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Assessment of Depression Screening in Women's Primary Care Clinic

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The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Assistant Dean for MSN and DNP Studies, on behalf of the program; we verify that this is the final, approved version of the student's DNP Project including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

Susanna Gorton, Student

Dr. Lynne Jensen, Advisor

Final DNP Project Report

Assessment of Depression Screening in Women's Primary Care Clinic

Susanna G. Gorton, BSN, RN

University of Kentucky

College of Nursing

Summer 2016

Lynne A. Jensen, PhD, APRN, Committee Chair

Karen Stefaniak, PhD, RN, NE-BC, Committee Member

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Dedication

This practice inquiry project is dedicated to all people suffering from depression, including my mother who has suffered from depression and dealt with the many difficulties surrounding this mental health disorder. I have seen first-hand what happens when depression is not adequately treated. My hope is to consistently screen for depression and help those in need when they come to see me as a provider so that their lives will return to normal functioning if they are suffering from depression. I would also like to thank my husband, family, and friends for their support and encouragement over the last three years. I would have not made it without them.

Acknowledgements

I am forever grateful to my committee members for their help and support through the DNP Inquiry Project process. They have given me wonderful pointers and feedback to improve this study. I would especially like to thank my committee chair, Dr. Lynne Jensen, who has been a wealth of knowledge, support, and mentorship throughout the DNP program and this project. Lastly, I must mention the 5 other FNP DNP students who have encouraged and helped me the last three years. I could not have accomplished or finished the program without the help of all the people mentioned above.

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Abstract

Purpose: The purpose of this practice inquiry project was to evaluate provider adherence to depression screening documentation in the ambulatory electronic health record (AEHR) before and after changing locations of the depression screening questions within the AEHR. Provider knowledge about depression screening and barriers related to depression screening were also examined.

Methods: A retrospective chart review was completed for patients seen for an annual exam by a physician provider in a women's primary care clinic. Data collected included demographic data, co-morbid conditions, depression screen documentation (PHQ-2 & PHQ-9), and interventions documented. A questionnaire was sent to providers in the primary care clinic to assess knowledge about depression and identification of barriers related to depressions screening.

Results: The retrospective chart review indicated that 2% of the patients were screened for depression before the screening tool was moved in the AEHR, and 78% were screened after the screening tool was moved. There were no significant differences in the two population samples. Only one patient out of 50 was screened before the screening tool was moved, but 13 patients were given prescriptions for medications for the treatment of depression. Provider knowledge of the location of the screening tool has increased. Furthermore, time was identified as the greatest barrier to screening for depression.

Conclusion: Depression screening improved after changing the AEHR placement of the depression screening questions in the areas in which providers document prevention. "Yes" responses from the patient on the PHQ-2 indicated a positive screen for depression, and these positive responses on the PHQ-2 automatically directed the provider to the PHQ-9, a more

extensive instrument for depression that measures symptom severity. Time was the most significant barrier to screening for depression. Primary care providers may be the only healthcare professional that are able to screen for depression since these providers are most easily accessible to patients. Treating depression helps improve overall health, but can also impact the management of other chronic diseases as well.

Assessment of Depression Screening in Women's Primary Care Clinic

The Centers for Disease Control and Prevention (CDC) (2011) report approximately 9.1% of the population currently meet the criteria for a diagnosis of depression. About two-thirds of these people do not receive the help that they need (National Alliance on Mental Illness [NAMI], 2009). In Kentucky, it is estimated that 22.2% of adults have suffered from major depression at some time in their lives, and about 7.6% of Kentucky adults have suffered from depression in the last 30 days (Kentucky Cabinet for Health and Family Services, 2004). Depression can affect anyone at any age, but women are 70% more likely to experience depression in their lifetime than men (National Institute of Mental Health [NIMH], 2014). It is estimated that approximately one in eight women experience depression at some time during their lifespan (NAMI, 2009). Women are more likely than men to have seasonal affective disorder, have atypical symptoms of depression, to have comorbid anxiety disorders, and to attempt suicide (Gorman, 2006).

Background

Depression is a mental illness that can be extremely debilitating and costly for individuals (CDC, 2011). Symptoms associated with depression include: "sadness, anhedonia, pessimism, feeling of emptiness, irritability, anxiety, worthlessness, thoughts of death or suicidal ideation, disturbed sleep, change in appetite or weight, psychomotor changes, decreased energy, fatigue, bodily aches and pains, impaired concentration, indecisiveness, and poor memory" (Chisholm-Burns et al., 2013, p. 679). Depression can be attributed to a combination of genetic, biological, environmental, and psychological factors, and it affects the individual's ability to work, sleep, study, eat, and enjoy life (NIMH, 2014). This mental illness is the leading cause of disability for adults ages 15-44 in the United States (World Health Organization, 2008). Depression can cause

adults to experience "increased work absenteeism, short-term disability, and decreased productivity" (CDC, 2011, p. 1). Approximately 80% of adults with depression state they have some impairment in daily functioning because of their depression, and about 27% state that they experience serious difficulties at work as well as at home (Pratt & Brody, 2008). It is estimated that depression causes 200 million lost workdays each year which in turn costs employers $17 to $44 billion (Leopold, 2001; Stewart, Ricci, Chee, Hahn, & Morganstein, 2003). Approximately 60% of the depressed patients are seen by primary care providers and these providers prescribe 79% of the total number of anti-depressant medications prescribed (Barkil-Oteo, 2013; Frank, Huskamp, & Pincus, 2003). Therefore, screening in primary care is extremely important.

If depression is left untreated, it can lead to suicide (NIMH, 2014). In 2010, the suicide rate for the United States was 12.43 per 100,000, while Kentucky's rate was 14.2 per 100,000 (Suicide Prevention Resource Center, 2012). It is estimated that each day there are 42 attempted suicides in Kentucky and two deaths from suicide (Suicide Prevention Resource Center, 2012).

Untreated depression associated with another chronic disease often produces worse outcomes. Katon (2011) stated that "comorbid depression is associated with increased medical symptom burden, functional impairment, medical costs, poor adherence to self-care regimens, and increased risk of morbidity and mortality in patients with chronic medical disorders" (Katon, 2011, p. 1). People with a chronic medical condition, as well as depression, usually have more severe symptoms of both conditions (NIMH, 2014). These individuals have more problems adapting to medical conditions, and often incur higher costs associated with treatment when there is a co-morbid diagnosis of depression (NIMH, 2014). Co-morbid conditions often associated with depression include diabetes, coronary artery disease, stroke, cancer, chronic pain, thyroid disorders, history of depression, and other mood or anxiety disorders (Mitchell et al., 2013).

There are extremely high rates of depression associated with the co-morbid diagnoses of coronary heart disease and diabetes (Katon, 2011). Depression can interfere with the patient's ability to engage in self-care of the chronic illness because it has an adverse effect on memory, energy, and executive function (Katon, 2011). For these reasons, treating depression can improve the treatment of other co-morbidities as patients may be more likely to adhere to the treatment regimen (Whooley, 2012; Richardson & Puskar, 2012).

Screening for depression is important since the consequences can be irreversible such as suicide and worsening of an individual's health in relation to co-morbid conditions. The U.S. Preventive Task Force Services (USPTFS) recommends that all adults, including pregnant and postpartum women should be screened for depression (USPTFS, 2016). In accordance with this recommendation, Healthy People 2020 has set a goal to increase the number of patients who are screened for depression by primary care providers from 2.2% in 2007 to 2.4% by 2020 (USDHHS, 2012).

Few studies have been conducted to examine provider screening rates for depression in primary care. It is extremely important to implement a systematic strategy for depression screening to ensure the completion of screening (Klein, Ciotoli, & Chung, 2011). The Institute for Clinical Systems Improvement's (ICSI) guideline for depression in primary care recommends first using the PHQ-2 instrument; in the event of a positive score (3 or greater), the PHQ-9 instrument should then be completed (Kroenke, Spitzer, & Williams, 2003; Mitchell et al., 2013). Use of the PHQ-9 instrument is recommended in the primary care setting because it is useful in indicating the severity of depression (Spritzer, Kroenke, & Williams, 1999).

In addition to screening, the providers must understand the risk factors associated with depression to aid in understanding which patients may be at greater risk of developing depression

(Mitchell et al., 2013). Some risk factors associated with depression are frequent visits to primary care providers, patients with unexplained somatic complaints, history of depression, family history of depression, chronic health conditions, other mental health disorders, and refugee or immigrant status (Baas et al., 2009; Christensen, Sokolowski, & Olesen, 2011; Maradiegue & Khan, 2013; Romera et al., 2013).

The healthcare system is changing as Medicare and Medicaid have instituted a Physician Quality Reporting System (PQRS) (Koltov & Damle, 2014). This system is an incentive and penalty program in which providers will no longer be paid a fee for their service, but rather paid based on the quality of care delivered (Koltov & Damle, 2014). In the near future, the Centers for Medicare and Medicaid Services (CMS) will begin to base reimbursements on these quality indicators (CMS, 2013). One of the indicators is screening for clinical depression and developing a follow-up plan (Measure # 134, NQF 0148) (CMS, 2013).

Providers may feel overwhelmed and have difficulty remembering all screenings that must be completed. However, electronic health record provider prompts have been shown to significantly increase screening for health conditions (Hsu et al., 2013; Van Cleave et al., 2012). Devising a systematic way of screening and a protocol to follow is useful for implementing screening and providing ease to providers who feel they are not sufficiently educated about depression (Klein et al., 2011). Van Cleave et al. (2012) performed a systematic review examining interventions to improve screening processes and follow up. Some of these studies included electronic medical record templates and reminders which helped prompt providers to screen. These electronic medical record enhancements as an intervention greatly improved screening rates from baseline (Van Cleave et al., 2012).

In the ambulatory electronic health record (AEHR) in a primary care clinic in a university setting, depression screening was embedded in a category listed only as screening with a checkbox to indicate completed. The depression screening questions were embedded in a detail button which needed to be opened in order to complete the PHQ-2 questions. The full PHQ-9 screening tool was not available. CMS states that the PHQ questions must be answered individually in order to meet the criteria for documentation of the quality indicator for depression. The clinic manager, along with the informaticist, made the decision to move the two questions of the PHQ-2 directly into the prevention area from the screening section of the AEHR in January 2015 to better meet CMS requirements. The two PHQ-2 questions can be answered with a check box, yes or no, and the full PHQ-9 questions are available when clicking on the radio button. There is a text box to indicate the PHQ-9 score and further evaluation.

Purpose

The purpose of this Quality Improvement (QI) project was to evaluate depression screening rates in a women's primary care clinic by assessing documentation in the ambulatory electronic health record (AEHR). The primary aim was to assess provider adherence to depression screening during annual exams before and after the depression screening tool location was changed in the AEHR. Before January 2015, the PHQ-2 screening tool was difficult to find as it was embedded in the screening section in the annual exam form template in the AEHR and required multiple steps in order to gain access to this screening tool. As of January 2015, the PHQ-2 was moved to the prevention section of the AEHR and was more visible to providers. The two PHQ-2 questions are part of the prevention section with the PHQ-9 questions under a radial dial. The changes in location in the AEHR was discussed at a faculty meeting as well as the CMS requirements for depression screening.

This QI project was a retrospective medical record review completed to compare the rates of depression screening completed by providers before and after moving the depression screening tool in the AEHR. The secondary aim of this study was to assess provider knowledge as well as barriers to completing depression screening. This was completed through the use of an e-mail survey sent to the providers.

Methods

Design

A retrospective medical record review was completed in March 2016 to assess documentation of depression screening during annual exams as well as interventions recommended for depression by the PHQ-9 depression screening tool. Fifty records were randomly selected for review during the four months before the PHQ screening tool was moved (September 2014-December 2014) and 50 records were randomly selected for review during the four months after the PHQ screening tool was relocated to the preventions section of the AEHR (March 2015-June 2015). In addition, a provider survey was sent via e-mail to participating providers to assess their knowledge of depression screening and the barriers to screening patients.

Human Subject and Research Approval Procedures

Permission to conduct this QI project was granted by the University of Kentucky Institutional Review Board (IRB). Patient consent was waived in compliance with IRB regulations since data collection was completed through a retrospective medical record review in which patient identifiers were not collected. Consent for the survey was implied by providers completing the survey with all responses being confidential.

Study Population

This QI project was completed in a women's health clinic within a university setting. A total of 100 charts were randomly selected, 50 from the four months (September 2014-December 2014) before the depression screening instrument was moved and 50 from the four months (February 2015-June 2015) after the instrument was relocated to the prevention section of the AEHR. The inclusion criteria included female patients ages 18-89 who presented for an annual physical exam in the clinic. Participating providers for the survey portion of the study included the four physician providers at the clinic.

Data Collection

The Center for Clinical and Translational Science (CCTS) at the University of Kentucky (UK) assembled a list of medical record numbers, patient names, physician provider, appointment types of WELL40 or EP40, and appointment dates of patients that were seen between September 2014 and December 2014 as well as between March 2015 and June 2015. A list of 145 charts before moving the PHQ-2 and 185 charts after moving the PHQ-2 location were obtained for the study. The charts were selected using a random number generator for each of the two samplings of patients, 50 from before moving the PHQ-2 and 50 from after moving the PHQ-2. Each of the selected charts were given an identification number that would be used for collecting data during the medical record review to ensure no identifying information would be collected on the patients.

Depression screening charted in the provider note was assessed for documentation of the PHQ-2 being documented and the PHQ-9 being performed if the PHQ-2 was positive according to the National Institute of Health and Clinical Excellence (NICE) guideline. The NICE

guideline (2009) recommends that patients should be asked the following two questions (PHQ-2) in order to screen for depression:

1. During the last month, have you often been bothered by feeling down, depressed, or hopeless?
2. During the last month, have you often been bothered by having little interest or pleasure in doing things? (p. 16)

Patients who answer 'yes' to either of these questions, should then be asked all the questions on the PHQ-9 depression screening instrument to assess the risk and severity of depression (NICE, 2009). In addition to gathering this information, age, race, marital status, employment status, insurance coverage, and common co-morbidities associated with a high risk of depression were collected. Interventions such as no intervention, medication prescription, referral, and other recommendations were also collected in this study.

All medical records were accessed in the clinic director's secure clinic office on a computer that was encrypted and password protected. The data collected for the medical record review was documented and stored in REDCap, a secure online data collection tool provided by the University of Kentucky. The data are securely hosted on Biomedical Informatics servers in the secure data center operated by the Institute for Pharmaceutical Outcomes and Policy.

The provider survey was disseminated via REDCap in February 2016 and the four providers were given three weeks to respond. All completed surveys were stored using REDCap. The survey assessed provider's knowledge about the location of the PHQ-2 in the AEHR, screening practices, knowledge of the screening tool, and barriers to screening. The management of depression, if it was diagnosed, was also evaluated.

Data Analysis

Results from the retrospective medical record review were analyzed using the Statistical Package for the Social sciences (SPSS) software. Descriptive statistics using frequencies were used to assess age, race, employment status, marital status, insurance coverage, co-morbidities, and the number of patients that were screened using the PHQ-2 tool. In addition, a chi-square test of association and an independent samples t-test were used to ensure that the pre- and post-population samples were not significantly different. A chi-square test was run in order to compare the proportion of records with depression screening documentation before and after movement of the instrument to the prevention section of the AEHR. In order to determine whether patient demographics such as age, race, marital status, employment status, type of insurance, and co-morbid conditions were associated with whether a provider would screen for depression, a chi-square test was also completed. Results were considered statistically significant if the p-value was < 0.05. The survey results were descriptively evaluated by the primary investigator since only three surveys were completed.

Results

Retrospective Ambulatory Electronic Health Record Review

The age range for the 100 charts reviewed was ages 19-76, with a mean of 44.38 (Table 1). Caucasian women made up 88% of the study sample while 11% were African American women, and 1% were Asian women. Due to the numbers associated with different races, it was recoded to state that Caucasians made up 88% of the sample and 12% were other races. Sixty-one percent of the study sample was married, 28% was single, and 11% were divorced. The employment status of the sample consisted of 9% working part-time, 73% working full-time,

16% not employed, and 2% did not have employment status documented. Insurance coverage for the sample included 80% having HMO or PPO insurance, 11% having Medicaid insurance, 8% having Medicare insurance, and 1% not having insurance documented (Table 2).

There are many co-morbid conditions that can be associated with depression. The study population consisted of 4% of the women diagnosed with diabetes, 2% had coronary artery disease, 2% had a current diagnosis of cancer, while 6% had a history of cancer, 12% had chronic pain, 30% had a history of depression, 26% had a thyroid disorder, and 19% had other mood or anxiety disorders (Table 2).

The samples were examined overall, as well as individually, according to before and after the relocation of the PHQ-2 and after the movement of the PHQ-2. When examining the samples pre- and post-relocation, there was no significant difference between the two samples as all p-values for age, race, marital status, employment status, insurance, and co-morbid conditions were > 0.05 (Table 1 and Table 2).

Only 2% of the sample was screened for depression during the time period September 2014-December 2014 before the PHQ-2 screening tool was moved. From March 2015-June 2015, after the screening tool was moved, 78% of the patients were screened for depression during their annual exam (Figure 1). This difference was significant when running Pearson's chi-square test of association as the p-value was <0.001 (Table 4).

Only one patient of the 40 patients screened answered yes to the PHQ-2 questions. The PHQ-9 was documented for that patient. If the PHQ-2 is negative, then there is no reason to complete the PHQ-9.

When determining whether patient demographics, such as age, race, marital status, employment status, insurance and co-morbid conditions, are associated with whether a provider would screen for depression or not, there was no association between these factors. Pearson's chi-square test of association was completed on all the demographics and all p-values were > 0.05 (Table 5).

Interventions assessed when looking at the charts included no intervention, medication prescribed, counseling referral, or other intervention not previously listed. No intervention performed occurred 86% of the time overall, 78% of the time before the PHQ-2 tool was moved and 94% of the time after the PHQ-2 instrument was moved. Medication was prescribed 13% of the time overall, 20% of the time before the PHQ-2 tool was moved and 6% of the time after the tool was moved. Counseling referral and other interventions only occurred once overall, during the time before the PHQ-2 was moved (Table 6).

Provider Survey

Three out of four providers completed the survey, a 75% response rate. All of the responses to the survey are summarized in Table 3. Of those who responded, only 1 stated that she knew where the PHQ-2 depression screening instrument was located in the AEHR before it was moved in January of 2015. All of the providers stated that they had at times screened for depression and did not document the result before the screening tool was moved.

The three providers that responded all indicated that they knew the location of the depression screening instrument in the prevention section after the relocation in January 2015. Two out of the three providers stated that they continue to screen without documenting the results. Two of the providers also stated that moving the screening tool has helped improve

depression screening adherence. Only two out of the three providers indicated that if their patient had a history of depression and the patient is there for follow-up, they use the PHQ-2/PHQ-9 to see if the patient is improving with the treatment prescribed.

The only barrier that was reported related to screening for depression was time, and this was the response of two of the providers. All three providers indicated that if the PHQ-2 score was 2 or above, they were supposed to complete the PHQ-9. All three providers also specified that they were aware that screening for depression is a PQRS measure and could soon involve monetary penalties if it is not completed.

The treatment plan for a patient could involve different modalities. Three providers indicate that they use medications, while none of the providers use hospitalization in their treatment plan. All three providers use referral, and two of the providers include a wait and reassess intervention. One provider indicated that she seeks immediate attention if there is suicide ideation or homicide ideation present.

Discussion

Screening for depression is essential in diagnosing a patient and adequately treating this mental disorder. Primary care providers are the most accessible to patients and should be responsible for depression screening as many patients seek help from their primary care provider for mental health issues because of the trust that they have in this provider (Zeidenstein, 2004).

Provider depression screening rates are not well-documented in the literature. However, barriers related to depression screening consistently include time constraints (Baas et al., 2009; Maradiegue & Khan, 2013; Romera et al., 2013). This QI project is consistent with reported

barriers to screening as two-thirds of the providers stated that time was a barrier encountered in relation to depression screening.

The medical chart review indicated that 2% of the patients were screened for depression before the screening questions were moved, which is less than the initial screening rate of 2.2% according to the Healthy People 2020 (USDHHS, 2012). However, after the screening tool was moved, the screening rate increased to 78%, which surpasses the Healthy People 2020 goal of primary care providers screening for depression 2.4% of the time (USDHHS, 2012).

There is a lack of documentation in relation to depression screening (Romera et al., 2013). This was supported by this QI project as providers stated that there are times they did screen and did not document the PHQ-2 score.

One patient was screened for depression before the screening tool was moved. This patient's appointment was on December 8, 2014. The screening tool was moved on January 28, 2015, just a month later. During this time, the providers were receiving training regarding the depression screen being moved and for this reason, it may have been fresh in their minds. For this reason, it is possible that the training influenced the provider and caused this one patient to be screened for depression when no others were screened before the instrument was moved in the AEHR.

There was only one patient that screened positive for depression out of the 100 patient charts reviewed. This number is less than the national average of 9.1% of people having depression (CDC, 2011). This could be attributed to the sample seen at this particular clinic. Most of the people in this clinic are employed and have PPO insurance through the university.

Results from the study also indicated that providers were prescribing medications without documented depression screening patients especially before the screening tool was moved. Only one patient was screened during this period, but 13 patients received a prescription for a medication that treats depression. The PHQ-9 could have been completed and documented to evaluate whether or not medication changes were needed as recommended by ICSI (Mitchell et al., 2013). Otherwise, there were no data to show why a patient is receiving that medication. In the patients' notes, the providers simply stated that the patient had depression and wrote the prescription. There was no explanation of the patient doing well on the medication or reasons for medication changes.

This study indicated that moving the depression screening instrument greatly increased the rates of screening. Screening tools must be accessible to providers and easy to use. These findings agree with previous studies where provider prompts in the EHR were shown to significantly increase screening rates for different health conditions (Hsu et al., 2013; Van Cleave et al., 2012). This allows providers to have reminders during busy and stressful clinic settings.

Through completion of this study, some of the aspects included in the essentials of doctoral education for advanced nursing practice were achieved. The first essential is *Scientific Underpinnings for Practice.* This particular essential was met as this project used "science-based theories and concepts to describe actions and advanced strategies to enhance, alleviate, and ameliorate health and health care delivery" as well as evaluating the outcomes (AACN, 2006, p. 9). The second essential is *Organizational and Systems Leadership for Quality Improvement and Systems Thinking.* Essential two was met through this project as the primary investigator saw a problem in the health care delivery system and worked to "promote patient safety and excellence

in practice" (AACN, 2006, p. 10). In addition, care delivery approaches were developed and evaluated in order to meet the needs of the population while "ensur[ing] accountability for quality of health care and patient safety for the population" (AACN, 2006, p. 10). The eighth and final doctoral of nursing practice essential is *Advanced Nursing Practice.* This essential includes that the professional will "design, implement, and evaluate therapeutic interventions based on nursing science and other sciences." (AACN, 2006, p. 16). This was completed through this project as a new intervention for depression screening was designed, implemented, and evaluated in order to improve depression screening in the clinic.

Limitations

One limitation of this study is the small sample size for both the medical record review as well as the provider survey. However, despite the small sample size, documentation of depression screening was significant when comparing documentation before and after moving the location of the depression screening questions in the AEHR. The provider survey only had three responses out of the four providers, and while this is a 75 percent response rate, it still is a small sample size making it difficult to generalize findings to other clinical settings.

Another identifiable limitation is that the patient sample seen at this university setting is unique. Many of the patients work at the university which could possibly skew the results regarding the patient sample and diagnosis of depression. This particular sample population was not diverse due to many patients being associated with the university and having university insurance. Therefore, the results of this study may not be generalizable to other populations.

An additional limitation is that documentation of depression screening is completed by providers who may have time constraints. For this reason, it could be that providers could have

asked the PHQ-2 questions, but failed to document that they completed this screen. More research is needed in relation to depression screening and screening rates in primary care clinics.

Implications for Practice

Interventions to encourage easy access for documentation can improve documentation of depression screening as well as for other disease processes. Provider education related to screening and monetary reimbursement-related expectations can also improve the documentation of screening rates.

Screening allows providers to assess if a patient is depressed as well as the patient's level of depression. This determines whether treatment should be initiated or changed if a depression diagnosis has previously been documented and are not at goal (NICE, 2009). The process is quick, as initially the PHQ-2 consists of two yes or no questions. If the answer is yes to both questions asked, then the provider can perform the PHQ-9 and get a comprehensive score that indicates the severity of depression to aid in creating a treatment plan (Kroenke, Spitzer, & Williams, 2003; Mitchell et al., 2013).

Screening for depression is especially important for patients with certain co-morbid diseases as they frequently suffer from depression. These co-morbid conditions include diabetes, coronary artery disease, stroke, cancer, chronic pain, thyroid disorders, history of depression, and other mood or anxiety disorders (Mitchell et al., 2013).

Once a patient is diagnosed with depression, the PHQ-9 can be used to determine if the prescribed treatment is effective and to indicate whether or not changes need to be made, such as medication adjustments or referral for counseling (Mitchell et al., 2013). If a provider is going to renew a prescription for medications to treat depression, the PHQ-9 should be completed in order

to provide information concerning the level of depression and guide the provider on continuing the current dose or making changes to the dose. The importance of follow-up is extremely important as the goal is to alleviate the symptoms the patient is experiencing, and if the patient has a co-morbidity, the treatment of depression also helps improve the management of the other disease (Mitchell et al., 2013; Richardson & Puskar, 2012; Whooley, 2012). Follow-up can therefore help the patient in the many aspects of treating their medical conditions and improve their overall health as a person. Documentation of the patient's state of depression and response to treatment is important for overall management. Treatment of depression also has a positive impact on other serious health problems. Therefore, completion of the PHQ-9 is extremely important in the management and treatment of a patient with depression.

Conclusion

Primary care providers are at the forefront in recognizing and treating depression. These providers are in the optimal position to screen for and treat depression because many patients prefer to remain in primary care because of the familiarity, location, patient-clinician relationship, convenience, and reduced stigma related to diagnosis of a mental health illness (Zeidenstein, 2004). If this disease process is not diagnosed in this setting, a patient may never receive treatment. Therefore, it is imperative that primary care providers screen for depression. This screening process may help in the treatment of many conditions because if depression is found, it is possible that it is hindering the patient from adequately following the health plan for other medical conditions. In this QI project, electronic prompts in the AEHR improved the provider screening rates for depression by 76%. By providing reminders or increasing the ease of documentation for clinicians, screening rates will increase allowing patients to receive the treatment they need to improve their mental and overall health.

Table 1. *Population Sample Comparison of Continuous Variables*

	Overall Sample (n=100)	Pre- movement of PHQ-2 (n=50)	Post- movement of PHQ-2 (n=50)	p-value
Age Range	19-76	19-76	22-65	0.593
Age Mean	44.38	44.32	44.44	
Standard Deviation	12.960	13.604	12.42	

Table 2. *Population Sample Comparison of Categorical Variables*

	Overall Sample (n=100)	Pre- movement of PHQ-2 (n=50)	Post- movement of PHQ-2 (n=50)	p-value
Race				
White	88	47	41	0.065
Other	12	3	9	
Marital Status				
Single	28	13	15	0.613
Married	61	30	31	
Divorced	11	7	4	
Employment Status				
Part-Time	9	6	3	
Full-Time	73	36	37	0.626
Not Employed	16	7	9	
Not Documented	2	1	1	
Insurance				
HMO or PPO	80	39	41	
Medicaid	11	5	6	0.809
Medicare	8	5	3	
Not Documented	1	1	0	
Co-morbid Conditions				
Diabetes	4	3	1	0.307
CAD	2	0	2	0.153
Stroke	0	0	0	n/a
Cancer	2	1	1	1.000
History of Cancer	6	3	3	1.000
Chronic Pain	12	6	6	1.000
History of Depression	30	17	13	0.383
Thyroid Disorder	26	16	10	0.171
Other Mood or Anxiety Disorder	19	12	7	0.202

Table 3. *Provider Survey Responses*

Question	Response	N (out of 3)
Did you know where the PHQ-2 depressions screening instrument was located in the AEHR before it was moved on January 28, 2015?	Yes No	1 2
Were there times when you screened for depression but did not document the results before January 28, 2015?	Yes No	3 0
Do you currently know where the PHQ-2 depression screening instrument is located?	Yes No	3 0
Do you now sometimes screen for depression without documenting the score?	Yes No	2 1
Has moving the location of the PHQ-2 to the screening section helped with your depression screening adherence?	Yes No	2 1
If your patient has a history of depression and is there for follow-up, do you use the PHQ-2/PHQ-9 to see if they are improving with the treatment prescribed?	Yes No	2 1
What are the barriers you experience related to screening for depression?	Time None	2 1
At what score with the PHQ-2 are you supposed to complete a PHQ-9?	≥ 2 ≥ 3 ≥ 4	3 0 0
Are you aware that screening for depression is a PQRS measure and could soon involve monetary penalties if it is not completed?	Yes No	3 0
What do you include in your treatment plan when you diagnose a patient with depression? Please check all that apply.	Medications Hospitalization Referral Wait and Reassess Seek immediate attention if SI/HI	3 0 3 2 1

Table 4. *Comparison of Screening before and after moving PHQ-2*

	Overall Sample (n=100)	Pre- movement of PHQ-2 (n=50)	Post- movement of PHQ-2 (n=50)	p-value
Depression Screening	40	1	39	<0.001

Table 5. *Association Between Patient Demographics and Provider Screening*

Patient Demographics	p-value
Age	0.382
Race	0.384
Marital Status	0.413
Employment Status	0.442
Type of Insurance	0.075
Diabetes Co-morbidity	0.648
CAD Co-morbidity	1.000
Stroke Co-morbidity	n/a
Cancer Co-morbidity	1.000
History of Cancer Co-morbidity	0.397
Chronic Pain Co-morbidity	0.758
Previous Diagnosis of Depression Co-morbidity	0.656
Thyroid Disorder Co-morbidity	0.114
Other Mood or Anxiety Disorder Co-morbidity	0.176

Table 6. *Treatment Plan Interventions*

	Overall Sample n=100	Pre- movement of PHQ-2 (n=50)	Post- movement of PHQ-2 (n=50)
None	86	39	47
Medication	13	10	3
Counseling Referral	1	1	0
Other	1	1	0

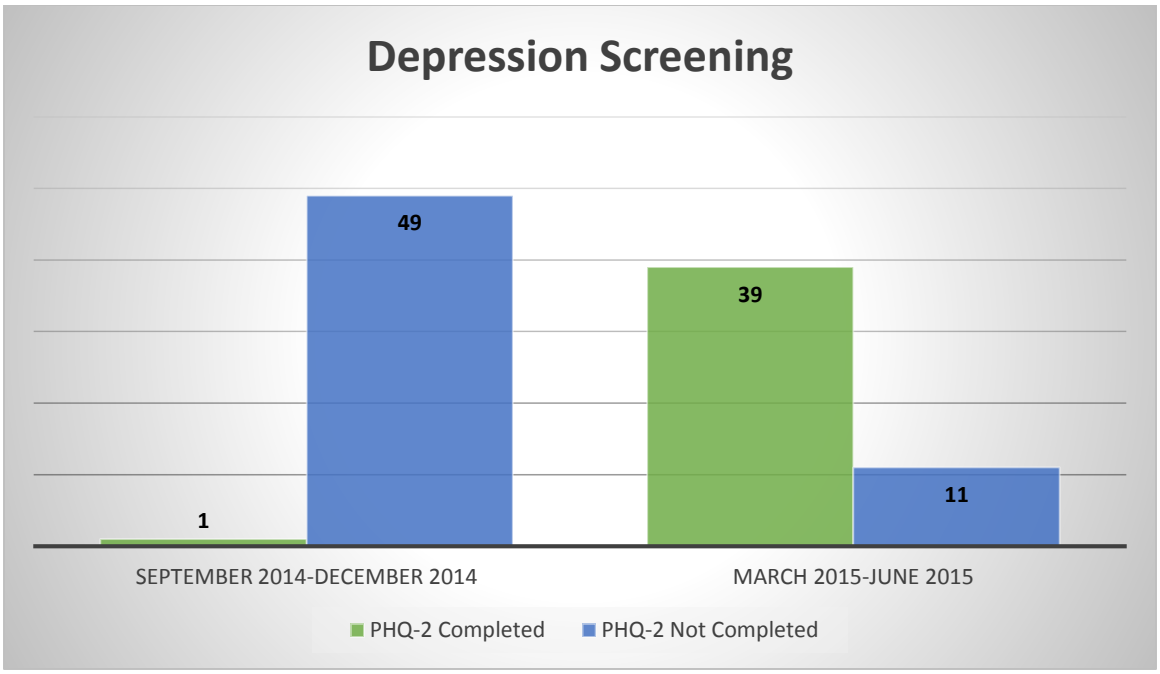

Figure 1. *Depression Screening Rates Before and After Moving the PHQ-2 instrument*

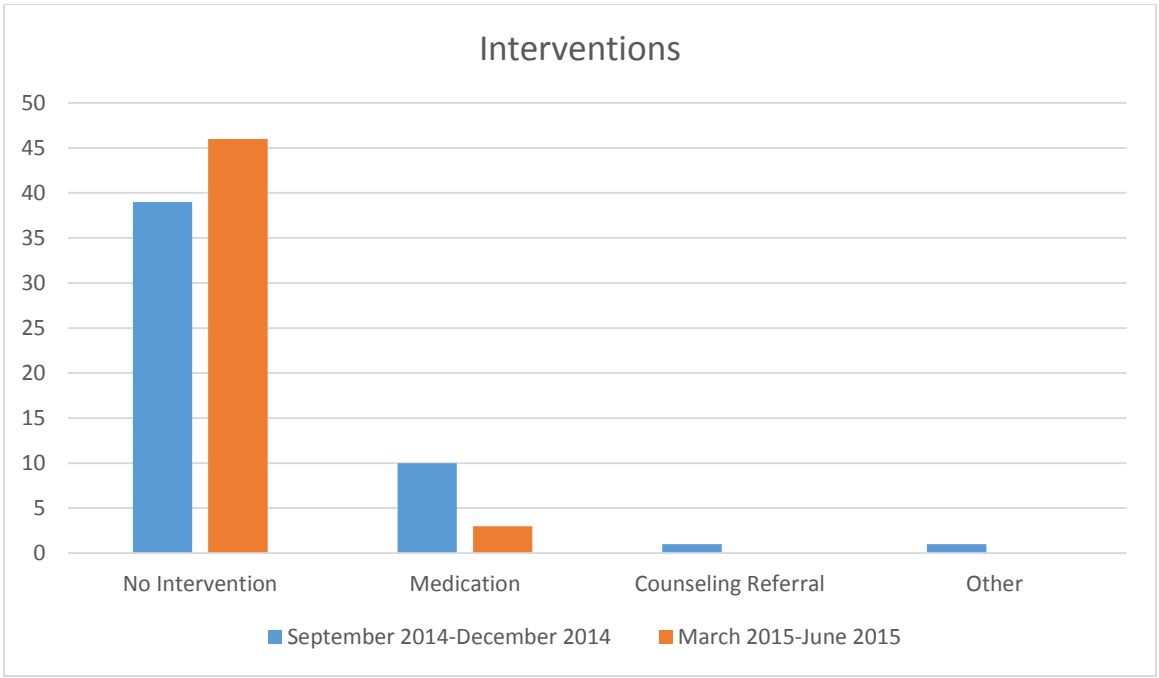

Figure 2. *Treatment Plan Interventions Before and After Moving the PHQ-2 Instrument*

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