughts of death or suicidal ideation (American Psychiatric Association [APA], 2015).

Although millions of Americans suffer from depression, about two-thirds of cases are undiagnosed (Williams, Chung, & Muennig, 2017). Screening, in medicine, is defined as a strategy used in a population to identify the possible presence of undiagnosed disease in individuals without signs or symptoms (Sullivan et al., 2018). The screening for depression serves as the first step in the diagnosis and treatment of a health problem which can have

considerable lifelong impacts. Early diagnosis and management can improve health outcomes and quality of life for the patients who suffer from a condition.

The recommended standard for screening depression involves the use of two distinct tools that include the Patient Health Questionnaire PHQ-2 and PHQ-9 (Kroenke, Spitzer & Williams, 2010). The two tools are in the form of questionnaires and as their acronyms indicate, PHQ-2 has two questions while PHQ-9 has nine. The PHQ-2 is considered a first step for assessing depression. By comparison, the PHQ-9 is a more comprehensive multipurpose screening instrument that facilitates the screening, diagnosis, and monitoring of depression. Both tools have been tested for validity and reliability and have been found to be highly effective in the measurement of the presence and severity of depression (Kroenke, Spitzer & Williams, 2010).

Symptoms of depression contribute to significant impairments on health and social function (Brenes, 2007). The condition is strongly correlated to a host of co-morbidities including stroke, obesity, and heart disease (Akincigil & Mathews, 2017) and has also been found to have a more profound effect on quality of life than other chronic illnesses such as hypertension and diabetes (Brenes, 2007). The significance of adequate screening and treatment for improving the patient's quality of life cannot be overstated.

Background

The majority of those affected by depression, experience some form of impairment (Colorafi, 2017). Depression is highly prevalent among persons with chronic illnesses because of the limitations the chronic condition may impose on social activities, challenges in fulfilling expected roles, isolation, and dependence on others (Dogu & Aydemir, 2018). Anxiety and depressive disorders are among the most prevalent forms of mental health illnesses that affect the

American population with about 18.1 percent of the adults suffering from the two (Colorafi, 2017). Multiple studies have found that the majority of patients with mental health challenges delay seeking treatment because of the associated social stigma. This is exemplified by a recent survey taken by the National Mental Health Association that revealed 43 percent of Americans believe that depression is the result of a weak character or personal deficit (Parcesepe & Cabassa, 2013).

The early screening, diagnosis, and treatment of depression among patients in the primary care setting has been determined as being important in the improvement of their quality of life and the increase in the success rate of the management and cure of depression. According to Walsh, Wesley, Sim, O'Leary, Yan, & Rodriguez (2017), the early identification of depression symptoms helps to guide treatment which improves suicide rates and other negative health outcomes.

The U.S. Preventive Services Task Force (USPSTF) recommends screening in adolescents and adults in clinical practices to ensure accurate diagnosis, effective treatment, and follow-up. Two standard screening tools used for early identification of depression are the PHQ-2 and PHQ-9 (Phelan et al, 2010). The estimated sensitivity (true positive), and specificity (true negative) rates of the PHQ as screening tools have been validated in several research environments. When tested in the overall adult population, the PHQ-2 was estimated to have a sensitivity of α=.97 and specificity of α=.67 in adults, whereas the PHQ-9 has a sensitivity of α=.61 and specificity of α=.94 in adults (Mauer, 2012). When tested among older adults over 65 years of age, sensitivity and specificity were both estimated at α=.88 respectively (Phelan et al, 2010; Kroenke et al, 2010). Among youth under 18 years of age, the sensitivity of α=.74 and specificity of α=.75 were estimated for the PHQ-2 and the sensitivity of α=.96 and a specificity

of α=.82 were estimated for PHQ-9 in its ability to accurately detect DSM criteria for depression (Richardson, 2010). Both of these tools have been confirmed as highly valid tools for use in the practice cite (Akincigil & Mathews, 2017).

The exploration of the national effects of depression has contributed to system-level and policy solutions. Since 2010, depression treatment became a standard billable service under the Affordable Care Act (Akincigil & Mathews, 2017). The continued adoption of depression screening as a standard of care is an important indicator in the delivery of primary health care.

Problem Statement

The issue of depression continues to grow in the US and around the world. Since 2002, The USPSTF has recommended that depression screening be conducted as part of a standard wellness care, not only for high risk groups such as pregnant and post-partum women, but for the general adult population (USPSTF, 2016). Despite federal recommendations for depression screening, it has been estimated that in 2017 half of cases of adult depression went unrecognized.

Diagnosis and treatment rates remain particularly low among certain demographic groups, including older adults, males, and African Americans (APA, 2017). Most research studies confirm that only half of individuals with depression have been properly diagnosed and receive adequate mental health care (Dogu &Aydemir 2018). Absence of screening leads to missed opportunities to identify individuals with depression and link them to care.

The compliance rate for screening depression is an issue that needs to be addressed in by primary health care clinics. The improvement of screening for depression in the primary care setting underscores the benefits that patients will experience because of early detection and appropriate treatment of the disabling condition. The project site does not have a current policy in place for screening for depression as part of primary care visit. Educating the staff and

creating a new protocol to encourage the use of PHQ-2 and PHQ-9 at the project site is a first step towards meeting national guidelines for assuring that the general population is screened and treated for symptoms of depression. It is anticipated that this intervention will be effective with increasing awareness and encouraging compliance with national guidelines regarding depression screening as a standard part of a commitment towards providing primary health care, disease prevention, and health promotion services.

Project Question

Can a depression screening protocol improve awareness of depression, improve administration of PHQ tools, and encourage the utilization of the PHQ tools for screening depression in a primary care setting over a one month post-intervention period?

Projective Objectives

The objectives of this scholarly project are as follows:

1. Develop a protocol to significantly improve the utilization of the PHQ-2 and/or PHQ-9 screening tools for depression by 50 percent
2. Provide an educational training on PHQ-2 and PHQ-9 to increase staff knowledge, skills, and attitudes regarding depression screening and early treatment as well as improve compliance with depression screening protocol
3. Conduct a comparative analysis (t-test) of pre-test and post-test to determine the degree to which the educational training may have changed staff knowledge, skills, and attitudes regarding depression screening.
4. Conduct a chart audit to estimate (trend) changes in the rate of PHQ use at baseline and over a four-week period after the intervention is introduced.

Search Terms

The literature review's inclusion and exclusion criteria considers four aspects such as the date of the publication, relevance to the research question, peer review, and the reported outcomes. The studies included for the literature review section of the research were restricted to publications after 2010. Further, studies included had to detail and have a correlation with the research question regarding the improvement of depression screening in primary care with the need for the reported outcomes providing answers to the question. The research is founded on articles that are peer-reviewed and published in scholarly journals as the means of enhancing their validity and attesting to the reliability of the results. The search was conducted on the premise of the inclusion and exclusion criteria on health-related databases that include PubMed, ProQuest Central, CINAHL, and Google Scholar.

The search terms used for the identification of relevant articles include "depression, depression screening in primary care, use of PHQ-2 and PHQ-9, and management of depression in adults". The inclusion criteria, required that articles focused on the adult population, provided detailed results, and were peered reviewed and published in the English language after 2010. Studies that included depression in children, those not conducted in the primary care setting, and articles published before 2010 were excluded. The search resulted in 214 articles and based on the exclusion criteria it was reduced to 127 articles while the review of the abstracts, topics, and data contributed to the selection of the 20 studies that were closely related to the topic and research question.

Literature Review

A literature review was conducted to identify the most significant current literature on the prevalence of depressive disorders, the impact of depression on health and quality of life, related

financial and economic burden, and screening methods for depression. In addition, a literature review offers the needed background for establishing gaps and for framing a project that responds to gaps in understanding. The necessity for health professionals to take initiative in screening for the early detection and treatment of depression is amplified by the research. Akincigil & Mathews (2017) identify depression screening as deficient for meeting the high prevalence of the condition. The notable deficiencies create the background needed for the research and facilitate the identification of the inclusion and exclusion criteria.

Impact of Depression

Health

A secondary analysis of the 2012 and 2013 *National Ambulatory Medical Care Survey* based on 33,653 physician-patient interactions, identified depression as being a leading cause of disability (Akincigil & Mathews, 2017). The evidence indicates that depression predisposes the affected population to different adverse health consequences that include self-harm, development of co-morbidities, and premature death. Between 4 and 8 percent of depressed patients develop obesity, stroke, and heart disease or another co-morbid condition (Akincigil & Mathews, 2017). The health consequences of depression suggest a continuing need to improve screening of depression as the condition remains one of the leading causes of disabilities in the US.

A meta-analysis that evaluated evidence from studies obtained from different health, medical, social sciences, psychology, and psychiatry databases underscored the importance of considering viable treatments for depression as the means of improving the physical and mental health aspects of quality of life among cardiac patients (O'Neil, Sanderson, Oldenburg & Taylor, 2011). O'Neil et al. (2011), highlight the significant health effects of depression among cardiac patients who experience worsened conditions and face greater risks of deteriorating health.

Notably, the need to address depression cannot be overstated for those who suffer from other chronic conditions (O'Neil et al., 2011).

Research indicates the possibility of improved cardiovascular outcomes among cardiac patients once the issue of depression is addressed. A cross-sectional study of N=301 patients evaluated the prevalence of depression among those diagnosed with chronic conditions that include asthma and chronic heart failure (Dogu & Aydemir, 2018). According to Dogu & Aydemir (2018), depression is one of the notable psychiatric co-morbidities that occur frequently among patients with known chronic conditions. Therefore, depression leads to poor health outcomes among patients receiving treatment for other chronic conditions such as kidney, respiratory tract, and chronic heart diseases among others. A randomized controlled pilot trial of 78 patients found that type 2 diabetes mellitus and other chronic illnesses was significantly more common among depressed patients. Depressives with diabetes were also found to be half as likely to adhere to treatment, medications, or healthy dietary requirements (McClintock, Boyle, Rooney & Bogner, 2016).

The prevalence of depression among persons with other chronic conditions is estimated to be as high as 81.7 percent (Dogu &Aydemir, 2018). The evidence obtained regarding the health consequences of depression indicates the higher likelihood of depressive episodes among patients with chronic conditions compared to those without health complications. A meta-analysis of studies revealed the complexity of the causes of diabetes and found that depression was a risk factor for developing diabetes mellitus (Yu, Zhang, Lu & Fang, 2014). Depression is to be included as one of the risk factors that signify screening for diabetes since symptoms of depression is associated with diabetes.

Literature revealed that patients who have cancer are more predisposed to developing depression than is the general population. Furthermore, depression is the only psychological disorder that disproportionately affects patients with a cancer diagnosis (Young & Singh, 2018). A longitudinal study of breast cancer patients by Yan Ho, Rohhan, Parent, Tager and McKinley (2015) revealed that depression and lethargy were correlated symptoms obtained from the samples and had a link to time of diagnosis and treatment. Major depressive disorder (MDD) is four times more common in patients with co-morbidities such as cancer and leads to worse outcomes in oncology settings due to non-adherence to treatment regimen and increased mortality (Bortolato et al., 2016).

Economic

The financial and economic burden is further linked to the support that government offers for the clinical services with depression. The financial and economic costs vary by country, and can be quantified in terms of the services offered, lost productivity, and premature death caused by suicide of co-morbid disease processes. The investment in clinical services has not contributed to significant improvements in the prevalence of depression. For example, in a clustered randomized controlled trial of 70 primary care centers, it was found that the rate of depression continues to increase between 3 and 4 percent a year in spite of 113.4 billion Euros committed in annual spending to address the condition (Fernández et al., 2018).

The literature indicates that approximately 15.7 million adult Americans or 6.6 percent of the adult population experienced one or more episode of major depression. An estimated 10.2 million experienced a major depressive episode leading to severe impairment (Colorafi, Venselow, & Nelson, 2017). An evidence-based study indicated the economic burden in the US as presented through research indicates MDD as being responsible for the increase in the health

resources dedicated for treatment since 2005 where it was $173.2 billion to $210.5 billion in 2010 (Greenberg, Fournier, Sisitsky, Pike & Kessler, 2015). A 21.5% increase over 5 years in expenditures for the treatment of MDD is indicative of the significant and increasing cost burden of this condition (Greenberg et.al, 2015).

One study of N=2,489 Spanish and English-speaking residents of Washington Heights, New York, examined the relationship between economic difficulty, workplace productivity, and depression (Williams, Chung & Muennig, 2017). According to Williams, Chung & Muennig (2017) undiagnosed depression in the United States lead to diminished productivity and a loss of approximately $233 billion dollars per year.

Quality of Life

A systematic, computerized search that was conducted on various databases that included MEDLINE, EMBASE, CINAHL, PsychINFO, and PubMed identified depression as being a condition with debilitating effects on quality of life (QOL) of the affected persons (Sivertsen, Bjorklof, Engedal, Selbaek & Helvik, 2015). According to Sivertsen et al. (2015) depression stands out as one of the highly prevalent and disabling conditions that affect adults, particularly aged above 60 years. The condition has significant effects on the QOL with the connection between depressive symptoms and the QOL being identified in research works. The chronic state of depression has been found to significantly impact quality of life. Compromised QOL underscores the necessity for taking precautions and improving the screening mechanisms because of its debilitating effects. The effects on QOL cannot be overlooked because of its association as one of the major causes of disabilities.

A randomized controlled trial compared a placebo group with groups that had received various forms of treatment including antidepressant medication (MED) and supportive-

expressive therapy (SET). The three groups were compared to determine the effectiveness of treatment in reducing symptoms of depression. Literature illustrates that depression plays a significant role in the decline of QOL, wellbeing and functionality of individuals affected by depression (Zilcha-Mano, Dinger, McCarthy, Barrett, & Barber, 2014).

A randomized controlled clinical trial that involved 472 cancer patients with depression used the Patient Health Question-9 to determine the effects of depression on the marital status of the subjects (Oh, Kathleen, & Subica, 2013). The results showed significant effects on families as conflict could be associated to the changes in depression with marital discord arising because of mean depression levels that were estimated above 2 years (Oh, Kathleen, & Subica, 2013).

A cross-sectional study of N=301 patients compared the prevalence of depression and anxiety among patients with chronic conditions. It was found that the condition contributed to a notable degradation of the quality of life and limited physical activities among the affected patients (Dogu & Aydemir, 2018). Dogu &Aydemir (2018) were able to link mental, social, physical, psychological impediments and a diminished QOL with depression. The high prevalence of depression among individuals with chronic illnesses is associated with difficulties in the fulfillment of the expected roles in the society and family, limited social activities, and an increase in the dependence on others. Depression is associated with elevated cases of conflicts and interference with interpersonal relationships at the workplace and among family members. Depression has the effect of reducing QOL, workplace productivity, and interferes with the fulfillment of family and social roles (Dreskin, 2018).

Depression Screening

Screening for depression as part of routine checkups in primary care is frequently advocated. A secondary analysis of the data available from 2012 and 2013 obtained from the

National Ambulatory Medical Care Survey that used a sample of 33,653 physician-patient interactions indicated that the overall rate of screening for depression is 4.2% for the general adult population (Akincigil & Mathews, 2017). Literature revealed that African Americans had significantly lower rates of screening compared to their white counterparts while elderly patients were also less likely to be screened than younger patients (Akincigil & Mathews, 2017). Additionally, the rate of screening was significantly higher among patients with chronic conditions compared to the patients without a chronic condition. Literature revealed in the review of evidence by the USPSTF there are benefits associated with the screening for depression among adults above 18 years (Siu et al., 2016). The evidence underscores the need for regular screening without excluding pregnant and postpartum women as the means of enhancing the accuracy of diagnosis, follow-ups, and treatment of depression. Consistent and adequate screening of the general population for depression ensures early and timely treatment.

PHQ-9 as identified through literature is a self-report questionnaire used in the primary care setting in accordance with the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria for the identification of depression (Phelan et al., 2010). Literature indicates PHQ-9 nine-item questionnaire was designed for specific use in the diagnosis and screening of major and minor cases of depression and its use extend beyond screening (Phelan et al., 2010). A prospective study based on the diagnostic accuracy of the tools, PHQ-2 and PHQ-9, used in two primary care facilities in the US using a sample of 71 patients aged above 65 years revealed the PHQ-2 performed significantly similar to PHQ-9 (Phelan et al., 2010). Literature revealed the sensitivity of α=.88 and specificity of α=.88 for the PHQ-2 suggests a high degree of reliability for the accurate identification of major depression (Kroenke, et al., 2001; Phelan et al., 2010; Arrieta et al., 2017). When used for detecting DSM criteria for major depression in

youth, sensitivity of α=.74 and specificity of α=.75 were estimated for the PHQ-2 while sensitivity of α=.96 and a specificity of α=.82 were estimated for the PHQ-9 (Richardson, 2010).

Current Recommendations

The USPSTF underscores the importance of screening all persons aged above 15 years regardless of risk factors. Evidence-based research studies have consistently found screening as important in the improvement of diagnosis, treatment and outcomes (USPSTF, 2016). Furthermore, a notable decline of clinical morbidity and mortality as a consequence of screening by primary health practices have also been noted (Siu et al., 2016).

The PHQ screening tools can identify criteria established by the DSM-5 for clinical depression. A prospective study on the diagnostic accuracy of PHQ-9 and PHQ-2 tools supports the use of the two as screening tools that can increase the chances of diagnosis and identification of depression among the elderly in the primary care setting (Phelan et al., 2010). A secondary analysis of 33,653 physician-patient encounters examined ways in which PHQ-2 and PHQ-9 outcomes can be built into the electronic systems to facilitate the effective management and use of screening outcome data (Akincigil & Mathews, 2017).

Significance to Nursing

Clinical care should be informed on the best available evidence. Knowledge and evidence derived from scholarly (practice improvement) methods can be used to drive improvements in clinical practice and the way in which care is delivered. There are more nurses in the frontline of health care than any other healthcare profession. As such, nurse-led practice improvement efforts function as a critical pathway to practical and effective ways of improving patient outcomes (Cutis et al., 2017). The review of literature provides evidence that screening in the primary setting is highly beneficial for alleviating the social, economic and health burdens

experienced by depressed patients treated in primary health care settings. Knowledge regarding the condition as well as the importance of screening is vital in the improvement of the involvement of nurses in the diagnosis and treatment of depression. Sharing information can provide leverage for creating interventions that improve the practice of regular screening of depression in the primary care setting. The evidence presented by the literature underscores the positive impacts of adopting screening measures in primary care as the means of enhancing the identification, diagnosis, and treatment of depression in the society.

Theoretical and Conceptual Framework

This project will utilize the Plan-Do-Study-Act (PDSA) cycle (See Appendix A). This framework is a scientific method used for action-oriented learning. The PDSA cycle is shorthand for testing a change by planning, trying, observing, and acting on what is learned. The cycle can provide feedback about what does and does not work, and has the capacity to measure and test small but significant improvements in most industries including health care (Coury et al. 2017). The PDSA is an iterative four-stage problem-solving cycle used for improving a process or carrying out change and has been utilized by a broad range of industries and organizations in making significant changes in their various projects. The Institute for Healthcare Improvement (IHI) and Agency for Healthcare Research and Quality [AHRQ] regard the PDSA as both simple and powerful for guiding quality improvement (Er-Huan et al, 2016; AHRQ, 2013).

Historical Development of the Theory

Dr. W. Edwards Deming developed the PDSA cycle of learning. Deming was trained as an electrical engineer and later specialized in mathematical physics, teaching and consulting to many governments globally (Moen, 2010). His earlier collaborative work focused on the Shewhart cycle, which he eventually modified into PDSA in 1950. Dr. Deming first presented

the PDSA at a Japanese science and engineering seminar as the "Deming wheel". The Japanese later reorganized and renamed Deming wheel as the "Plan-Do-Check-Act (PDCA) cycle in 1986. Deming warned that the PDCA version was a corrupted cycle and was not accurate due to the word "check" which could be translated as "hold back" (Moen, 2010). Deming modified the Shewhart cycle again in 1993 and named the PDSA cycle to reflect a revised cycle for learning and improvement. The PDSA cycle is a process in which valuable knowledge and learning can be gained for a continuous improvement of a process, service, or product (Moen, 2010). The simple nature of the PDSA framework for resolving complex issues is often overlooked by the healthcare industry (Reed & Card, 2015).

Applicability of Theory to Current Practice

Providing advanced and safe care remains a challenge in today's society. Quality improvement relies on innovative evidence-based practice to bring about the delivery of care that meets the need for safe, high quality and efficient disease prevention, and health promotion (AHRQ, 2013). A systematic review showed that the core values of PDSA are not always carried out in practice and that failure to adequately carry out the PDSA may lead to negative effects on learning and quality improvement. The PDSA cycle has been used and tested in various settings.

The many examples of evidence-based studies using the PDSA framework include a cluster-randomized pragmatic study testing the effectiveness of a direct-mail fecal immunochemical testing (FIT) program (Coury et al., 2017). Stevens et al. (2010) used PDSA on 57 teams from 37 self-selected teaching hospitals committed to implement the collaborative chronic care models (CCM) in resident continuity practices. Each team used rapid cycle quality improvement (PDSA cycles) to implement the CCM and curricular changes. The intervention

resulted in an extensive redesign to establish CCM elements of CCM-related learning. It was concluded that the systematic practice redesign for implementing the CCM educational approaches to improve training for residents who provide chronic illness care in teaching practice settings were achievable using the PSDA cycle (Stevens et al, 2010).

In a quality improvement project conducted by Schaefer & Jolles (2019), the researchers aimed to increase the efficacy of depression screening used the four PDSA cycles in a 90-day period. The intervention used a number of tools and a "right care" tracking log for patients; providing evidence-based care increased to 71.4%, and adherence to follow-up increased from 33.3% to 60.0% (Schaefer & Jolles, 2019). Utilizing the PDSA cycles assisted with the rapid practice improvement and follow-up within a multicultural community. These processes can be applied to other primary care settings (Schaeffer & Jolles, 2019).

Major Tenets

Several quality improvement models and frameworks can be considered to promote success in an organization. The PDSA cycle is among the most frequent methods used for gaining valuable learning and knowledge for the continual improvement of a product, service, or process. The major tenets of the PDSA cycle for improvement are reflected in its name.

The four-step approach identifies an opportunity to 1) Plan a change or test or measure how something works within one component of the clinical workflow, 2) Do: Carry out the plan for improvement for the specific component of the clinical workflow. 3) Study: Examine the results on a small group of patients and 4) Act: Based on the results of the testing period, incorporate changes and establish quality improvement plans (AHRQ, 2013).

Plan

In this cycle, questions are asked, and objectives are set. During this stage, a plan is made for a change geared toward improvement. In a study of peri-operative nurses in the operating room setting, the process of PDSA worked well in the implementation of a "Time Out" routine during the surgical closure. This minimized the potential risk of retaining foreign objects during a surgical procedure (Thompson, 2015). In the plan cycle, the team developed the objective, answered the questions of what, when, who, and where, and established methods to collect data which will determine the effectiveness of the change.

Do

This is the stage when the change is implemented or tested. Information about problems and unexpected results or encounters are recorded and analyzed. It is preferred, this be completed on a small scale. A committed team, plan, and a routine audit are needed in this stage for this cycle to be implemented and to ensure the results are accurately taken into consideration (Hall, 2016). The quality improvement project conducted by Schaeffer & Jolles (2019), revealed excess of 70% improvement of depression screening after four cycles of the PDSA was implemented. Plans are tested in the "Do" cycle of the PDSA.

Study

This is the stage when the results of the implementation are reviewed and data is analyzed. In this stage there is a reflection and summary of what was learned compared to previous predictions (Moen, 2010). Questions are asked in this cycle to assess the value of the plan. Some questions asked during the study phase are what were the plan results and if the cost and the plan contributed to improved outcomes. The value of the plan as well as any unintended effects of the action, are assessed in this cycle.

Act

In this cycle, the change is adopted or rejected (Moen, 2010). The team discusses the results and the sustainability of the change. There can be a determination to restart the cycle at the planning stage due to the plan working well or failing to meet intended results (Hall, 2016). The PDSA cycle is designed to be a continuous process for improvement.

Theoretical Application to the DNP Project

The PDSA quality improvement cycle, presents an appropriate medium to implement this project. The plan involves implementation of a protocol that aids improved screening and treatment of depression in a primary care setting. Data will consists of responses to tests administered before and after implementation of the educational protocol, a chart audit of baseline and 4 weeks post educational intervention.

Plan

The DNP student will utilize leadership skills to develop a protocol that will improve quality of care for patients with depression. The planning cycle involves collecting information and making projections regarding what is expected to happen during the process (Institute for Health Improvement [IHI] 2012). In today's healthcare environment, working and planning to improve quality of care could be overwhelming. However, careful planning and adequate resources and information will facilitate achievable process. The plan is to educate staff and develop a protocol which is expected to improve the rate of depression screening in a primary care setting. This will be accomplished through the development of an in-house educational protocol to enhance staff awareness of depression, knowledge of depression screening tools, and utilization of depression screening tools for early detection.

In this planning phase, the DNP student will identify clear objectives to meet in order to improve practice outcomes. All permissions for conducting this project at the clinic sight as

well as commitment letters from mentors have also been obtained. The DNP student will then design the project to ensure all required tools and the implementation plans are submitted for approval.

Do

Implementation of the project in the practice sight is essential to improve outcomes. The plan to implement a protocol will be tested in this cycle. Development of tools or obtaining permission to utilize tools already published is a priority. While implementing quality improvement projects, organizations may establish changes by utilizing proven principles and approaches to quality improvement (AHRQ, 2013). Implementation of the project in the practice sight is essential to improve outcomes.

Arranging and developing the educational component is another priority for implementation. Medical staff will be educated regarding depression and the importance of early and effective screening as well as treatment of depression. The DNP student will be engaged in monitoring the population of interest and verifying the use of the developed protocol and screening tools to ensure compliance during the implementation phase of this project. Finally, data collection is essential to scientifically measure to improve quality. Chart reviews and pre and post tests will produce information needed to measure the success of the project.

Study

Change in awareness regarding depression and screening will be tested before (pre) and after (post) exposure to training using a t-test. Trend analysis will be used to measure changes in depression screening rates over time. Results of the pre and posttests, as well as the trends in depression screening rates, will be helpful in establishing the efficacy of the intervention plan.

Findings will also assist with drawing conclusions regarding the success of the quality improvement project on making changes in depression screening within the organization.

Act

Based on the findings of the studied (evaluated) outcomes of the in-house education, decisions will be made regarding the acceptance or rejection of the intervention to meet the desired objectives of the project. The Act cycle of the PDSA is an important stage of the cycle in order to apply changes that have been measured as effective in achieving results or health care improvements (Peter & Paul, 2015).

Based on previous evidence-based research, it is believed that the PDSA cycle is a highly appropriate framework for guiding this quality improvement project such as the one proposed to improve depression screening. Literature strongly suggests that the use of a screening protocol in primary care settings lead to improvements in timely screening, adequate treatment, and a general improvement in the quality of life of adult patients at high risk of depression (Bajracharya, Summers, Amatya, & DeBlieck, 2016). The overarching goal is to implement an intervention that will lead to improvements in the use of PHQ for screening depression and subsequently protecting the QOL and overall wellness of patients seen at this project site.

Project Design

This DNP project is a quality improvement project that is aimed to develop, implement, and evaluate the process of screening and treatment of depression in a primary care setting. DNP projects focus on improving process and outcomes in healthcare settings therefore, it is important to understand quality improvement and avenues that implementation science is applied to impact these outcomes (Moran, Burson, & Conrad, 2017). The overall purpose of this project is to address the low rates of PHQ utilization for depression screening. Despite the federal

government recommendations for depression screening, it has been estimated that in 2017 half of cases of adult depression went unrecognized; screening, diagnosis and treatment rates remain particularly low among certain demographic groups (APA, 2017). It has been observed that depression screening is approximately 25- 33 % at this clinic. Even though there are various resources and effective treatment available for depression, many sufferers remain undiagnosed and untreated (Lao, Chan, Tong & Chan, 2016). This quality improvement project has been designed as an effort to increase PHQ utilization rates in order to identify depression and provide appropriate treatment in the patients seen at the primary care clinic.

A protocol is inclusive of educational materials and a screening protocol, which will be developed to increase awareness about depression, the need for screening, and encourage an increase in the rate of PHQ utilization. A pre-test and post-test will be administered before and after the presentation of the educational training, and an audit of PHQ completion rates will consider trends in completion at baseline and during the four weeks following the educational training.

Utilizing the new protocol is a variable that will be measured. It is assumed that the availability of information regarding depression and a protocol regarding PHQ utilization will strengthen staff's ability to provide adequate screening, treatment, and health outcomes of patients visiting the primary care clinic. Statistical Package for the Social Sciences (SPSS) will be used to run a t-test to measure changes in knowledge before and after the educational intervention. A retrospective chart review will measure changes in PHQ utilization at baseline and for the four week period after intervention implementation. Data from the chart audit will measure the volume of completed PHQ screenings during the primary care visits.

Population of Interest

The population of interest consists of medical staff currently employed at the project site. The staff size at the project site includes a physician, two physician assistants (PA), a nurse practitioner (NP), and six medical assistants (MA). The physician, PAs and NP work full time at the clinic. The MAs also work full time. The inclusion criteria are all health care professionals who provide direct patient care and employed at the practice site. Pediatric patients, front office staff, temporary staff, medical and nursing students, and any medical provider who is not employed in this practice site do not meet inclusion criteria, and are therefore excluded from participating in this project.

Stakeholders

The major stakeholders include the owner of the primary care clinic. All clinical staff members that provide screening services are considered stakeholders because they will be implementing this project protocol and their practice is directly impacted by this change in practice. The MAs are also stakeholders because they play a small role in the implementation process of this project by offering the screening tools and they are responsible for inputting clinical data into the electronic record system. The patients who seek care in this primary care clinic are also stakeholders because this project direct impacts the way care is rendered to them.

The project lead has established a rapport with the stakeholders through this project. Stakeholders were consulted in regard to this practice change and felt there was room for improvement. This project lead continues to include the stakeholders in project design by learning the workflow of the practice and interviews. The owner and clinic manager are kept current by meeting routinely each month to discuss project progression and to elicit feedback.

Setting

The project will take place in an outpatient primary care clinic. The clinic was established in 2008 and incorporated in California. The organization is owned by the facility's only licensed physician and currently employs a staff of eight clinical and six administrative professionals. The practice serves approximately 750 patients monthly and provides approximately 9000 primary care visits per year. The patient population ranges from pediatric patients up to the geriatric population. Permission to conduct this project at this outpatient primary care clinic was obtained (See Appendix B).

Recruitment Methods

Project Participants

This quality improvement project is a practice-based change project in a primary care practice. The physician, PAs, NP, and MAs at the facility will participate in this project. Since this is a clinic wide practice change all health care providers and MAs are mandated to participate. Participation is not a condition of employment. The pre and post tests will be identified by participant numbers instead of names to maintain confidentiality. Only the project lead will have the corresponding names to the numbers in the event remediation is required. The results from the collected data will be stored on a USB flash drive that only the project lead has access to. When all the data is collected and recorded, the USB flash drive will be destroyed. There are no advertisements or incentives to participate in this project. There is no risk to the clinic staff therefore there will not be an active recruitment for this project.

Patient Charts

This project lead will obtain information from the charts of all adult patients over 18 years of age receiving care in this clinic setting. No identifying protected information will be extracted. The charts will be identified by utilizing a numeric system. Results of the chart audit

will be placed on an audit sheet for data collection purposes and stored in the same USB flash drive used for test results. Once all the data is collected the USB flash drive will be destroyed to protect confidentiality. Only the project will have access to the USB flash drive.

Tools/Instrumentation

Pre and Post Test/Score Sheet

The pre and post-test (See Appendix C) will be offered in a paper format before and after the educational training. The test consists of a brief nine question multiple choice depression quiz created by Ballas Paul and Fraser Marrianne in 2017. Permission has been obtained from the University of Rochester to use this online tool (See Appendix D). The two tests are the same to measure the knowledge before and after the educational intervention. The tools will measure knowledge, skills and attitude of staffs towards depression and screening. If staff score low on the test, opportunity for remediation will be provided. A score of at least 80% is required to pass the test. Only the project lead will have access to scores. The scores from pre and post-test will be entered on a scoresheet that will contain participant scores (See Appendix E).

Chart Audit Tool

The chart audit tool (See Appendix F) is a table format tool that will be used to collect data from the patients' health record. The tool will be used to collect data before implementation of the protocol and after implementation. It will contain a generated patient number to maintain confidentiality. The variables in the chart audit tool will include a total of seven questions to review. The audit will record if the PHQ-2 or PHQ-9 were completed, PHQ scores, and if referrals were made when needed. Information gathered will be entered in an excel database and stored on a USB flash drive to which only the project lead will have access, and it will be destroyed after the project is completed.

Educational Tools

An educational handout in the form of a printed PowerPoint (See Appendix G) will be distributed to staff at the educational training in the clinic; this is to educate staff regarding depression, importance of screening, timely treatment and referrals as needed. This educational training will convey facts and information regarding depression screening guidelines to support evidence-based initiative to screen and treat depression. It will also discuss PHQ screening tools, protocols and effects of depression on patients affected. Staff may refer to this PowerPoint handout as a reference for educational purposes.

Depression Screening Protocol

A depression screening protocol will be designed and provided to staff to utilize as a guide to initiate screening, scoring, referral process, and treatment if indicated. (See Appendix H). The protocol will provide information needed for identifying depression and guide the effective management of the disease. Providers will feel confident with the use of an outlined protocol to identify depression, initiate treatment and/or refer patients to specialty clinics as needed.

Screening Tools

There is no permission required to use PHQ-2 and PHQ-9. The MA will hand a one-page paper form of the questionnaire to patients for self-reporting and it is then scanned into the electronic records by the MAs.

PHQ-2

PHQ-2 is used as an initial screening tool for depression. It is a two-question form that quickly identifies risk of depression. The PHQ-2 is considered a first step for assessing depression. Further assessment is warranted with a positive result.

PHQ-9

The PHQ-9 is an instrument that has many purposes, it is used to screen, diagnose, monitor and measure the severity of depression. This is a questionnaire that contains nine questions with each response scored as 0, 1, 2, or 3. This tool can be used as a follow up to the PHQ 2 screening. Any patient who has a positive screening on the PHQ-2 should have a follow up PHQ 9 screening. Both PHQ 2 and PHQ 9 tools have been tested for validity and reliability and have been found to be highly effective in the measurement of the presence and severity of depression (Kroenke, Spitzer & Williams, 2010).

Data Collection Procedures

Chart Audits

A retrospective chart audit will be conducted to evaluate if there has been a change in the volume of PHQ screening completed at the project site and if providers document review of PHQs and plan of care to include depression screening or treatment. Charts for patients seen before implementation will be audited for scanned PHQs to estimate baseline figures for PHQ-2 and PHQ-9 utilization. Charts will also be audited for patients seen within 30 days after the implementation of the educational training and protocol to measure the rate at which the PHQ tool was utilized to screen for depression.

Baseline (pre) and over four weeks after implementation (post) rates of completion will be compared to ascertain if rates for PHQ screening are significantly different after

implementation. Information will be represented numerically as frequencies, percentages, and scores. There will be no identifying patients or staff information in order to maintain confidentiality of collected data from Electronic Health Record (EHR). The PHQ utilization rates will be determined by dividing the number of patients seen divided by the number of PHQ screenings completed.

The scores from pre and post-test will be entered on the score sheet. Scores for pretest will allow the lead to measure the baseline knowledge before educational intervention while the post test scores will measure the effectiveness of the teaching and educational materials. Data from chart audit tool and for pre and post-test results will be populated into an excel database, transferred and analyzed using Statistical Package for Social Sciences (SPSS) version 23 to compare data scores and PHQ utilization rates before (pre) and four weeks after (post) the educational intervention. A statistician will be consulted to ensure appropriate statistical testing is utilized.

Intervention/Project Timeline

Completion of each section of the project proposal (foundation and development of tools) required approximately eight months. Approval for implementation is anticipated to occur at the end of June 2019. Implementation is scheduled to begin in July 2019. The conference room at the project site will serve as the venue for the educational session. Copies of the PowerPoint presentation, pre and post tests, will be available in paper format on the date of educational intervention. The project lead will administer the pre-test survey immediately before exposure to the educational session to assess baseline knowledge of participants. A post test will be administered to staff immediately after exposure to the educational session. Pre and post tests will be compared to measure gains in knowledge acquired during the educational session.

DNP Project Implementation Timeline	
Week 1	-Email notification and reminders to all participating medical staff regarding depression screening and project start date -Conduct pre-intervention chart audit to determine pattern of depression screening and evaluation at the project site (baseline information)
Week 2	-Conduct pre intervention knowledge review of depression. Complete pre-test and document result utilizing score sheet (See Appendix C) -Conduct educational session utilizing the educational tools (See Appendix G). One educational session will be conducted. An opportunity will be provided for one-on-one educational session for anyone who may be absent due to illness or personal leave. -Complete post-test to assess knowledge after educational session and use score sheet to compare pre and post intervention knowledge (See Appendix E) -Complete evaluation reports based on findings from t-test -Implementation will begin immediately after educational session -Introduce depression screening protocol -Give staff PHQ 2 and 9 questionnaires to use during routine examination
Week 3&4	-Monitor implementation process and data collection -Provide support for participants
Week 5	-Monitor participants' evaluation of depression, use of screening tools and adherence to protocol (see Appendix F)
Week 6	-Conduct post-intervention chart audit using chart audit tools (see Appendix F) -Analysis and evaluation of project data utilizing SPSS and statistician - Complete evaluation reports based on findings from chi-square analyses
Week 7	-Dissemination to stakeholders, instructors, and student colleagues

Ethics and Human Subject Protection

To ensure ethical conduct and human subjects' protection, the project lead has successfully completed all required Collaborative Institutional Training Initiative (CITI) program modules. This proposed project will not involve any direct patient care activities or human subjects. It is therefore considered a Quality Improvement (QI) project and exempt from IRB review and approval requirements. Neither attendance of the educational training nor the completion of the pre and post tests will be a condition of employment or benefits to which the staff are currently entitled. No monetary compensation will be provided to participants. As an effort to maintain staff and patient confidentiality, no identifying data will be asked or collected from the staff or patient records. All Health Insurance Portability and Accountability Act (HIPPA) laws and regulations will be adhered to protect the security and privacy of patients' health information (Agris & Spandofer, 2016). Participants will be identified by randomly generated three-digit identification numbers which will be placed on the pre and posttests to allow for a matched t-test analysis without using a name or any other personal identifier. Data will be analyzed and reported only in the aggregate. All data will be stored in a secured file cabinet and flash drive to which only the project lead will have access and destroyed three years after the project has been completed.

Plan for Analysis/Evaluation

The quality improvement project addresses two major areas: improvement of depression screening utilizing PHQs and improving knowledge and compliance to a newly developed protocol. The utilization of PHQs will be evaluated over the period of four weeks as well as pre and post intervention knowledge of depression. Chart audit data will be collected for a four week period before the educational session (baseline) and for each week over a four week period

after (post) the educational session. The outcome data (pre and post-tests and chart audits of protocol and PHQ utilization) will all be analyzed using the Statistical Package for the Social Sciences (SPSS) version 23 for data analysis. Pre and post test results will be measured and compared utilizing a paired samples t-test. Paired samples or repeated measures techniques are utilized when the same set of people are tested more than once (Pallant, 2016). A chi-square test will be used to measure the frequency of PHQ utilization before and after exposure to the educational session. The difference between the expected frequencies and the observed frequencies in one or both of these categories will be estimated and determined to be significant or not (Sun & Yu, 2016).

Significance/Implications for Nursing

This project seeks to influence the nursing profession by improving the quality of care provided and outcomes of patients experiencing depression. Over the past years, nurses have been part of a movement of substantial change in the quality of care. Evidence-based nursing practice promises the likelihood of producing significant positive patient outcomes (Stevens, 2013). Evidence-based research works to provide knowledge about effective strategies for enhancing health outcomes. Evidence-based information on adequate and timely depression screening as proposed in this project, carries the potential to provide effective treatment of depression. Evidence supports the use of the assessment tools as instruments that can increase identification and diagnoses of depression among patients in the primary care setting (Phelan et al., 2010). The PHQ screening tools is one of the most accessible instruments for identifying criteria established for clinical depression.

Depression is one of the most prevalent mental health disorders, and it is a leading cause of disability. Depression substantially impacts personal, financial, economic, social wellbeing,

and quality of life of patients and their families (Sivertsen et al., 2015). This project can contribute to the nursing profession by improving the knowledge of depression and understanding of importance of using screening tools created to identify this profoundly disabling and common condition. This quality improvement project has been designed to improve the rate of depression screening and staff knowledge of the disease. Through implementation of a screening protocol for depression and improvement of knowledge of the disorder, depression can be treated more effectively and managed in primary care settings. Evidence-based management of depression in primary care settings such as adequate screening, follow up care, and consultation with mental health specialists significantly improve patient health while reducing healthcare cost (Unutzer & Park, 2012). This project proposal carries the potential to provide a viable option for the screening, detection, and treatment of depression, thereby significantly improving patient outcomes, controlling unnecessary spending, and enhancing nursing practice.

Analysis of Results

This quality improvement project was to improve staff knowledge about depression and screening in a primary care setting. The World Health Organization (WHO) estimates that by 2020, depression will be the third leading cause of disability across the globe (Sivertsen et al., 2015; APA, 2015). Depression has a profound effect on health and quality of life. This project sought to develop a depression screening protocol for utilizing the PHQ diagnostic tools and an educational workshop on depression to increase awareness among staff. The data analyzed includes knowledge of depression before and after the educational session as well as the rate of depression screening pre and post implementation of screening protocol. Analysis of the

information collected was completed utilizing SPSS version 23 and included parametric (t-test), non-parametric (chi-square), and descriptive analysis.

Educational Session/ Pre and Post Test Knowledge Scores

A total of eight individuals attended the educational training session on depression awareness and completed the nine item pre and posttests. Of the eight respondents, two identified as primary care practitioners (MD/NP/PA) while six identified as medical assistants.

Respondents completed a nine-item quiz regarding their awareness of key depression issues both immediately before and after attending a short training session on depression. As reported in Table 1, pre and post test scores were estimated and compared using a matched t-test. The overall score achieved by all eight respondents before attending the training session was 73.6 percent. The average score increased to 88.9% after attending the educational session. The average score increase of 15.3 % in awareness score was highly significant (t=3.27, p=.014).

Table 1.

Pre and Post Depression Awareness Test Scores: Matched t-test (N=8)

	N	**Mean**	**(SD)**	**Difference**	**t**	**p-value**
PRE	8	73.6	(16.7)	-15.26	3.27	.014
POST	8	88.9	(14.6)			

An illustration of pre and post test scores between groups is provided in Figure 1.

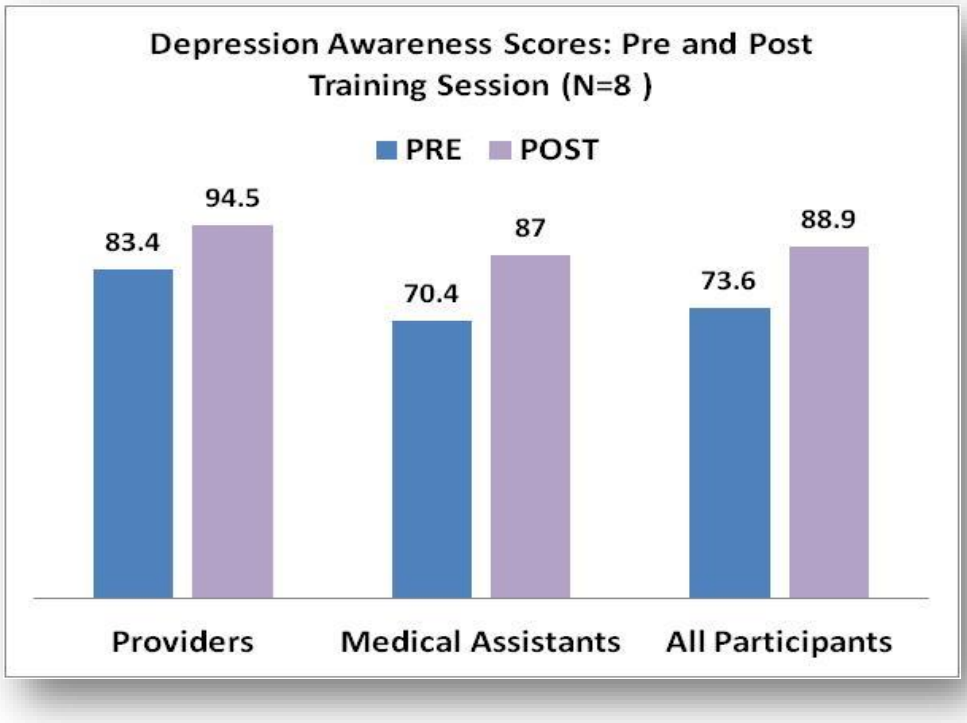

Figure 1. *Depression Awareness Scores Before and After Training Session*

Chart Audit

A total of N=729 adult patient charts were reviewed one month before and one-month period after implementation of the project. The majority of patients were female (73.4%) and the minority (26.6%) were male. The patients' age ranges from a minimum of 18 to a maximum of 97 years, for an average age of 55 years. Over half were between 30 and 65 years of age (52.3%), with 13.6% less than 30 years of age and 34.2% over 65 years of age (Table 3).

Table 3.

Demographic Description of Patient Population (N=729)

	N	Percent
Gender		
Male	194	26.6
Female	535	73.4
Age Group		
Under 30	99	13.6
Between 30 and 65	381	52.3
Over 65	249	34.2

PHQ Completion

Of the N=729 audited patient records, N=161 patients visits were recorded before the intervention commenced and N=568 visits were recorded after the intervention was initiated. It was noted that the proportion of patients who received any type of PHQ screening remained consistent from 65.2% pre intervention to 69.9% post intervention. Although there was a slight (4.7%) increase in overall screening for depression, the difference was not significant (X_2=1.28, P=.258).

When the type of tool used for screening was considered, it was found that the proportion of patients who completed a PHQ-2 screening decreased from 41% before the intervention to 22.7% after the intervention. A chi-square test measured this decrease as highly statistically significant (X_2=16.94, P=.000). By contrast, 24.5% of the patients completed a PHQ-9 screening before the intervention and increased to 45.3% after the intervention was initiated. This increase was also statistically significant (X_2=21.63, P=.000).

Table 4.

*Pre and Post Intervention Comparisons of PHQ screening: Chi-Square (N=729***)**

	PRE	**POST**	X^2	**P-Value**
PHQ-2 Completed				
Yes	66	139	16.941	.000
No	95	429		
PHQ-9 Completed				
Yes	40	257	21.627	.000
No	121	311		
PHQ Completed (All)				
Yes	105	397	1.28	.258
No	56	171		

These findings clearly indicate that while two in three patients continue to receive a screening, there has been a significant decrease in the number of patients' screening completed using the shorter PHQ-2, while there was a significant increase in the number of patients who completed the longer PHQ-9. This suggests that at post-intervention, a larger proportion of patients were likely to have been offered the more thorough depression assessment from their primary care practitioner. For a visual illustration see Figure 2.

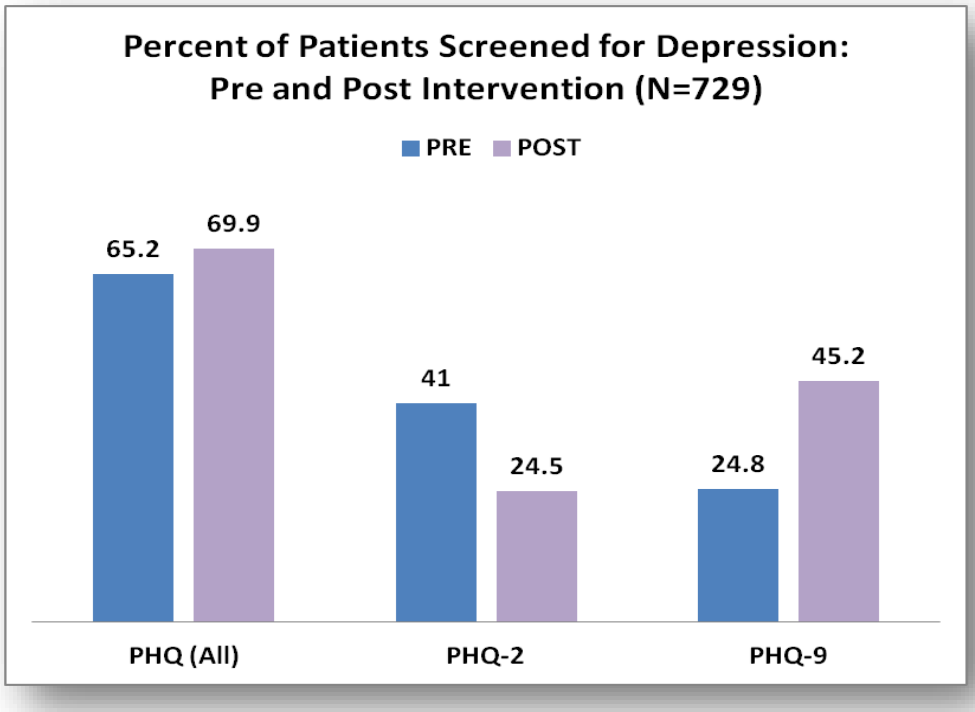

Figure 2. *Distribution of PHQ Before and After Intervention (N=729)*

Key Outcomes

- The overall knowledge test score increased from 73.6% before attending the educational session to 88.9% after attending the educational session. This 15.3% increase was highly significant (t=3.27, p=.014).
- The proportion of adult patients who received any type of PHQ depression screening increased only 4.7% between the pre and post intervention periods. This small increase was not statistically significant (X_2=1.28, *P*=.258).
- The proportion of patients who received only the PHQ-2 declined by 18.3% after the intervention. This decline was statistically significant (X_2=16.94, *P*=.000).

- The proportion of patients who received a PHQ-9 increased by 20.8% after the intervention. This increase was highly statistically significant at (X_2=21.63, P=.000).
- A shift in a decrease in PHQ-2 only and an increase in PHQ-9 suggests that practitioners have modified their screening behaviors to utilize the more thorough assessment when depression may be suspected.
- The outcomes indicate that the intervention was successful with both increasing staff knowledge about depression as well as the utilization of the PHQ-9 tool to detect depression among the patient population.

Discussion of the Findings

The implementation of the project was found to be successful in meeting its objectives enhancing knowledge of depression among clinical staff and increasing the rate of depression screening at the primary care project site. Knowledge scores increased from 73.6% before participation in the training session to 88.9% after participation. The 15.3% increase in depression knowledge scores reached statistical significance for all participants *(t*=3.27, *p*=.014), although it was noted that medical assistants experienced greater knowledge gains.

It was also noted that while the overall rates of PHQ's were similar before and after the intervention (X_2=1.28, *p*=.258), the utilization of the more detailed PHQ-9 tool increased from 24.5% before the intervention to 45.3% after the intervention was initiated. The 20.8% increase in the use of PHQ 9 was highly significant. Inversely, the administration of the PHQ-2 declined significantly (X_2=16.94, P=.000) from 41% before the intervention to 22.7% after the intervention. While the actual use of a screening tool did not significantly change, a shift away from using PHQ-2 and toward the use of PHQ-9 may be an indication that the training session increased awareness about the importance of accurate screening and the differences between the

two tools. Both the PHQ-2 and PHQ-9 have been found to offer concise assessment of depression, however, PHQ-9 is a more thorough tool to detect and diagnose depression (Arroll et al, 2010).

This quality improvement project proposed to answer the following clinical questions: Can implementation of a depression screening protocol and PHQ screening tools improve awareness of depression, PHQ tools, and encourage the utilization of the PHQ tools for screening depression in a primary care setting over a one month post-intervention period? The findings of the project demonstrated a significant increase in the utilization of the PHQ-9 screening tool post implementation. The increase knowledge regarding depression and the utilization of screening tools, appears to have had an impact on the effort of clinical staff to administer the more detailed and reliable instrument to screen for depression.

The depression screening protocol required a change in workflow and diligence to screening and protocol utilization by all the clinical staff. The protocol was intended to create a workflow that improves the depression screening process in a primary care setting. For adequate screening and timely treatment of depression to occur, it is beneficial to have an outlined step and protocol to utilize in screening. The depression screening protocol developed in this QI project provides an avenue and plan to consistently screen for depression to facilitate adequate evaluation and treatment as needed. Post implementation, it was noted that patients who had a positive PHQ-9 screening were treated and referred to mental health specialists for treatment as needed. The staff was compliant with utilization of the protocol.

Significance/Implications for Nursing

This quality improvement project was developed to improve depression screening by developing and implementing a screening protocol and educating staff about depression in a primary care setting. The developed protocol was adhered to by the clinic staff and utilized for depression screening thereby leading to an increase in awareness of the importance of depression screening and intervention for treatment and referral as needed post implementation of protocol. There was a significant increase in utilization of a thorough depression screening tool- PHQ-9. The project is important and significant to nursing because primary care settings are the initial point of care for many patients with behavioral healthcare needs (SAMSHA, 2013). Many patients with mental health problems go to their primary care provider first before a mental healthcare provider. It is important that nursing staff and medical providers screen for potential mental health disorders in order to assure appropriate evaluation, timely diagnosis, and early treatment.

The implementation of a depression screening protocol in the primary care setting created a change in the workflow of the facility and demonstrated the necessity for an outlined protocol to improve depression screening. This project was completed by incorporating the opinions, questions and support of all stakeholders. Timely screening, diagnosis and treatment of depression improves quality of life and treatment success among affected patients to improve health outcomes (Walsh et al., 2017). The findings of this project are consistent with evidence-based studies that reported that depression screening in primary care settings requires a multifaceted approach (Thombs et al, 2012). Primary care clinics with knowledgeable nursing staff and supportive leadership are more likely to utilize screening tools and provide appropriate treatment for depression. Educating nursing staff about the effective use of screening tools is an

avenue to improve screening, patient care, and quality of life of patients experiencing depression (Thombs, 2012).

Limitations

Some limitations were identified during the implementation of this QI project. The most important limitation was the small sample size (N=8) of the clinical staff who attended the educational session and completed the pre and post knowledge tests. Additionally, it was noted that only two primary care providers participated in the training session and completed the pre and post tests. The sample size was limited because the project site was a small primary care clinic with few staff members. A small sample size can decrease the statistical power to detect existing effects. Specifically, a quantitative study based on the small sample can risk inaccurate or exaggerated variability (standard deviation) within the population the sample is meant to represent which may lead to bias or inaccuracy in results (Faber & Fonseca, 2014; Smith & Nobel, 2014). It is also important to recognize that bias can be introduced when a small number of participants are selected from a limited population as was the case for this project, their participation may be a result of feeling strongly about the topic or because of perceived employment or organizational obligations (Smith & Nobel, 2014). Therefore, the results of the pre and post tests may be skewed to reflect the opinions and knowledge of those staff members who already have an interest in the topic of using PHQ tools for identifying depression.

Another limitation experienced is that only short-term changes were tested by the project lead. The difference between short-term change and sustainable change is critically important within the context of health care. Short-term change reflects immediate change in knowledge and 30-day changes in PHQ-9 utilization may therefore be considered “quick fix” or short-term solutions, but in reality, they may not deliver the desired outcomes on a long-term or sustainable

basis. Sustainability is essential in order for change to take root in any organization. This can be achieved by (a) Continuous opportunities for building staff awareness of depression, screening tools, and changes in screening efforts (b) Check for motivation/desire/care of staff to sustain that change and (c) Create opportunities for staff to get involved in order to influence the change in screening efforts (Silver et al., 2016). The need to improve screening and awareness of depression screening tools is needed for most primary care practices including the project facility used for purposes of this project. PHQs are effective ways of screening for depression and employment of a screening protocol ensures the process is improved and executed appropriately. The practice did not have any depression screening protocol and are continuing to work on improving depression screenings with the possibility of adopting the depression screening protocol as a policy.

Primary care practitioners have an opportunity to better spot depressive symptoms in at-risk patients and help improve their lives through treatment, yet primary care has been frequently cited as an untapped resource for depression screening. In a study conducted by the Division of Research of Kaiser Permanente Northern California (KPNC), screening for depression was found to be uncommon and estimated to be conducted with only about 1.4 percent of adult ambulatory care visits nationwide; given the prevalence of depressive symptoms in the U.S., it is argued that the failure to screen not only ignores U.S. Preventive Services Task Force recommendations that primary care practitioners screen for depressive symptoms, but it means missing an opportunity to help patients (Sterling, 2018).

Dissemination

The dissemination of project findings and outcome plays significant roles in informing healthcare providers and stakeholders in the project site. It is critical that the results of evidence-

based QI projects be shared on a DNP project repository and considered for publication in a peer reviewed nursing journal. An abstract will be submitted for publication consideration to the *American Nurse Today, Department of "practice matters",* a peer-reviewed *j*ournal with a circulation to 200,000 nurses from a wide variety of settings and specialty areas, including staff nurses, advanced practice nurses, managers educators, researchers, and administrators (ANA, 2019). A digital poster presentation is planned for the thirteenth National Doctors of Nursing Practice Conference in Tampa, Florida in August 2020. The final quality improvement project will also be filed in the Doctoral Project Repository (doctorsofnursingpractice.org). While this archive is not peer-reviewed and does not qualify as a "publication", this archive allows DNP graduates to share ideas and work products into the scholarly and consumer communities.

The project lead intends to disseminate the findings of this project to health care professionals and stakeholders at the facility to create professional resources that can aid in improving depression screening practices in primary care. Finally, the entire project inclusive of the background, methodology, and findings will be shared with students and instructors in the Doctor of Nursing Practice program at Touro University, Nevada.

In conclusion depression is a significant mental health disorder that is continuing to rise and affect populations globally. The importance of improving the screening process for this disorder in primary care settings cannot be understated. The comparison of pre and post knowledge scores as well as utilization of PHQ-9 measured overall improvements. Although pre and post knowledge scores as well as PHQ-9 tool utilization improved post intervention, several limitations suggest that this model may be most appropriately utilized to create larger scale and randomized evidence-based studies and interventions to encourage standardized depression screening practices in similar primary care settings.

References

Agency for Healthcare Research and Quality (AHRQ) (2013). Module 14. Creating Quality Improvement Teams and QI Plans. Retrieved from https://www.ahrq.gov/professionals/prevention-chronic-care/improve/system/pfhandbook/mod14.html

Agris, J. L., & Spandorfer, J. M. (2016). HIPAA Compliance and Training: A Perfect Storm for Professionalism Education? *The Journal of Law, Medicine & Ethics*, *44*(4), 652–656. https://doi.org/10.1177/1073110516684812

Akincigil, A. and Matthews, E. B. (2017). National Rates and Patterns of Depression Screening in Primary Care: Results from 2012 and 2013. Retrieved from https://ps.psychiatryonline.org/doi/pdf/10.1176/appi.ps.201600096

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th Ed.). Arlington, VA: American Psychiatric Publishing.

Arietta J., Aguerrebere M., Raviola G., Flores H., Elliott P., Espinosa A., Reyes A., Ortiz-Panozo E., Rodriguez-Gutierrez E.G., Mukherjee J., Palazuelos D., & Franke M.F. (2017). Validity and Utility of the Patient Health Questionnaire (PHQ) -2 and PHQ-9 for Screening and Diagnosis of Depression in Rural Chiapas, Mexico: A Cross-Sectional Study. Retrieved from https://onlinelibrary.wiley.com/doi/full/10.1002/jclp.22390

Arroll, B., Goodyear-Smith, F., Crengle, S., Gunn, J., Kerse, N., Fishman, T., … Hatcher, S. (2010). Validation of PHQ-2 and PHQ-9 to screen for major depression in the primary care population. *Annals of family medicine*, *8*(4), 348–353. doi:10.1370/afm.1139

Bajracharya, P., Summers, L., Amatya, A. K., & DeBlieck, C. (2016). Implementation of a Depression Screening Protocol and Tools to Improve Screening for Depression in

Patients With Diabetes in the Primary Care Setting. *Journal for Nurse Practitioners*, *12*(10), 690–696. https://doi.org/10.1016/j.nurpra.2016.08.009

Bortolato B., Hyphantis T., N. Valpione S. Perini G., Maes M., Morris G., Kubera M., Kohler C.A., Fernandes B. S., Stubbs B., Pavlids N., & Carvalho A.F. (2016). Depression in cancer: The many bio-behavioral pathways driving tumor progression. Retrieved from http://repositorio.ufc.br/bitstream/riufc/24803/1/2017_art_bbortolato.pdf

Brenes, G. (2007). Anxiety, Depression, and Quality of Life in Primary Care Patients. The Primary Care Companion To The Journal Of Clinical Psychiatry, 09(06), 437-443. doi: 10.4088/pcc.v09n0606

Center for Behavioral Health Statistics and Quality. (2017). *2016 National Survey on Drug Use and Health: Methodological summary and definitions*. Rockville, MD: Substance Abuse and Mental Health Services Administration.

Colorafi, K. (2017). Treating Anxiety and Depression in Primary Care: REDUCING BARRIERS TO ACCESS. Family Practice Management, 24(4), 11–16. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=124426126&site=ehost-live&scope=site&custid=azusa

Coury, J., Schneider, J.L., Rivelli, J.S. et al. BMC Health Serv Res (2017) 17: 411. https://doi.org/10.1186/s12913-017-2364-3

Curtis K., Fry, M., Shaban, R., and Considine, J. (2016). Translating research findings to clinical nursing practice, *Journal of Clinical Nursing* 862 Journal of Clinical Nursing, 26, 862–872, doi: 10.1111/jocn.13586

De Vries McClintock, H., Boyle, K., Rooney, K., & Bogner, H. (2016). Diabetes and Depression Care: A Randomized Controlled Pilot Trial. *American Journal of Health Behavior*, *40*(4), 503-513. doi: 10.5993/ajhb.40.4.12

Dreskin, M. (2018). Depression Care Management—an Evidence-Based, Collaborative Care Approach to Treating Depression in a Primary Care Setting. *The Permanente Journal*. doi: 10.7812/tpp/18-071-02

Dogu, O., & Aydemir, Y. (2018). Anxiety and Depression as Emotional Problems in Patients with Chronic Heart, Kidney and Respiratory Disorders. *International Journal of Caring Sciences*, 543–549. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=129399294&site=ehost-live&scope=site&custid

Er-Huan Han, Yan Zhang, Jian-Ge Zhang, Bei-Lei Lin, Advances in the application of action learning in nursing practice. Chinese Nursing Research 3 (2016) 101e104, journal homepage: http://www.journals.elsevier.com/chinese-nursing-research

Faber J, & Fonseca LM. (2014). How sample size influences research outcomes. *Dental Press J Orthod*:19(4):27-9. DOI: http://dx.doi. org/10.1590/2176-9451.19.4.027-029.ebo

Fernández, A., Mendive, J., Conejo-Cerón, S., Moreno-Peral, P., King, M., & Nazareth, I. et al. (2018). A personalized intervention to prevent depression in primary care: cost-effectiveness study nested into a clustered randomized trial. *BMC Medicine*, *16*(1). doi: 10.1186/s12916-018-1005-y

Goorden, M., Vlasveld, M., Anema, J., Mechelen, W., Beekman, A., Hoedeman, R., … Hakkaart-van Roijen, L. (2014). Cost-Utility Analysis of a Collaborative Care Intervention for Major Depressive Disorder in an Occupational Healthcare Setting.

Journal of Occupational Rehabilitation, 24(3), 555–562. https://doi.org/10.1007/s10926-013-9483-4

Greenberg P.E., Fournier A., Sisitsky T., Pike C.T., & Kessler R.C., (2015). The economic Burden of Adults with Major Depressive disorder in the United States (2005 and 2010). Retrieved from https://pdfs.semanticscholar.org/2a0f/0218f857e39e2576a024e1c484c9edc1a9e7.pdf

Hall L., L (2016). Quality improvement using Plan-Do-Study-Act: Strategies for local quality improvement. *AMA* Retrieved https://edhub.ama-assn.org/steps-forward/module/2702507

Holt, R. I., de Groot, M., & Golden, S. H. (2014). Diabetes and depression. Current diabetes reports, 14(6), 491. Doi:10.1007%2Fs11892-014-0491-3

Institute for Health Improvement (IHI) (2012). Science of Improvement: Testing changes. Retrieved from: http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

Institute of Medicine (2001). Crossing the Quality Chasm: A New Health System for the 21st Century. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK222274/doi: 10.17226/10027

Joffres, M., Jaramillo, A., Dickinson, J., Lewin, G., Pottie, K., Shaw, E., Connor Gorber, S., Tonelli, M., Canadian Task Force on Preventive Health Care (2013). Recommendations on screening for depression in adults. *CMAJ : Canadian Medical Association journal = journal de l'assaciacion medicale canadienne*, *185*(9), 775-82.

Kroenke K, Spitzer R. L, Williams J. B. (2010). The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. Medical Care. 2003;41:1284-92.

Kroenke K, Spitzer R. L, Williams J. B. (2010). The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001;16:606-13.

Kroenke K, Spitzer R. L. (2010). The PHQ-9: a new depression diagnostic and severity measure. Psychiatr Ann. 2002;32:509-21

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2010). The PHQ-9: validity of a brief depression severity measure. *Journal of general internal medicine*, *16*(9), 606-13. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495268/

Lao, C. K., Chan, Y. M., Tong, H. H. Y., and Chan, A. (2016) Underdiagnosis of depression in an economically deprived population in Macao, China. Asia-Pacific Psychiatry, 8: 70–79. doi: 10.1111/appy.12208.

Maurer, D. M., Raymond, T. J., & Davis, B. N. (2018). Depression: Screening and Diagnosis. *American Family Physician*, *98*(8), 508–515. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=132042158&site=ehost-live&scope=site&custid

Moen Ronald (2010). Foundation and History of the PDSA cycle. Retrieved from https://deming.org/uploads/paper/PDSA_History_Ron_Moen.pdf

Moran, K., Burson, R., & Conrad, D. (2017). The doctor of nursing practice scholarly project: A framework for success (2nd ed.). Burlington, MA: Jones & Bartlett Learning.

Nouwen A., Winkley K., Twisk J., Lloyd C.E., Peyrot M, Ismail K., & Pouwer F, 2010). Type 2 diabetes mellitus as a risk factor for the onset of depression: a systematic review and meta-analysis https://www.researchgate.net/publication/45651620_Type_2_Diabetes_Mellitus_as_a_Risk_Factor_for_the_Onset_of_Depression_A_Systematic_Review_and_Meta-analysis

Oh, H., Ell, K., & Subica, A. (2014). Depression and family interaction among low-income, predominantly Hispanic cancer patients: a longitudinal analysis. Supportive Care in Cancer, 22(2), 427–434. https://doi.org/10.1007/s00520-013-1993-2

O'Neil, A., Sanderson, K., Oldenburg, B., & Taylor, C. (2011). Impact of Depression Treatment on Mental and Physical Health-Related Quality of Life of Cardiac Patients. *Journal of Cardiopulmonary Rehabilitation And Prevention*, *31*(3), 146-156. doi: 10.1097/hcr.0b013e3181fc0985

O'Sullivan, J. W; Albasri, A.; Nicholson, B, D; Perera, R.; Aronson, J. K; Roberts, N.; Heneghan, C. (11 February 2018). "Over testing and under testing in primary care: a systematic review and meta-analysis". *BMJ Open*. **8** (2): e018557. doi:10.1136/bmjopen-2017-018557. PMC 5829845. PMID 29440142

Pallant, J. (2016). SPSS survival manual: A step by step guide to data analysis using IBM SPSS. (6th ed.). New York: McGraw Hill.

Parcesepe, A. and Cabassa, L. Public Stigma of Mental Illness in the United States: A Systematic Literature Review Adm Policy Ment Health. 2013 September; 40(5): doi:10.1007/s10488-012-0430-z.

Peter Donnelly, & Paul Kirk. (2015). Use the PDSA model for effective change management. *Education for Primary Care*, *26*(4), 279–281. Retrieved from https://www.walesdeanery.org/sites/default/files/How%20to%20Use%20the%20PDSA%20Model%20for%20Effective%20Change%20Management.pdf

Phelan, E., Williams, B., Meeker, K., Bonn, K., Frederick, J., Logerfo, J., & Snowden, M. (2010). A study of the diagnostic accuracy of the PHQ-9 in primary care elderly. *BMC*

family practice, *11*, 63. doi:10.1186/1471-2296-11-63. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2940814/

Rancans, E., Trapencieris, M., Ivanovs, R., & Vrublevska, J. (2018). Validity of the PHQ-9 and PHQ-2 to screen for depression in nationwide primary care population in Latvia. *Annals of General Psychiatry*, *17*(1), N.PAG. https://doi.org/10.1186/s12991-018-0203-5

Randall, J. M., Voth, R., Burnett, E., Bazhenova, L., & Bardwell, W. A. (2013). Clinic-based depression screening in lung cancer patients using the PHQ-2 and PHQ-9 depression questionnaires: a pilot study. *Supportive Care in Cancer*, *21*(5), 1503–1507. https://doi.org/10.1007/s00520-012-1712-4

Reed, J. E., & Card, A. J. (2015). The problem with Plan-Do-Study-Act cycles. *BMJ quality & safety*, *25*(3), 147-152. doi: 10.1136/bmjqs-2015-005076

Rotella F & Mannucci E. Depression as a risk factor for diabetes: a meta-analysis of longitudinal studies. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/23419223

Schaefer, A.M & Jolles, D. (2018). Not Missing the Opportunity: Improving Depression Screening and Follow-Up in a Multicultural Community. *Joint Commission Journal on Quality and Patient Safety.* 45(1):31. doi: 10.1016/j.jcjq.2018.06.002. Epub 2018 Aug 20

Screening for Depression in Adults and Older Adults in Primary Care: An Updated Systematic Review (*n.d.*) https://www.ncbi.nlm.nih.gov/books/NBK36402/

Silver, S. A., McQuillan, R., Harel, Z., Weizman, A. V., Thomas, A., Nesrallah, G., … Chertow, G. M. (2016). How to Sustain Change and Support Continuous Quality Improvement. *Clinical journal of the American Society of Nephrology : CJASN*, *11*(5), 916–924. doi:10.2215/CJN.11501015

Siu, A. L., US Preventive Services Task Force (USPSTF), Bibbins-Domingo, K., Grossman, D. C., Baumann, L. C., Davidson, K. W., … Pignone, M. P. (2016). Screening for Depression in Adults: US Preventive Services Task Force Recommendation Statement. *JAMA: Journal of the American Medical Association*, *315*(4), 380–387. https://doi.org/10.1001/jama.2015.18392

Sivertsen, H., Bjorklof, G., Engedal, K., Selbaek, G., & Helvik, A. (2015). Depression and Quality of Life in Older Persons: A Review. *Dementia and Geriatric Cognitive Disorders*, *40*(5-6), 311-339. doi: 10.1159/000437299

Smith, J. and Noble, H. (2014). Bias in Research**.** *Evid Based Nurs*, 17: 100-101. doi: 10.1136/eb-2014-101946 2014

Sterling, S. (2018). Division of Research of Kaiser Permanente Northern California (KPNC). Primary care is an untapped resource for depression screening. Retrieved September 16 2019 from file:///Users/oluwayemisidaramola/Downloads/2018-09-primary-untapped-resource-depression-screening.pdf

Stevens, D.P., Bowen, J.L., Johnson J.K., Woods, D.M., Provost, L.P., Holman, H.R., Wagner E. H. (2010). A multi-institutional quality improvement initiative to transform education for chronic illness care in resident continuity practices. *Journal of General Internal Medicine*, *25*(Suppl 4):S574–80. doi: 10.1007/s11606-010-1392-z.

Stevens, K. (2013). The Impact of Evidence-Based Practice in Nursing and the Next Big Ideas. *OJIN: The Online Journal of issues in Nursing, 18* (2). doi: 10.3912/OJIN.Vol18No02Man04

Substance Abuse and Mental Health services Administration (SAMSHA) (2013). Behavioral Health in Primary care. Integrating Behavioral health into primary care. Retrieved from

https://www.integration.samhsa.gov/integrated-care-models/behavioral-health-in-primary-care

Sun, S. & Yu, X. (2016). HMM-Fisher: identifying differential methylation using a hidden Markov model and Fisher's exact test. *Statistical Applications in Genetics and Molecular Biology*, 15(1), pp. 55-67. doi:10.1515/sagmb-2015-0076

Thombs, B. D., Coyne, J. C., Cuijpers, P., de Jonge, P., Gilbody, S., Ioannidis, J. P., … Ziegelstein, R. C. (2012). Rethinking recommendations for screening for depression in primary care. *CMAJ : Canadian Medical Association journal = journal de l'Association medicale canadienne*, *184*(4), 413–418. doi:10.1503/cmaj.111035

Thompson E, M. (2015). Plan-do-study-act to implement a change. *ORNurse Journal* 9(3) p6. DOI-10.1097/01.ORN.0000464756.31062.6d

Unützer, J., & Park, M. (2012). Strategies to improve the management of depression in primary care. *Primary care*, *39*(2), 415–431. doi:10.1016/j.pop.2012.03.010

U.S Preventive Services Task Force (2016). Final Recommendation Statement *Depression in Adults: Screening. Retrieved from* https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/depression-in-adults-screening1

Waguih M. I., Mirocha J., James D., Tobia G., Vilhauer J., Fakhry H., Pi S., Hanson E., Nashawati R., Peselow E. D., & Cohen R. M., (2014). Quality of Life in Major Depressive Disorder Before/After Multiple Steps of Treatment and One-year Follow-up. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4267902/

Walsh, A. S. J., Wesley, K. L., Sim Yin Tan, Lynn, C., O'Leary, K., Yan Wang, Rodriguez, C. A. (2017). Screening for depression among youth with HIV in an integrated care setting. *AIDS Care*, *29*(7), 851–857. https://doi.org/10.1080/09540121.2017.1281878

Williams J. & Nieuwsma J. (2018). Screening for depression in Adults. Retrieved from https://www-uptodate-com.proxy1.athensams.net/contents/screening-for-depression-in-adults?search=screening%20for%20depression&source=search_result&selectedTitle=1~100&usage_type=default&display_rank=1

Williams, S., Chung, G., & Muennig, P. (2017). Undiagnosed depression: A community diagnosis. SSM - *Population Health*, 3, 633-638. doi: 10.1016/j.ssmph.2017.07.012

World Health Organization (2018). Depression. Retrieved December 16, 2018 from https://www.who.int/news-room/fact-sheets/detail/depression

Yan Ho S., Rohan K. J., Parent J., Tager F.A., & McKinley P. S. (2014). A Longitudinal Study of Depression, Fatigue, and Sleep Disturbances as a Symptom Cluster in Women With Breast Cancer. Journal of Pain and Symptom Management, Volume 49, Issue 4, 707 – 715. doi.org/10.1016/j.jpainsymman.2014.09.009

Yohannes, A., & Willgoss, T. (2014). Major Depression and Anxiety Disorders in Patients with Chronic Obstructive Pulmonary Disease. *Chest*, *146*(4), 38A. doi: 10.1378/chest.1994417

Yu M., Zhang X., Lu F., & Fang L. (2014) Depression and Risk for Diabetes: A Meta-Analysis. Canadian Journal of Diabetes. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/25773933

Zilcha-Mano, S., Dinger, U., McCarthy, K. S., Barrett, M. S., & Barber, J. P. (2013). Changes in well-being and quality of life in a randomized trial comparing dynamic psychotherapy

and pharmacotherapy for major depressive disorder. Journal of affective disorders, 152-154, 538-42. doi: 10.1016/j.jad.2013.10.015

Appendix A:

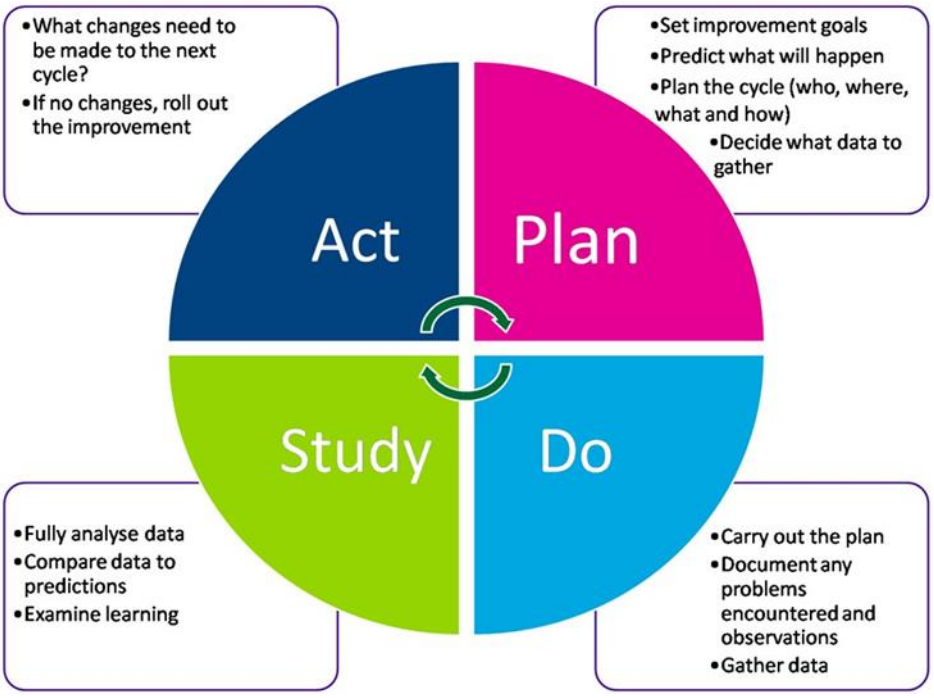

Figure 1. PDSA Cycle

Source: HealthCare Improvement Scotland. https://ihub.scot/project-toolkits/diabetes-think-check-act/diabetes-think-check-act/getting-started/plan-do-study-act/

Appendix B

Permission to Use Site

December 2, 2018

To Whom It May Concern:

Oluwayemisi Daramola is able to do her leadership practicum Project for DNP program with [redacted] Center. Oluwayemisi understands that patient information is not permitted to leave the premises in any form. There is no requirement for agreement.

[redacted]

Sincerely,

Appendix C

PRE-TEST

Depression Quiz

Test your knowledge of depression by taking this quiz.

1. Which of these behaviors is a symptom of depression?

A. Cynicism

B. Unexplained aggression

C. Loss of interest in all things

D. Rapid mood swings

2. Depression can occur at which age?

A. 20 to 30

B. 30 to 40

C. 40 to 50

D. All of the above

3. A major cause of depression in women is:

A. Increased stress

B. Sadness

C. Jealousy

D. Competitiveness

4. Which of these should you avoid if you're depressed?

A. A supportive relationship

B. Exercise

C. Major decisions

D. All of the above

5. Which of these are signs your depression is serious enough to need professional help?

A. Difficulty concentrating or remembering things

B. Constant fatigue or listlessness

C. A feeling of the "blues" that doesn't go away

D. All of the above

6. How should you respond to a depressed person?

A. Be upbeat

B. Listen

C. Encourage the person to spend time alone

D. Keep the person company but don’t talk about the depression

7. Which of these things will do more harm than good when you're trying to help a depressed person?

A. Offering solutions

B. Scheduling leisure activities

C. Overanalyzing the problem

D. A and C

8. Proper nutrition may improve your state of mind. Which of these vitamins may help ease depressed moods?

A. Vitamin C

B. Vitamin B-complex

C. Vitamin A

D. Vitamin E

9. Depression and other mood disorders cost the U.S. how much in lost work time?

A. Thousands of dollars

B. Millions of dollars

C. Billions of dollars

D. Trillions of dollars

P**ersonal 3-digit code for both the pre and posttests.** _____ _____ _____

POST-TEST

Depression Quiz

Test your knowledge of depression by taking this quiz.

1. Which of these behaviors is a symptom of depression?

A. Cynicism

B. Unexplained aggression

C. Loss of interest in all things

D. Rapid mood swings

2. Depression can occur at which age?

A. 20 to 30

B. 30 to 40

C. 40 to 50

D. All of the above

3. A major cause of depression in women is:

A. Increased stress

B. Sadness

C. Jealousy

D. Competitiveness

4. Which of these should you avoid if you're depressed?

A. A supportive relationship

B. Exercise

C. Major decisions

D. All of the above

5. Which of these are signs your depression is serious enough to need professional help?

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9. Depression and other mood disorders cost the U.S. how much in lost work time?

A. Thousands of dollars

B. Millions of dollars

C. Billions of dollars

D. Trillions of dollars

Personal 3-digit code for both the pre and posttests. _____ _____ _____

Appendix D

Permission to use Depression Quiz

[redacted]

Thu, Apr 11, 5:32 AM (1 day ago)

to me

Dear Daramola:

Re: Permission to use Depression Quiz

This e-mail will confirm that as long as it is for a student to use for a research project, then permission is granted under our URMC license with our vendor Staywell who provides us with our health encyclopedia content.

...

[redacted]

Administrative Office Manager
URMC Web Services
120 Corporate Woods, Suite 350
RC Box 278912
Rochester, NY 14623
Phone: 585-758-2282
Fax: 585-292-5647

Appendix E

PRE AND POST TEST SCORE SHEET

Participant #	PRE TEST SCORE	POST TEST SCORE	Remediation needed Yes/No

Appendix F

IMPROVING UTILIZATION OF PHQ TOOLS FOR SCREENING DEPRESSION

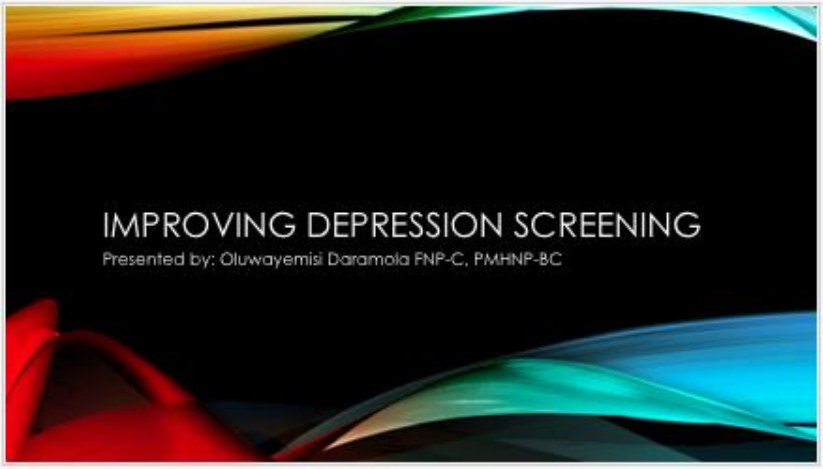
CHART AUDIT TOOL

ID	GENDER M/F	AGE	PHQ-2 Y/N	PHQ-2 SCORE	PHQ-9 Y/N	PHQ-9 SCORE	REFER Y/N	ADDRESSED Y/N

Appendix G

Educational Presentation

1



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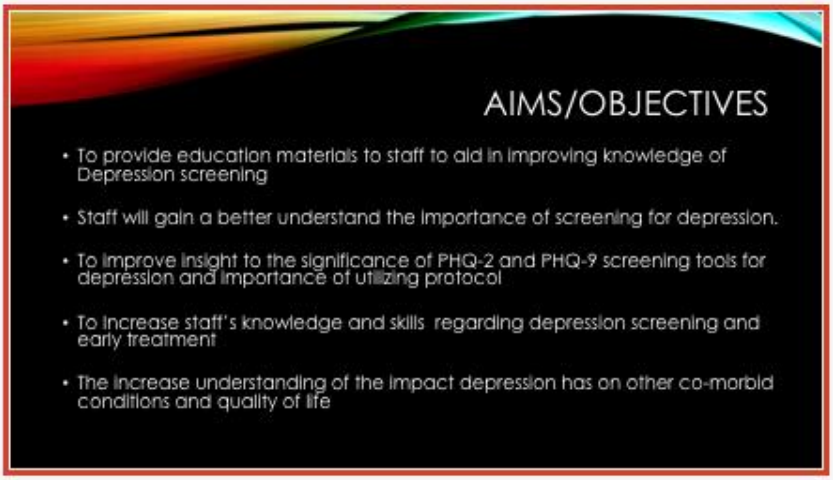

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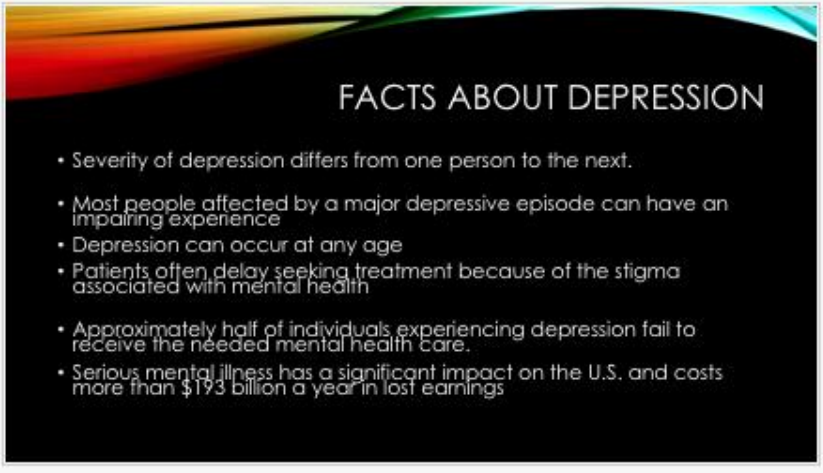
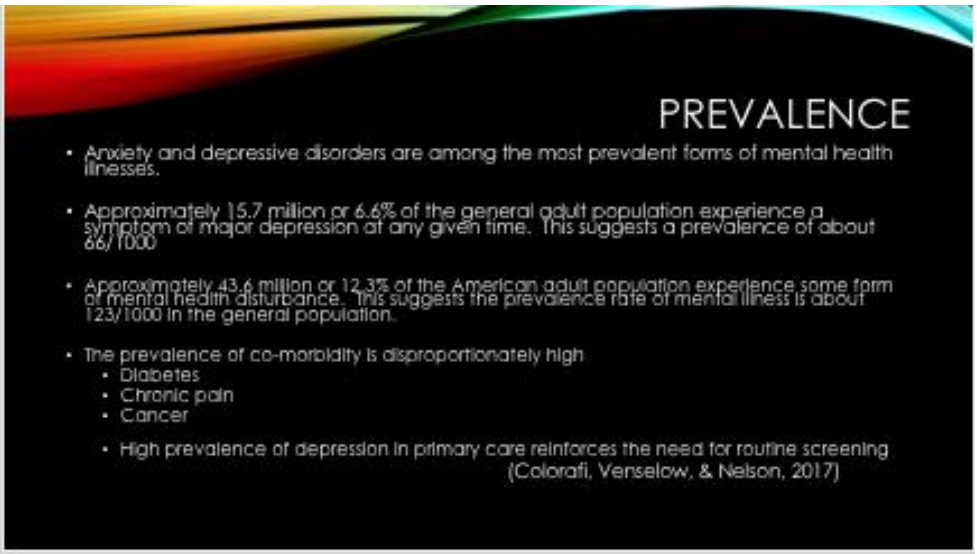
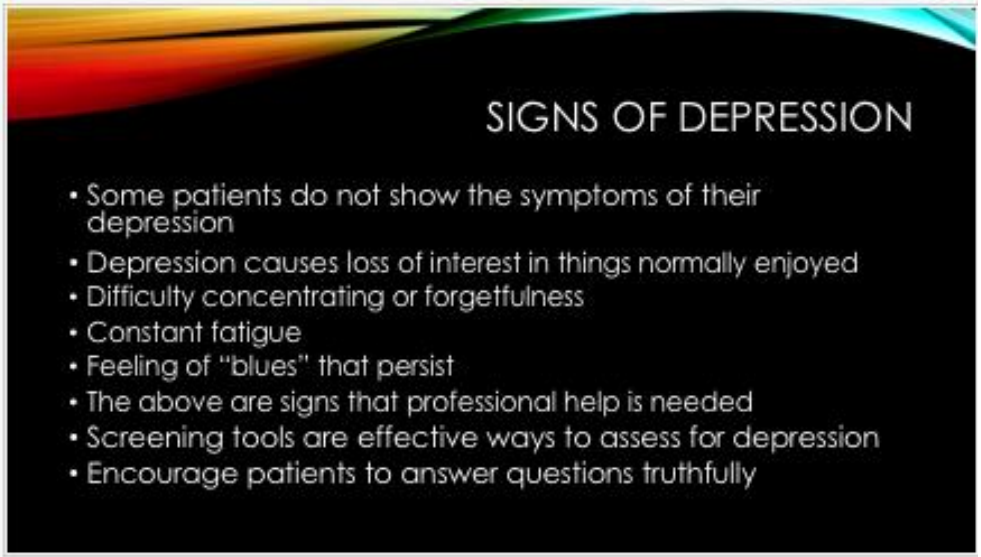


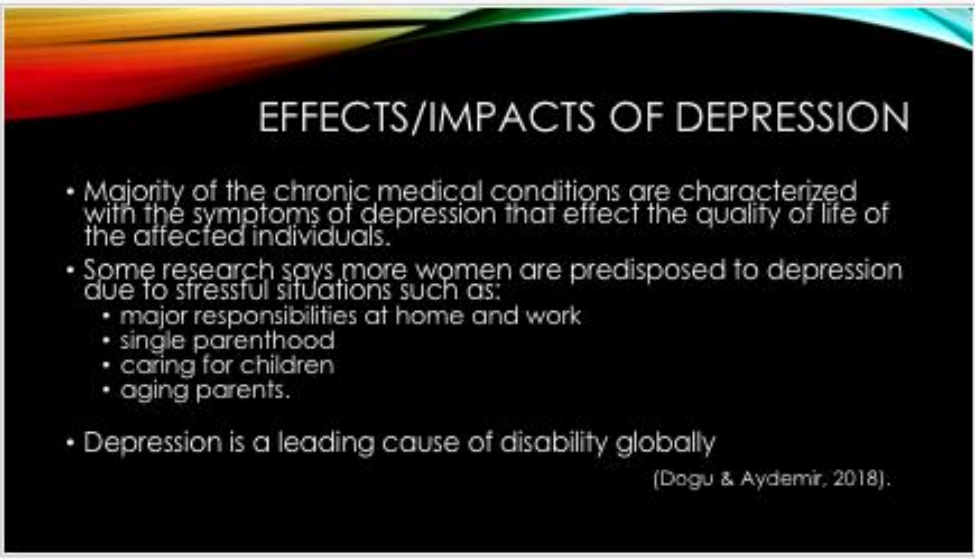
4


PREVALENCE
• Anxiety and depressive disorders are among the most prevalent forms of mental health illnesses.
• Approximately 15.7 million or 6.6% of the general adult population experience a symptom of major depression at any given time. This suggests a prevalence of about 66/1000
• Approximately 43.6 million or 12.3% of the American adult population experience some form of mental health disturbance. This suggests the prevalence rate of mental illness is about 123/1000 in the general population.
• The prevalence of co-morbidity is disproportionately high
• Diabetes
• Chronic pain
• Cancer
• High prevalence of depression in primary care reinforces the need for routine screening
(Colorafi, Verselow, & Nelson, 2017)

5


SIGNS OF DEPRESSION
• Some patients do not show the symptoms of their depression
• Depression causes loss of interest in things normally enjoyed
• Difficulty concentrating or forgetfulness
• Constant fatigue
• Feeling of "blues" that persist
• The above are signs that professional help is needed
• Screening tools are effective ways to assess for depression
• Encourage patients to answer questions truthfully

6


EFFECTS/IMPACTS OF DEPRESSION
• Majority of the chronic medical conditions are characterized with the symptoms of depression that effect the quality of life of the affected individuals.
• Some research says more women are predisposed to depression due to stressful situations such as:
• major responsibilities at home and work
• single parenthood
• caring for children
• aging parents.
• Depression is a leading cause of disability globally
(Dogu & Aydemir, 2018).

7

SIGNIFICANCE/IMPACTS OF DEPRESSION

- Impact on Health
  - Depression predisposes patients to various adverse health consequences:
    - self-harm
    - development of comorbid medical conditions
    - increased risk of premature deaths
    - obesity
    - Stroke
    - heart disease

(Akincigil & Matthews, 2017).

8

EFFECTS/IMPACTS CONT'D…

- Impact on Health
- Depression affects patients with other chronic illnesses particularly diabetes
  - diabetic patients had a higher likelihood of being depressed
  - Depressed patients have higher likelihood of lack of adherence to treatment
- depression notably occurs frequently among patients with known chronic conditions and leads to poor health outcomes

(McClintock, Boyle, Rooney & Bogner, 2016).

9

EFFECTS/IMPACTS CONT'D…

- Impact of depression on Economy
- The financial and economic costs are diverse and can be
  - Monetarily
  - in terms of the services offered- lost productivity
  - cases of premature death because of the high occurrence of suicide.
  - 10.2 million adults had major depressive episodes that lead to severe impairment

(Colorafi, Venselow, & Nelson, 2017).

10

EFFECTS/IMPACTS CONT'D…

- Resources dedicated for treatment of depression increased from $173.2 billion in 2005 to $210.5 billion in 2010 and 233 billion in 2016
- More than two-thirds of depression cases in the country remain undiagnosed
- Depression is associated with elevated cases of conflicts and interference with interpersonal relationships at the workplace
- Depression has the effect of reducing QOL, workplace productivity, and interferes with the fulfillment of family and social roles

(Dreskin, 2018).

11

EFFECTS/IMPACTS CONT'D…

- Impact on Quality of Life (QOL)
  - depression plays a significant role in the decline of health and QOL
  - depression stands out as one of the highly prevalent and disabling conditions that affects adults especially those above 60 years old
  - significant effects of depression can be seen on families as conflict could be associated to depression which can cause marital discord

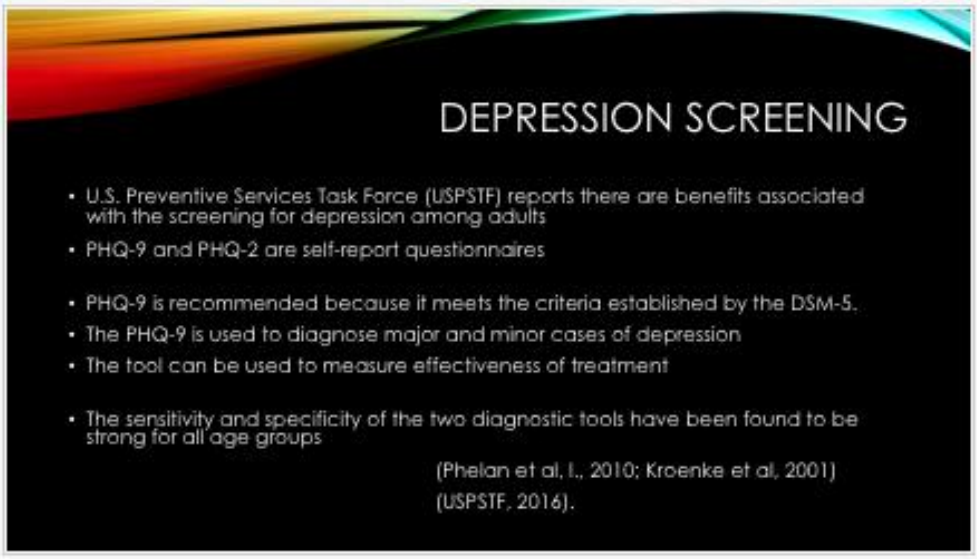
12

DEPRESSION SCREENING

- Screening for depression is advocated to be part of routine checkups in primary care to capturing the numerous cases of undiagnosed and undetected depression
- African Americans had significantly lower rates of screening compared to their white counterparts.
- Elderly patients are less likely to be screened than younger patients.
- The likelihood of being screened is higher among patients with chronic conditions compared to the patients without a chronic condition

(Akincigil & Mathews, 2017).

13


DEPRESSION SCREENING
• U.S. Preventive Services Task Force (USPSTF) reports there are benefits associated with the screening for depression among adults
• PHQ-9 and PHQ-2 are self-report questionnaires
• PHQ-9 is recommended because it meets the criteria established by the DSM-5.
• The PHQ-9 is used to diagnose major and minor cases of depression
• The tool can be used to measure effectiveness of treatment
• The sensitivity and specificity of the two diagnostic tools have been found to be strong for all age groups
(Phelan et al, l., 2010; Kroenke et al, 2001)
(USPSTF, 2016).

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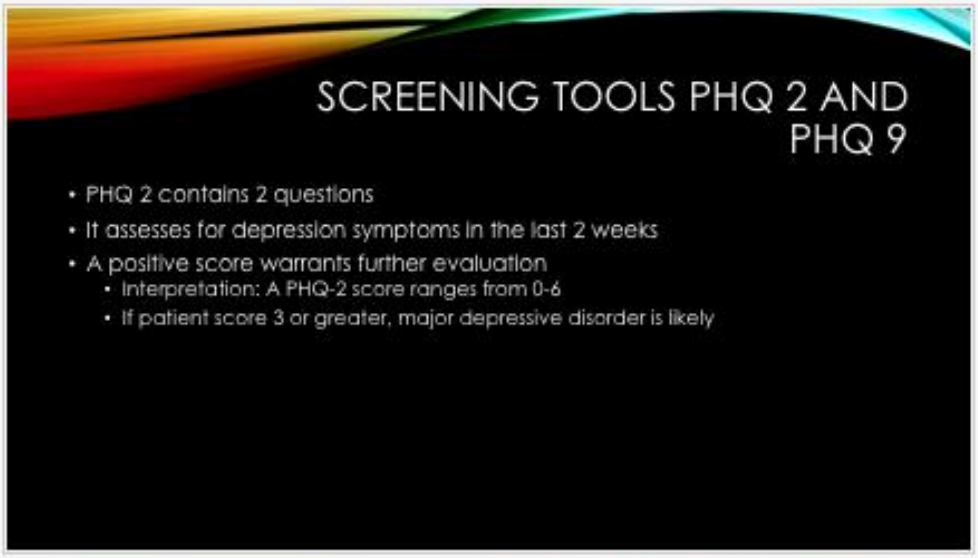
SCREENING TOOLS PHQ 2 AND PHQ 9
• PHQ 2 contains 2 questions
• It assesses for depression symptoms in the last 2 weeks
• A positive score warrants further evaluation
• Interpretation: A PHQ-2 score ranges from 0-6
• If patient score 3 or greater, major depressive disorder is likely

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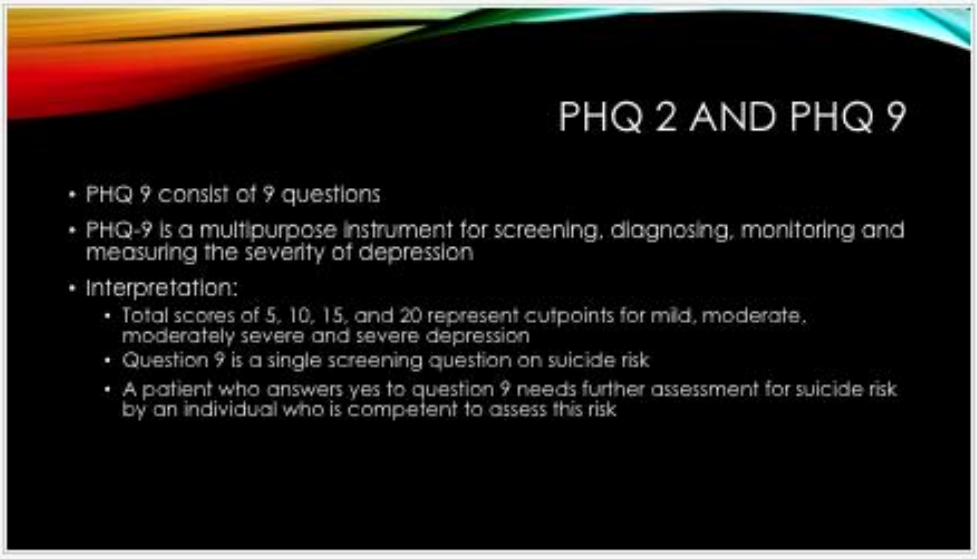
PHQ 2 AND PHQ 9
• PHQ 9 consist of 9 questions
• PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression
• Interpretation:
• Total scores of 5, 10, 15, and 20 represent cutpoints for mild, moderate, moderately severe and severe depression
• Question 9 is a single screening question on suicide risk
• A patient who answers yes to question 9 needs further assessment for suicide risk by an individual who is competent to assess this risk

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PHQ 9
Interpretation
Provisional Diagnosis and Proposed Treatment Actions
PHQ-9 Score
Depression Severity
Proposed Treatment Actions
0 – 4
None-minimal
None
5 – 9
Mild
Watchful waiting; repeat PHQ-9 at follow-up
10 – 14
Moderate
Treatment plan, considering counseling, follow-up and/or pharmacotherapy
15 – 19
Moderately Severe
Active treatment with pharmacotherapy and/or psychotherapy
20 – 27
Severe
Immediate initiation of pharmacotherapy and, if severe impairment or poor response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management

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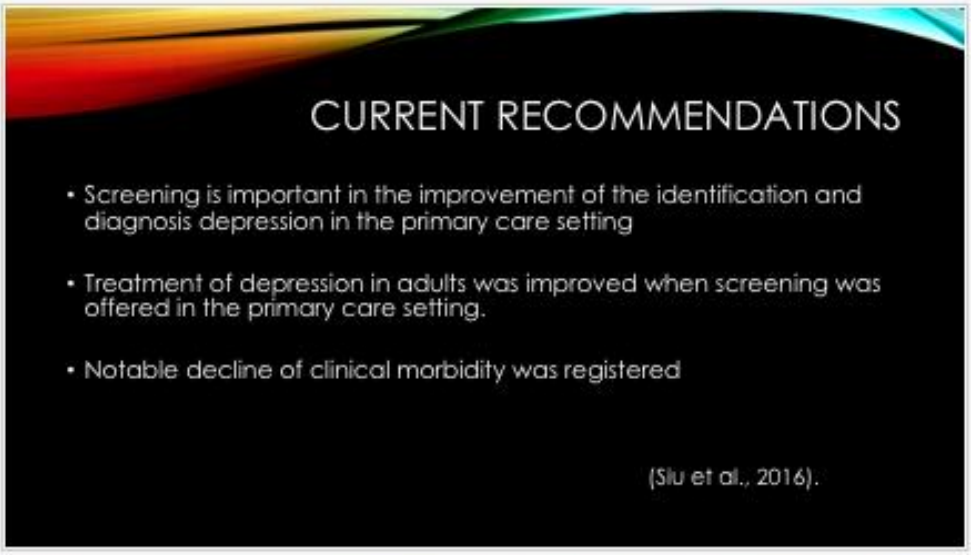
CURRENT RECOMMENDATIONS
• Screening is important in the improvement of the identification and diagnosis depression in the primary care setting
• Treatment of depression in adults was improved when screening was offered in the primary care setting.
• Notable decline of clinical morbidity was registered
(Siu et al., 2016).

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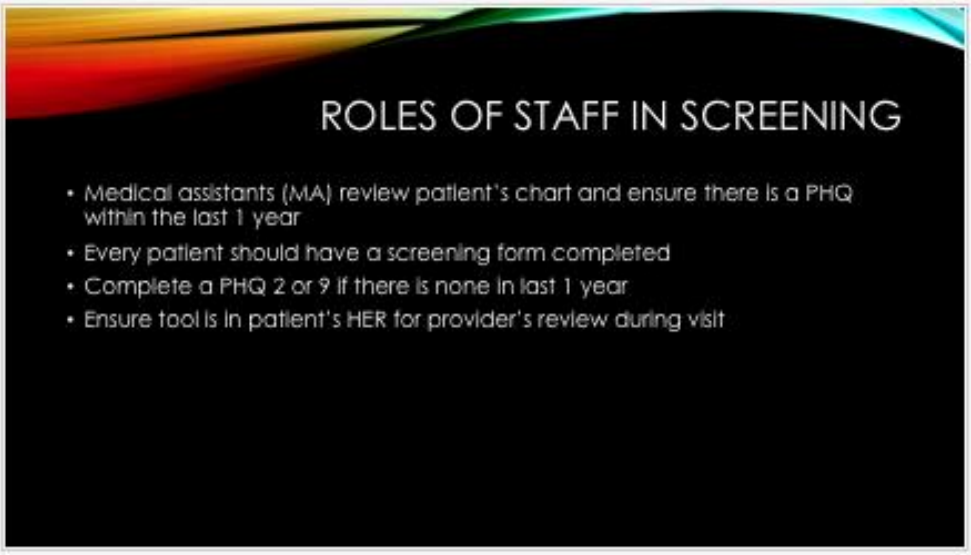
ROLES OF STAFF IN SCREENING
• Medical assistants (MA) review patient's chart and ensure there is a PHQ within the last 1 year
• Every patient should have a screening form completed
• Complete a PHQ 2 or 9 if there is none in last 1 year
• Ensure tool is in patient's HER for provider's review during visit

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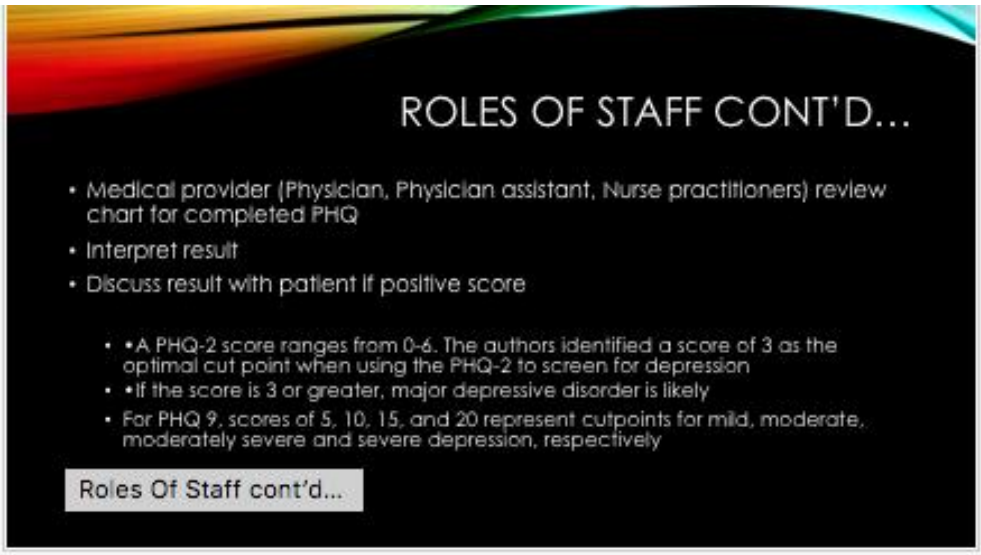
ROLES OF STAFF CONT'D…
• Medical provider (Physician, Physician assistant, Nurse practitioners) review chart for completed PHQ
• Interpret result
• Discuss result with patient if positive score
• •A PHQ-2 score ranges from 0-6. The authors identified a score of 3 as the optimal cut point when using the PHQ-2 to screen for depression
• •If the score is 3 or greater, major depressive disorder is likely
• For PHQ 9, scores of 5, 10, 15, and 20 represent cutpoints for mild, moderate, moderately severe and severe depression, respectively
Roles Of Staff cont'd...

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ROLES OF STAFF CONT'D…
• Medical providers to refer patients for specialty care (with Mental health provider) as needed for further evaluation and management of depression symptoms
• Medical assistants to ensure every patient's PHQ is documented in HER before patient is seeing by provider
• Providers to address and document evaluation and treatment options discussed with patient regarding depression even if primary purpose of visit is not depression
• Many patients will not present to PCP office with complaint of depression
• Encourage patients to report any symptoms of depression

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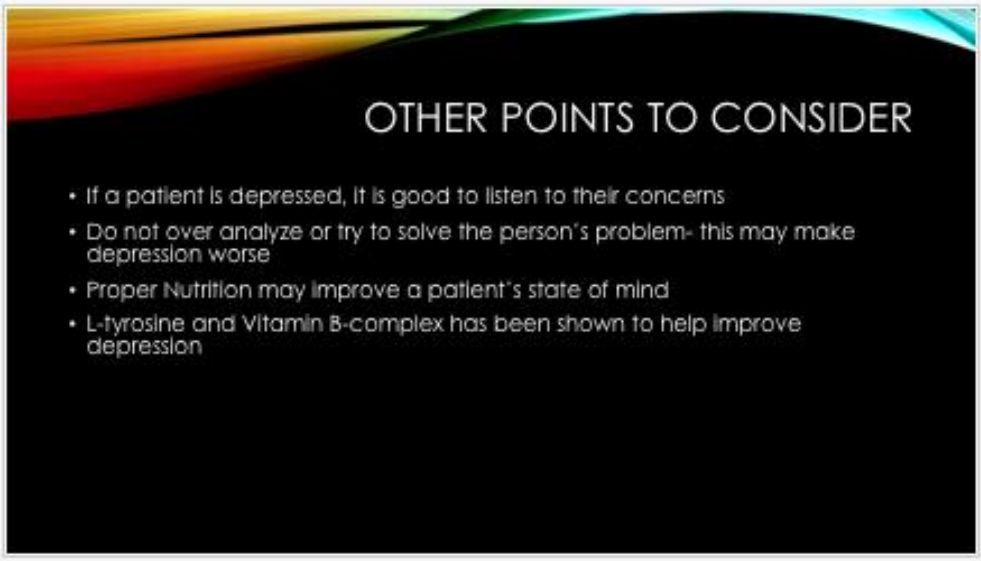
OTHER POINTS TO CONSIDER
• If a patient is depressed, it is good to listen to their concerns
• Do not over analyze or try to solve the person's problem- this may make depression worse
• Proper Nutrition may improve a patient's state of mind
• L-tyrosine and Vitamin B-complex has been shown to help improve depression

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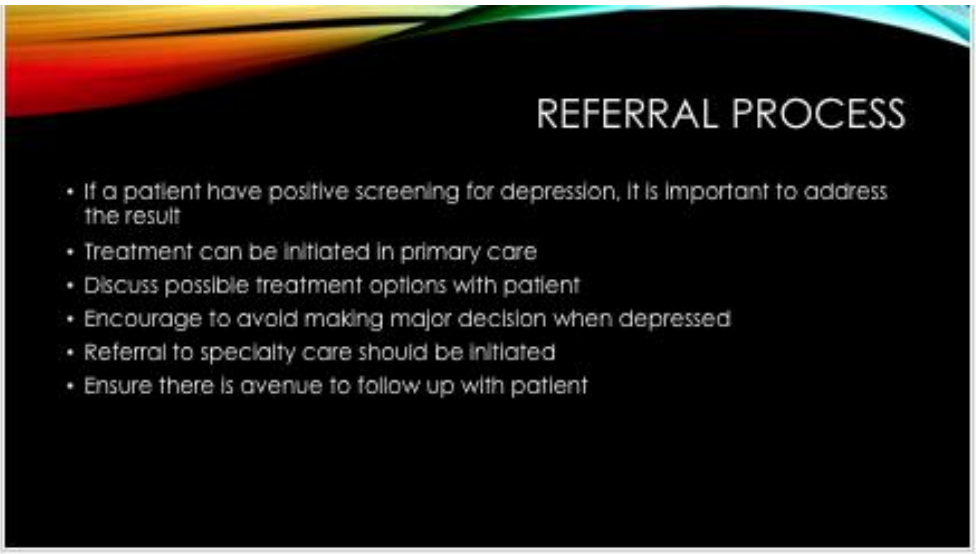
REFERRAL PROCESS
• If a patient have positive screening for depression, it is important to address the result
• Treatment can be initiated in primary care
• Discuss possible treatment options with patient
• Encourage to avoid making major decision when depressed
• Referral to specialty care should be initiated
• Ensure there is avenue to follow up with patient

23


QUESTIONS?
• Any questions regarding depression???

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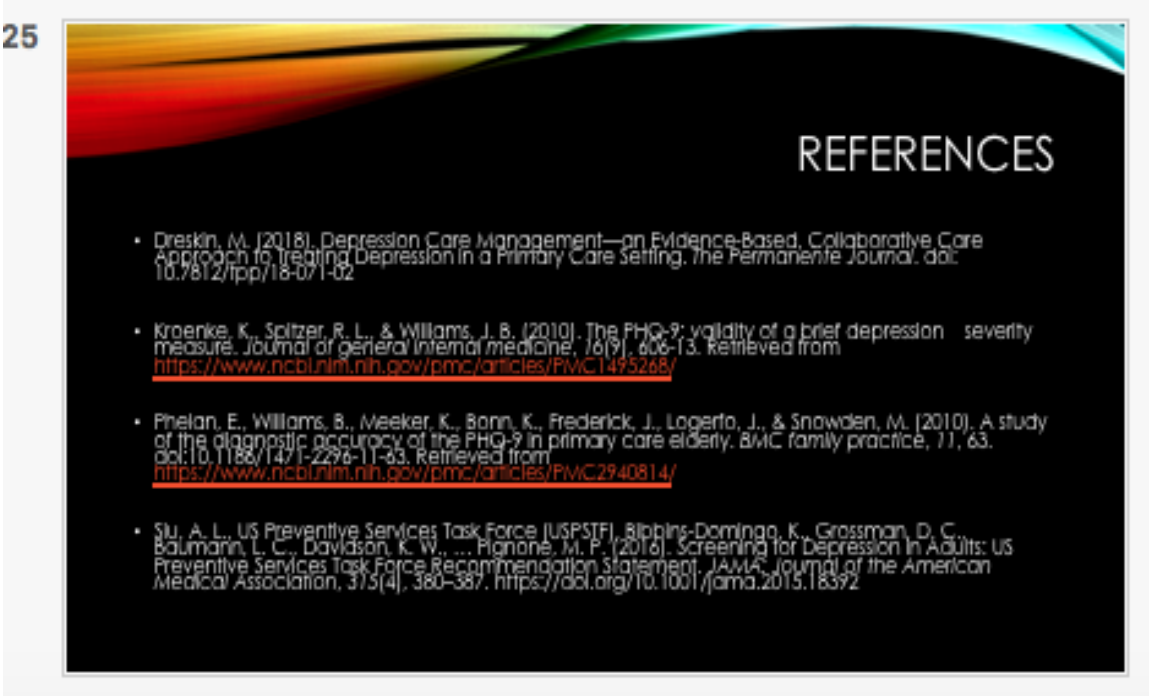
REFERENCES
• Agency for Healthcare Research and Quality (AHRQ) (2013). Module 14. Creating Quality Improvement Teams and QI Plans. Retrieved from https://www.ahrq.gov/professionals/prevention-chronic-care/improve/system/pfhandbook/mod14.html
• Akincigil, A. and Matthews, E. B. (2017). National Rates and Patterns of Depression Screening in Primary Care: Results From 2012 and 2013. Retrieved from https://ps.psychiatryonline.org/doi/pdf/10.1176/appi.ps.201600096
• Colorafi, K. (2017). Treating Anxiety and Depression in Primary Care: REDUCING BARRIERS TO ACCESS. Family Practice Management, 24(4), 11–16. Retrieved from https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=rzh&AN=124426126&site=ehost-live&scope=site&custid=azusa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REFERENCES
Dreskin, M. (2018). Depression Care Management—an Evidence-Based, Collaborative Care Approach to Treating Depression in a Primary Care Setting. The Permanente Journal. doi: 10.7812/tpp/18-071-02
Kroenke, K., Spitzer, R. L., & Williams, J. B. (2010). The PHQ-9: validity of a brief depression severity measure. Journal of general internal medicine, 16(9), 606-13. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1495268/
Phelan, E., Williams, B., Meeker, K., Bonn, K., Frederick, J., Logerfo, J., & Snowden, M. (2010). A study of the diagnostic accuracy of the PHQ-9 in primary care elderly. BMC family practice, 11, 63. doi:10.1186/1471-2296-11-63. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2940814/
Siu, A. L., US Preventive Services Task Force (USPSTF), Bibbins-Domingo, K., Grossman, D. C., Baumann, L. C., Davidson, K. W., ... Pignone, M. P. (2016). Screening for Depression in Adults: US Preventive Services Task Force Recommendation Statement. JAMA: Journal of the American Medical Association, 315(4), 380–387. https://doi.org/10.1001/jama.2015.18392

Appendix H

Depression Screening Protocol

PROTOCOL FOR SCREENING DEPRESSION

SHILOH MEDICAL CENTER	Effective Date:
IMPROVING UTILIZATION OF PHQ TOOLS FOR DEPRESSION SCREENING	

DEFINITION: Depression, otherwise known as major depressive disorder or clinical depression, is a common and serious mood disorder which is marked by feelings of sadness, hopelessness, and a loss of interest in activities once enjoyed for at least two consecutive weeks (APA, 2015).

Depression screening is an important process of early detection and adequate treatment of the disease.

NOTE: Patients with positive screen (greater than 4 for PHQ 9 and greater than 2 for PHQ 2) should be referred to the medical provider for further review and evaluation.

STEPS TO FOLLOW

- Medical assistant staffs to complete patient chart review to ensure a patient has been screened within the last 12 months for depression via PHQ2 or PHQ 9
- Staff to perform a screening tool if none is present in the chart or if greater than 12 months since last screening completed
- Staff to instruct patients to complete form as most accurately as possible
- Medical Assistant will ensure the screening form is available in EHR before medical provider begin visit with patient
- Medical providers (Physician, PA, NPs) to review patients' chart at every visit to ensure a recent PHQ (within the last 12 months) is present
- Medical provider will review PHQ screening tool to ensure the result is addressed i.e. if a positive screen (greater than 4 for PHQ 9 and greater than 2 for PHQ 2) the provider will review result with patient
- Positive screening warrants further review to justify either a referral to Specialty care (Mental health care provider) or initiation of treatment for depression depending on severity or as justified
- If appointment is not readily available to Specialty care clinic, provider will make provision to see patient within the next 2-4 weeks for f/u of depression
- Provider will review patient's chart at every visit to ensure accurate follow up of care for depression management is in place
- Provide educational handout/materials to emphasize the importance of follow up care for depression
- Provider will document intervention in chart and bill appropriate codes for depression and services rendered

There is no permission required to use PHQ 2 or PHQ 9

Patient Health Questionnairre (PHQ-9)

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

Over the last *2 weeks*, how often have you been bothered by any of the following problems?	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 figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
	add columns	+	+	
	TOTAL:			

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all _____
- Somewhat difficult _____
- Very difficult _____
- Extremely difficult _____

Patient health questionnairre (PHQ-9).

Total Score	Depression Severity
0-4	None
5-9	Mild
10-14	Moderate
15-19	Moderately Severe
20-27	Severe

The Patient Health Questionnaire-2 (PHQ-2)

Patient Name _____ Date of Visit _____

Over the past 2 weeks, how often have you been bothered by any of the following problems?	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

PHQ-2 Questions

Over the last 2 weeks how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	0	1	2	3
Feeling down, depressed, or hopeless	0	1	2	3

- A cut-off score ≥ 3 is positive