12-9-2016

Evidence Based Protocol: Improving Depression Assessments in Primary Care

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Chapter 1: Improving Depression Assessments in Primary Care

Depression is a destructive condition that can have a profoundly negative impact on quality of life, wellbeing, and health (Thase, Stowell, Berry, Mencia & Blum, 2014). Worldwide, depression is the leading cause of medical disability costing the health care system over $210 billion annually (World Health Organization, 2014; Greenberg, Fournier, Sisitsky, Pike & Kessler, 2015). The World Health Organization (2016) estimates depression affects 350 million people of all ages globally. One and three adults in the U.S. will experience a major depressive episode during their lifetime (Kessler, Petukhova, Sampson, Zaslavsky & Wittchen, 2012; Rubin, Ciechanowski, Egede, Lin & Lustman, 2004).

Although depression is one of the most prevalent and treatable mental health disorders presenting in primary care, it is sub-optimally managed and worse, often not even detected by medical professionals (Gilbody, Richards, Brealey & Hewitt, 2007). Despite decades of widespread interventions, public awareness and research, prevalence rates of major depressive disorder has not improved (Ferrari et al., 2013). Furthermore, less than half of patients with depression receive care based on national practice guidelines (Wittenborn, Rahmandad, Rick & Hosseinichimeh, 2016). Therefore the purpose of this paper is to describe a protocol on how to improve depression management, specifically the quality and consistency of depression assessments in a primary care clinic.

Introduction of Microsystem

History and Purpose

The primary care office of interest is strategically located to meet the long term needs of health care services in an urban community. The office is one of the four community benefit health link sites associated with a large Midwestern hospital system who shares a commitment to

provide health care for all persons, regardless of ability to pay (Mercy Health, n.d.). The health center name was selected to honor the work of physician leaders in the community in early 1900's. One physician pioneered well baby clinics and the other physician was named "Physician of the Year" in Michigan (Mercy Health, n.d.). The health center is committed to providing quality health care with respect, compassion, and hospitality.

The family medicine primary care practice is capable of caring for populations across the entire life span, with an emphasis on wellness. The center is a Federally Qualified Health Center (FQHC) that serves a medically underserved area. FQHC's receive enhanced reimbursement from Medicare and Medicaid. Additionally, the clinic is participating in the grant, Call to Care, with Seeds of Promise, a local non-profit community resource.

Patients

The patient population of the clinic is consistent with the demographics distinguished for the community. The primary race served at the office is African American (61%) followed by Caucasian and Asian. There is a fairly equal distribution of men and women accessing the office with the largest age sector between ages 20 to 30, 50 to 60, and 30 to 40, respectively. The smallest age sector consists of patients less than 10 years old and greater than 80 years old. Nearly 50% of the patients utilize Medicaid for a primary insurance source. This demographic is consistent with the community, where in 2013, the estimated median household income was $34, 774, nearly $14,000 below Michigan's average household income (City Data, n.d.).

Common reasons for visits to the clinic include maintenance of chronic conditions, preventive care, annual health exams, post hospitalization follow up and medication management. On average 65 patients are seen daily. Patients are able to schedule ahead of time and walk-ins are welcomed. Other microsystems that commonly interact with the clinic includes

emergency departments, the Department of Human Health Services, local pharmacies, specialist referrals, community mental health services, psychiatric agencies, local schools, and churches. Overall, the providers care for a wide variety of patients within the community.

Providers

The skill set of the frontline staff is quite variable. There are four physicians (two part time and two full time), one full time Doctor of Nursing Practice prepared nurse practitioner, one part time Physician Assistant (PA) and one part time advanced practice registered nurse (APRN). One of the part time physicians splits her time providing direct patient care and serving as the medical director for all four health link sites. Additional support staff includes one Clinical Nurse Leader with a Master of Science in Nursing (MSN), one part time Bachelor of Science in Nursing (BSN) prepared nurse who serves as the Clinical Lead, four Licensed Practical Nurses (LPNs), and three medical assistants (MAs).

The health center staff that may interact with patients directly and indirectly include a community health worker, a client service coordinator, a non-nursing clinic manager, two business office coordinators and a Michigan Primary Care Transformation Project (MiPCT) care manager, who also holds a BSN. MiPCT is a demonstration project testing the value of the patient centered medical home model, however the MiPCT care manager only works with patients with specific insurances and chronic diseases such as diabetes, hypertension, depression, chronic obstructive pulmonary disease (COPD) and heart failure. The providers and support staff at the clinic are well rounded and each staff member brings a unique skill set to form a cohesive team.

Performance

Unfortunately, inconsistencies in primary care exist between evidence based depression management and actual clinical practice. In the primary care setting, nurses and medical assistants (MAs) start the interaction with the patient. In this brief interface, nurses and MAs hold an impactful role in addressing the depression assessment and management gap in practice by accurately identifying patients at risk for depression with evidence based assessment tools, such as the Patient Health Questionnaire-9 (PHQ-9). However, this evidence based depression assessment is inconsistently utilized, ineffectively used, and sometimes not documented in the patient's medical record. Furthermore, if a patient scores high on the PHQ-9, suggestive of major depression, providers lack documentation of a plan or even engagement on the topic with the patient. The depression screening process at the clinic is fragmented, with room for improvement.

According to the monthly quality indicator report from the ambulatory quality department, the health center screened for depression and had a follow up plan documented on 75% to 80% of the included sampled records. Patients that fall into this sample only include patients who screen positive for depression. Last year's results in this quality indicator remains stagnant. Additionally, it is concerning the clinic has no current metric or report to capture if the PHQ-9 is completed, regardless if the assessment is positive or negative for depression. The gap in practice observed through performance on quality reports and anecdotal experiences identified a significant practice problem.

Process

The primary care clinic performed sub-optimally on quality metrics for depression management. In 2014 according to the Bureau of Primary Health Care (2015), the national health

center average for depression screening and follow up documentation was only 39%. HRSA grantees must report Uniform Data System (UDS) clinical indicators as a means to illustrate quality, safety, and performance of the clinic. Additionally the data is used to identify trends over time and improve the performance and operations of the health centers that serve underserved communities and vulnerable populations (Bureau of Primary Health Care, 2015). In order to continue to receive enhanced reimbursements community health centers must meet the UDS performance standards (United States Department of Health and Human Services, USDHHS, 2015).

The depression UDS performance measure requires all patients 12 years or older to have a completed depression screen. If the screen is greater than or equal to 10 indicative of depression, a treatment plan for depression management must be documented by the provider. Patients who are already participating in on-going treatment for depression or with an active diagnosis for depression or bipolar disorder are excluded from the measure. The measure does not specify what type of clinician must conduct the depression assessment or follow up documentation. The only specification is the depression assessment tool must be an evidence based standardized tool (Bureau of Primary Health Care, 2015). The clinic currently utilizes the multipurpose evidence based instrument for screening, diagnosing, and monitoring depression called the Patient Health Questionnaire (PHQ-2 and PHQ-9).

Practice Problem

Salient Findings of Practice Problem

Primary care providers are beginning to view depression as a chronic condition, similar to diabetes or hypertension. However, unlike hypertension or diabetes that present with tangible

diagnostic criteria (A1c or systolic blood pressure reading), depressive symptoms are more discrete and can be easily unnoticed if not accurately assessed. Historically, primary care systems are geared towards brief infrequent encounters for an acute problem (Katon & Seelig, 2008). Several meta-analyses and qualitative studies indicates that approximately 50% percent of patients do not have their depression symptoms recognized and less than half of patients who present with depression receive guideline based care in primary care visits (Manea, Gilbody & McMillian, 2015; LaVance, Fairchild & Rosado, 2015; Thase et al., 2014; Gilbody et al., 2007; Huijbregts et al., 2013). The under detection and management of depression is problematic and unacceptable when one in 10 primary care patients meets the Diagnostic Statistical Manual of Mental Disorders-IV (DSM-IV) criteria for major depression (Ani et al., 2008).

Although depression management is substandard in primary care systems, the reality of mental health treatment occurs in the primary care setting and often the primary care provider is the patient's sole contact (Ani et al., 2008). Gaps in the recognition of depression are related to both the patient and healthcare provider. Mitchell and Coyne (2007) identify that patients may not recognize their own illness as depression and may withhold psychosocial information to a provider or they may present with somatic complaints. Studies by Kirmayer and Robbins (1996) and Goldman, Nielsen and Champion (1999) recognized patients prefer a medical to a psychiatric explanation for symptoms. On the other hand, primary care clinicians are pressed for time to consider many possible diagnoses, expected to maintain high productivity, provide comprehensive documentation, and may have had minimal previous contact with the patient to determine a pattern or change in mental health (Mitchell & Coyne, 2007). From these studies and others, it is apparent multiple barriers exist in the assessment and management of depression in primary care.

The primary care site of interest struggles to provide evidence based depression care. The office utilizes an evidence based depression assessment tool called the PHQ-9, however the tool is inconsistently utilized or documented on every patient every time. Other times, a patient with a high PHQ-9 score (indicative of a major depression episode) will lack documentation on a follow up plan or treatment recommendations to direct further care. The inconsistent and sometimes absent depression management and assessment is concerning.

The predominate patient population treated at the clinic are ethnic minorities (61% African American) with multiple health disparities. Miranda et al (2003) found that ethnic minorities are less likely to use outpatient specialty mental health services; therefore, it is especially important to enhance depression management at the clinic. Several chart audits and observational experiences at the clinic indicates further investigation is needed in order to address the gap in practice.

Introduction of Literature

Depression does not discriminate and is actually highly prevalent among all U.S. ethnic groups and age groups. The National Institute of Mental Health (2014) recognizes that individuals between 18 to 49 years old have the highest prevalence of a major depressive episode, as well as Caucasians and Hispanics. Depression has a lifetime prevalence of 16.2% and often is associated with personal suffering, functional deficits, and decreased quality of life (Kessler et al., 2003; Kessler et al., 2012; Gilbody et al., 2007). In fact, major depression accounts for 48% of the lost productive time (reduced performance and work absence) among employees with depression (Stewart, Ricci, Chee, Hahn & Morganstein, 2003). When left untreated depression is linked with increased deaths, adverse medical outcomes, and consumption of greater health care resources (Dobscha et al., 2006; Gilbody et al., 2007). Rubin

et al. (2004) observed total health care costs were 86% higher for those with high depression severity compared to those with low depression severity. Improved depression assessment and management is advantageous not only for the individual suffering from depression, but also the nation as a whole.

Current management and assessment of depression in primary care is inadequate leading to undetected and therefore untreated depression in the community. Both health care professionals and patients may be responsible for the gap that exists for multifaceted reasons. It is critical to address this clinical problem in order to improve the negative outcomes that are associated with depression.

Introduction of Project

Improving depression management in primary care is an enormous undertaking. Patients who are unassessed will remain untreated, therefore the obvious first piece of the problem is to accurately and consistently detect depression in patients (Thomas & Chan, 2012). Correct implementation of the PHQ-2 and PHQ-9 assessment is a valid and reliable tool to identify and monitor depression in primary care (Mitchell et al., 2013; Kroenke & Spitizer, 2002). The primary focus of the evidence based protocol is to improve the frontline staffs' (who are conducting the PHQ-2 and PHQ-9) confidence and accuracy of the PHQ-9 tool. Furthermore, another piece of the protocol concentrates on PHQ-9 documentation processes and communication of positive PHQ-9 scores with providers in real time.

Prior to and during the implementation of the protocol a collection and review of the current state will be transparently shared with staff. As mentioned earlier, accurate assessment of depression is the first critical step in tackling the multifaceted problem. Ideally the focus is to have every patient at every visit accurately assessed for depression. Additionally, when a patient

screens positive for depression, the score is communicated to providers in real time allowing providers to discuss the topic further with the patient and plan for effective management steps during the patient visit. An effective assessment, documentation of the score and follow up plan if indicated is one step toward improving the global issue of poor depression management in primary care.

Doran's nursing role effectiveness model (NRE) is a well suited and reliable framework to guide a successful evidence based protocol for advancing depression assessments in primary care (see Figure 1). The NRE is based on Donabedian's structure, process, and outcome model. In the context of depression assessments in primary care, the structure component of the model contains the patient variables of health literacy and culture. The healthcare professional factors include education and experience. The organizational factors include the culture of safety and overall work environment. In the process component of the model, the independent role variable includes the MAs and nurses assessment capabilities using the PHQ-2 and PHQ-9 tool. The interdependent role variable involves effective interdisciplinary communication. The outcome component of the NRE model includes self-care outcomes (physical and psychosocial functioning) and improved healthcare utilization.

Chapter 2: Literature Review

The literature review conducted utilized CINAHL, Cochrane Library, PubMed, National Guideline Clearing House, Web of Science, and Psych Info databases. Assistance was obtained from the graduate level nursing librarian at Grand Valley State University. Primary search terms included combinations of the following terms: depression, major depression, primary care, assessment tools, PHQ-9, minority, African American, electronic medical record and improvement. Although numerous articles and studies were found in the search, the majority of

articles were randomized controlled trials, clinical guidelines, government agency reports and meta-analyses. Journal articles and quantitative and qualitative studies were also reviewed and included. Articles selected in the literature review were reported as peer-reviewed. Most of the selected articles were between the years 2005 to 2016, however some information on background and demographics of depression date further back to gain a historical perspective.

What is Major Depression Disorder?

The focus of the literature review and the evidence based project is on depression, therefore it is imperative to review the *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition* (DSM-IV, American Psychiatric Association, APA, 2000) definition of major depressive disorder. The clinical guideline Adult Depression in Primary Care utilizes the DSM-IV criteria which includes:

> A person must have depressed mood or loss of interest or pleasure in life activities for a least two weeks for most of the time nearly every day. A person must also have at least five of the following symptoms that cause clinically significant impairment in social, work, or other important areas of functioning almost every day. This must be a change from the patient's prior level of functioning and cannot be attributed to the physiological effects of substance use, bereavement or another medical condition. One of the five symptoms must either be a depressed mood most of the day, nearly every day or have a loss of interest in most or all activities for most of the day, nearly every day. The severity of the condition is based on the number of criteria answered, the severity of those symptoms, and the degree of functional disability. The remaining symptoms includes:
>
> (1) Significant unintentional weight loss or gain.
>
> (2) Difficulty sleeping or sleeping more than usual.

(3) Psychomotor agitation or retardation noticed by others.

(4) Fatigue or loss of energy.

(5) Feelings of worthlessness or excessive or inappropriate guilt.

(6) Diminished ability to think or concentrate, or indecisiveness.

(7) Recurrent thoughts of death, recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide (Mitchell et al., 2013, p. 7; APA, 2000, p. 356).

Often determination of severity or the category of depression is included in the diagnosis. The terminology includes: mild, moderate, severe, persistent, recurrent, single episode, chronic, postpartum, or seasonal (Mitchell et al., 2013). A depressive episode may be part of a Major Depressive Disorder or an isolated episode (see Figure 2).

Importance of Screening for Depression in Primary Care

The under detection and management of depression is problematic and unacceptable when one in 10 primary care patients meets the Diagnostic Statistical Manual of Mental Disorders-IV (DSM-IV) criteria for major depression (Ani et al., 2008). Several sources indicate that approximately 50% of patients do not have their depression symptoms recognized and less than half of patients who present with depression receive guideline based care in primary care visits (Manea et al., 2015; LaVance et al., 2015; Thase et al., 2014; Gilbody et al., 2007; Huijbregts et al., 2013). A randomized controlled trial was conducted to determine whether practice-initiated quality improvement interventions for depressed primary care patients improve care across ethnic groups and reduce outcome disparities compared to usual depression care in primary care. Miranda et al (2003) found that ethnic minorities are less likely to use outpatient

specialty mental health services, therefore it is especially important to enhance depression management in primary care.

Although depression management is substandard in primary care systems, the reality of mental health treatment occurs in the primary care setting and often the primary care provider is the patient's sole contact for ethnic minorities and lower income patients (Ani et al., 2008; Miranda et al., 2003). It has been well studied that people with a lower socioeconomic status regardless of race or ethnicity have the poorest overall health (USDHHS, 2001). People in lower strata of income, education, and occupation, are about two to three times more likely than those in the highest strata to have a mental disorder (USDHHS, 2001). Current management and assessment of depression in primary care is inadequate leading to undetected, and therefore untreated depression in the community. It is critical to address this clinical problem in order to improve the negative outcomes that are associated with depression, especially among at risk populations.

The Impact of Culture and Ethnicity on Depression Preferences

The primary care office predominately serves low income African Americans and Caucasians. To better address depression with these patients it is necessary to first understand and become aware of the effects that culture and attitudes have on mental health, treatment preferences and mental health services (Jimenez, Bartels, Cardenas & Alegria, 2013; Miranda et al., 2003). If providers understand that different attitudes and cultures play a critical role in actual help-seeking behaviors, it may provide insight on the long standing disparities among vulnerable populations and mental health disorders (USDHHS, 2001).

Different cultural beliefs and stigmas impact how patients communicate depressive symptoms to clinicians and influences the meaning patients attach to their own illness (Fischer &

Farina, 1995; Godwin & Connor, 2008; Jimenez et al., 2013). For example, Asian patients are more likely to report their somatic symptoms, like dizziness, than their emotional symptoms (USDHHS, 2001). Noel (2010) conducted a survey of different ethnic groups' perception of symptoms of depression and found Caucasian patients were 10 times more likely than African Americans to attribute symptoms of depression to their own negative thinking. This seems to be consistent with a previous study that found both African Americans and Latinos are less likely to describe depression symptoms in psychological terms (Brown, Schulberg & Madonia, 1996). Providers should be aware when assessing patients for depression that culture can influence how patients discuss, report, and interpret depressive symptoms.

Both public stigma and self-stigma influence perceptions of depression (National Institute of Mental Health, 2014). One study examined the extent that race/ethnicity is associated with difference in perceived stigma of mental illness and mental health treatment options in primary care. The study illustrated for older adults (65 years or older), African Americans and non-Latino Whites shared the perception that mental illness is associated with stigma and shame (Jimenez et al., 2013). Interestingly, Asian-Americans and Latinos reported significantly higher levels of shame and stigma related to mental illness than both African Americans and non-Latino Whites (Jimenez et al., 2013). In another study, funded by National Institute of Mental Health and the National Center on Minority Health and Health Disparities explored perceived barriers to accessing help for depression among low income African Americans (Cruz, Pincus, Harman, Reynolds, & Post, 2008). They found that stigma was the most frequent response (i.e. "seem crazy in community" or "not being strong enough"), followed by dysfunctional coping behaviors (i.e. "thinking can handle it ourselves" or "problems taken care of by alcohol or smoking") (Cruz et al., 2008). Other internal and external factors included shame, denial, perception of care (i.e.

"not feeling understood due to cultural or background differences), lack of trust with health care providers, religious beliefs, finances, and lack of resource knowledge (Cruz et al., 2008). Although the sample size in this study was small (n= 43), the themes are consistent to the results of the Jimenez et al (2013) study mentioned prior. Low income African Americans and non-Latino Whites in primary care often attach shame and stigma to depression.

Differences in depression treatment preferences exist among vulnerable populations. Minorities in the US are less likely than whites to use mental health specialists and often do not seek help until depressive symptoms are severe (USDHHS, 2001; Miranda et al., 2003). African Americans are more comfortable discussing mental health problems with primary care providers than non-Latino Whites (Jimenez et al., 2013). Additionally, African Americans often rely on faith as a coping mechanisms and prefer counseling rather than pharmacologic treatment for depression (Dwight-Johnson, Sherbourne, Liao & Wells, 2000; USDHHS, 2001). Primary care providers should be aware of patient treatment preferences and when possible match options to preferences to eliminate the potential for failure to adhere to recommendations.

Assessment Tools

Clinicians cannot appropriately treat depression unless it is first detected. Primary care providers must be aware some patients may not recognize their own depression. The *Adult Depression in Primary Care Clinical Guidelines* state that clinicians must recognize common presenting symptoms of depression which may include multiple (more than five per year) medical visits, multiple unexplained symptoms, work or relationship dysfunction, changes in interpersonal relationships, poor behavioral follow through with activities of daily living or prior treatment recommendations, memory changes, irritable bowel syndrome, or chronic fatigue and pain (Mitchell et al., 2013). The guideline advises clinicians to recognize that medical illness

can co-exist in patients with depression. A patient's medical complaint cannot be dismissed or simply accounted for as part of the depression. (Mitchell et al., 2013).

PHQ-9 and PHQ-2

To assist clinicians two clinical practice guidelines of depression management in primary care for adults and adolescents indicate strong levels of evidence for use of the PHQ-9 as a screening and tracking tool (Mitchell et al., 2013; McDermott et al., 2011). The entire PHQ-2 and PHQ-9 assessment tool can be found in Figures 3 and 4. Systems that have successful depression management processes use a standardized instrument that quantifies baseline intensity of depression and documents future progress and response to interventions (Mitchell et al., 2013). Clinical guidelines and meta-analyses have identified routine depression screening in primary care using the PHQ-9 tool as a valid method to identify patients with unrecognized major depressive disorder (Mitchell et al., 2013; Mitchell & Coyne, 2007; Gilbody et al., 2007). Either the PHQ-2 or the PHQ-9 can be used to assess for depression, however stronger evidence supports the PHQ-9 to be used with patients with chronic conditions (Mitchell et al., 2013).

The PHQ-2 is a two item subset of the nine items in the PHQ-9 which serves as the first line of depression screening (Substance Abuse and Mental Health Services Administration, 1999). When a patient answers yes to either "little interest or pleasure in doing things or feeling down, depressed, or hopeless over the past two weeks nearly every day or more than half the days", it indicates the full PHQ-9 should be administered (Mitchell et al., 2013). Gilbody et al. (2007) and Kroenke & Spitzer (2002) concluded the PHQ-9 tool is a reliable and valid measure for diagnosing major depression and measuring severity of symptoms in a range of cultures and languages. The *Adult Depression in Primary Care* clinical guideline indicates the PHQ-9 is comparable when tested with African Americans, Chinese Americans, Latino, and non-Hispanic

white patient groups (Mitchell et al., 2013). Other language versions of the PHQ-9 validated for use in primary care are only Spanish and Chinese (Mitchell et al., 2013). Furthermore, Pfizer (n.d.) reports most of the translations are linguistically valid, however few translations have been psychometrically validated against an independent structured psychiatric interview. Mitchell et al (2013) recommend when administering the PHQ-9, staff must be aware of cultural factors and to involve an interpreter.

The PHQ-9 is an attractive tool in primary care due to its clinical practicality, validity, and specificity (Kroenke & Spitzer, 2002; Gilbody et al., 2007). The PHQ-9 serves as a multipurpose instrument for screening, diagnosing, monitoring and measuring severity of depressive disorders (Kroenke & Spitzer, 2002). More recent studies validated the PHQ-2 and PHQ-9 as effective for correctly identifying major depression when compared to a standard patient interview in primary care (Arroll et al., 2010; Manea et al., 2015; Moriarty, Gilbody, McMillan & Manea, 2015). A PHQ-9 score of 10 or higher is considered the cut of score to indicate mild major depression, 15 or higher indicates moderate major depression, and 20 or higher severe major depression (Arroll et al., 2010). However, Manea et al (2015) reported in a meta-analysis the same cut of score might not be appropriate in all settings (acute care versus primary care). Manea et al (2015) found the PHQ-9 had acceptable diagnostic properties at a range of cut-off scores (8 to 11). A PHQ-2 score of three or higher results in more depressed patients being correctly identified than a previous recommendation of a score of greater than or equal to two (Arroll et al., 2010; Kroenke, Spitzer & Williams, 2003; Manea et al., 2015; Moriarty et al., 2015).

Contrary to current recommendations of routine depression screening in primary care, the United Kingdom (UK) National Screening Committee challenges this recommendation (Thombs

et al., 2014). The UK National Institute for Health and Clinical Excellence recommend against routine depression screening after determining there was inconsistent evidence that depression screening would reduce the number of patients with depression or improve depression symptoms (Thombs et al., 2014). The largest shortcomings of existing research about the efficacy of the PHQ-9 are the small sample sizes, lack of statistical power to detect systematic differences in test performance, risk for bias, and clinical heterogeneity of practice settings and populations (Thombs et al., 2014; Manea et al., 2015; Kroenke & Spitzer, 2002). Small sample sizes increase the risk of finding false positive results or type one errors (Polit & Beck, 2012). Furthermore a Cochrane Review reports evidence that routinely administering screening questionnaires for depression in isolation does not impact depression detection, management, or patient outcomes (Gilbody, House & Sheldon, 2005).

Evidence on How to Improve Depression Screening?

According to the Clinical guideline of *Adult Depression in Primary Care*, Mitchell et al., (2013) report several ways to evaluate whether a system is effectively managing depression in primary care. The guideline recommends assessing how well major depression diagnosis is documented in the medical record, how well the treatment team engages and educations patients and families, how often community mental health referrals are attended, how well patient's response to treatment is documented, and how well the outcomes are measured and documented (Mitchell et al., 2013). However, in the literature review there was little evidence located indicating specific interventions or recommendations to improve the actual implementation of the PHQ-9 assessment in primary care.

One qualitative study indicated telephone administration of the PHQ-9 appears to be a reliable route for assessing depression in primary care (Pinto-Meza, Serrano-Blanco, Peñarrubia,

Blanco & Haro, 2005). Several limitations existed in this study including a non-randomized sample and sample variations in age, education level, and gender were not considered. Furthermore, external validity or the degree to which the conclusions of the study would hold for other hospital systems in other locations, appears to be susceptible due to the failure to provide a detailed research design (Polit & Beck, 2012). It is uncertain if the same results would occur if the telephone program was designed at other primary care centers.

One study assessed whether a one hour educational training program for depression assessment impacted the implementation of a depression protocol in two academic outpatient internal medicine clinics. Findings showed attendance at the training session was associated with increased odds of documenting a PHQ-9 when patients had a positive PHQ-2, and increased odds in repeating the PHQ-9 after a positive PHQ-9 (Loeb et al., 2016). The concept of an education training focusing on rationale for universal screening for depression in primary care and effective documentation of screening results in the electronic health record (EHR) is an important consideration.

Impact of Electronic Health Record

Widespread adoption of EHRs continues to advance care delivery and communication across the continuum of care (Yu, 2011). Effective depression assessment processes in primary care will depend on proper documentation of PHQ-9 assessment scores so clinicians can monitor and track patient progress over time (Mitchell et al., 2013). Poor information systems may present as the primary barrier to effective depression management in primary care (Loeb et al., 2016). Although the literature review found few high level evidence studies specifically related to primary search terms, a theme has emerged. Implementing evidence based depression

assessments in primary care will require a multifaceted approach that emphasizes use of the electronic medical record.

What is Known and What is not Known?

Research has shown that certain scores on the PHQ-9 are strongly correlated with major depression diagnosis (Kroenke & Spitzer, 2002, Gilbody et al., 2007, Mitchell et al., 2013). With that being said, not everyone with an elevated PHQ-9 is certain to have major depression. The PHQ-9 is intended as a tool to assist clinicians with identifying and diagnosing depression, but is not to be used in isolation. It is not a substitute for a diagnosis and interview by a trained clinician (Wittkampf, 2009; University of Washington Psychiatry and Behavioral Science, n.d.). Furthermore, strong evidence found in the most recent clinical guideline for depression management in primary care supports that the PHQ-9 is can be used across multiple cultures and translations in primary care with assistance from an interpreter (Mitchell et al., 2013).

Although higher levels of evidence support the use of the PHQ-9, gaps in the literature still exist. There is inconclusive evidence on cut off score ranges on the PHQ-9 when diagnosing major depression. Future studies should report results for all cut off scores and should report whether administration of the reference standard was blinded. The choice of cut off score should take into account the population, setting, and the effect of screening on outcomes (Manea et al., 2015). Few studies have validated PHQ-9 assessments in patients with known higher levels of psychiatric conditions such as bipolar or schizophrenia that are commonly cared for in primary care (Beard, Hsu, Rifkin, Busch & Björgvinsson, 2016). Additionally, continued research should investigate how to measure successful treatment outcomes when utilizing the PHQ-9 to quantify patient improvement (McMillian, Gilbody & Richards, 2010). Limited high levels of literature were found that illustrated a direct correlation between improved depression assessment leading

to improved patient functional health outcomes. However, depressed patients who remain undetected will remain untreated (Thomas & Chan, 2012). It is better to effectively assess for depression than risk missing patients who suffer from a depressive disorder. Depression screening in primary care has been well studied, however it appears little is known on how to successfully implement a depression screening program in clinical practice.

Overall, depression management approaches in primary care rely on the principle of routine evidence based risk assessment tools, such as the PHQ-9. Routine depression assessment on all patients over 12 years old enables early detection of mood deterioration and therefore enable a timely intervention to prevent unfavorable outcomes. A number of questions still remain, however current evidence available illustrates use of standardized screening tool is a valid method to start the conversation about depression in primary care. Key stakeholders must understand that making and developing a change to the current depression assessment process is taking a risk; however doing nothing may be a bigger risk (Langley et al., 2009).

Chapter 3: Conceptual/Theoretical Context

Depression is the most prevalent and treatable mental disorder seen in the primary care settings. Although depression is widely distributed among the population, adequate recognition and accurate diagnosis have proven frustratingly difficult to achieve (Henkel et al., 2004). First hand observation of depression assessments in primary care and knowledge of complexity science allows one to recognize the problem is not an easy fix. Individual patients living with depression and the primary care microsystems that serve patients all represent complex adaptive systems (Nelson, Batalden, Godfrey, & Lazar, 2011).

Complex adaptive systems, like the primary care setting, are collections of individual agents who have freedom to act in unpredictable ways. The actions of the agents are

interconnected so that one agent's actions change the context for the other agents (Plesk & Greenhalgh, 2001). Primary care is inherently complex, therefore a conceptual framework is necessary to serve as a guide and to ground the improvement work in order to positively influence the clinical problem of depression assessment. This chapter will focus on Doran's nursing role effectiveness (NRE) conceptual model in the context of depression assessments in primary care. The NRE model is an adaptation of Donabedian's conceptual model, Structure-Process- Outcome (SPO), therefore SPO model is also discussed.

Description of the Donabedian SPO model and the Doran NRE Model

SPO

Avedis Donabedian, a pioneer of public health and healthcare quality research, developed a framework to systematically research and evaluate the quality of medical care (Naranjo & Kaimal, 2011). Although multiple scholars have attempted to create more dynamic models of measuring quality of care, it is Donabedian's Model from 1966 that continues to endure as the most relevant paradigm for evaluating quality of care (McQuestion, 2006; Moore, Lavioe, Bourgeois & Lapointe, 2015; Naranjo & Kaimal, 2011). The quality model is linear and assumes the existence of three essential categories: structures, processes, and outcomes (Donabedian, 1988; Doran, 2011). Each component is directly influenced by the antecedent, suggesting structure, process, and outcome are interdependent (Doran, 2011). Furthermore, the SPO framework is a causative model where each factor is a necessary condition for the next factor (Donabedian, 2005).

NRE

The NRE model is based on the SPO framework as a way to specifically identify nurses' contribution on patient outcomes (Irvine, Sidani, McGillis Hall, 1998). Later, Doran (2002)

reformulated the NRE model after empirical studies provided support for the reformulation of some of the propositions in the original NRE model. Doran's adaptation of the NRE model is useful for understanding the influence of unit, patient, and nurse structural variables on nursing practice and ultimately on patient outcome achievement (see Figure 1, Doran, 2002).

Structure

Polit and Beck (2012) refer to structure as including the broad organizational and administrative features such as technology, nursing experience, nursing skill mix, and organizational structure. According to Naranjo and Kaimal (2011), structure is defined as the setting where care takes place with focus on human resources, material resources, and organizational factors including leadership and culture of safety. Researchers found that the gaps in care and preventable adverse patient outcomes is often due to the way work is structured, the quality of work environments, and quality of interactions with other professionals (Aiken, Smith & Lake, 1994; Doran, 2011; Mitchell & Shortell, 1997). Doran (2011) describes the structure category of the NRE model as characteristics of the health care setting. More specifically, she outlines elements of the health care setting under nurse variables (education and experience), patient variables (age, gender, education, severity of illness and comorbidities) and organizational variables (staffing, skill mix, workload, and work environment).

Process

Polit and Beck (2012) characterize the process category as aspects of clinical management, decision making, and clinical interventions. The process component of NRE, involves nurses' critical thinking ability, clinical competence, autonomy, clinical leadership, and specific nursing interventions (Doran, 2011). Naranjo and Kaimal (2011) provide a slightly different definition describing process as the actual provision of care. Process is essential to the

conceptual framework because process allows healthcare systems to apply evidence based practice guidelines that are validated to influence a specific outcome (Naranjo & Kaimal, 2011). The early SPO model emphasizes that processes are thought to have the largest impact on outcomes, while at the same time processes offer feedback about the structure mechanisms already place (Donabedian, 1988).

Later, Doran (2011) defines the NRE model process component as the nurses' independent role, medical care-related role and the interdependent role. The independent role refers to nurse driven interventions and functions carried out within the nursing scope of practice, while the interdependent role is characterized by interdisciplinary team communication, care coordination, and health system maintenance and improvement (Doran, 2011). Medical-care related role concerns activities initiated by nurses in response to a medical order, such as an evaluation of a patient's response to a medication (Doran, 2011).

Outcomes

Polit and Beck (2012), describe the third dimension of the model as the specific clinical end results of patient care. Naranjo & Kaimal (2011) specifically describe the outcome category as the "explicit result that occurs from the antecedents of structure and process" (p.35). Additionally, outcomes establish quality performance benchmarks in which organizations can transparently track and trend the effectiveness of the care provided to identify areas of risk, and guidance for quality improvement opportunities (Naranjo & Kaimal, 2011). Doran (2011) precisely defines outcomes as six categories of nursing-sensitive patient outcomes in the reformulated NRE model. The outcomes include: "*(a)* prevention of complications, *(b)* clinical outcomes (symptom control), *(c)* knowledge of the disease (treatment and management), *(d)*

functional health outcomes (physical, social, cognitive, mental functioning, and self-care), *(e)* satisfaction with care, and *(f)* cost" (Doran, 2011, p. 16).

Application of the NRE as a Framework for Improved Depression Assessment in Primary Care

Doran's NRE model is a well suited and reliable framework to guide a successful quality improvement strategy for advancing depression assessments in primary care. The current state of the problem is multifaceted, however utilizing the NRE framework allows the team to assess the "big picture" of the problem, while at the same time provides insight on how to evaluate the different variables of care found in the structure and process categories (Naranjo & Kaimal, 2011). According to the model, structure improvements should lead to improvements in the delivery of depression assessments (processes), which in turn should improve patients' functional abilities (outcomes) (Doran, 2011).

Structure

Many factors related to depression assessments in primary care can be organized into the three variables of the structure component of the NRE model: patient, healthcare professionals, and organizational variables. The most important patient factors considered in the model relevant to the health center include health literacy and culture. The Agency for Healthcare Research and Quality (AHRQ, 2016), recommends that primary care practices to utilize health literacy universal precautions by assuming all patients have difficulty reading and comprehending health information. The current depression assessment tool utilized at the clinic does not take into account the impact of a patient's health literacy level. The PHQ-9 assessment tool requires patients to read, comprehend the assessment questions, and provide a response

using a numeric scale. Health literacy is a critical patient factor in the structure component of the NRE model and must be emphasized in the improvement project.

The clinic predominately serves low income African Americans and Caucasians. Different cultural beliefs and stigmas impact how patients communicate depressive symptoms to clinicians and influences the meaning patients attach to their own illness (Fischer & Farina, 1995; Godwin & Connor, 2008; Jimenez et al., 2013). The improvement plan must consider this patient variable in the structure component of the NRE model.

Healthcare professional factors considered in the NRE model that are pertinent to the clinical problem include education and experience. A theme arose throughout direct conversation and observations with the frontline medical assistants (MAs) and licensed practice nurses (LPNs) conducting depression assessments. Many healthcare professionals are uncomfortable with asking questions about depression due to the personal nature of the information. The MAs and LPNs described the assessment as being "awkward". Exploring how education and experience of the frontline staff impacts the implementation of the depression assessment is a critical step in the improvement project.

Organizational factors found in the NRE model regarding depression assessments include the work environment and culture of safety. The work environment and culture of safety include the relationships among team members. A few characteristics of a culture of safety include an environment that values openness in communication, feedback, continuous improvement, teamwork, and has expectations and actions that promote safety (AHRQ, 2014). Through direct observation and conversation with frontline staff at the clinic, staff had identified many barriers to completing the depression assessments. However, frontline staff failed to verbalize to the leadership team at the clinic or take initiative in addressing the gaps in the depression screening

process. A strong culture of safety empowers frontline staff to feel comfortable and engaged in bringing forth potential safety or process concerns to leadership (Nelson et al., 2011). Further investigation of the relationships between frontline staff, providers, and leadership must be incorporated in the structure component of the NRE model.

Process

The process components of the NRE model are categorized into independent role, interdependent role, and medical-care related role. The two factors (independent and interdependent role) are most relevant to the clinical problem at the clinic. Doran (2011) describes independent roles as nursing interventions, however for the context of primary care the term nursing is expanding to include healthcare professionals such as, MAs and LPNs. Direct observations of the depression assessment process demonstrated inconsistent patterns depending on the MA or LPN conducting the assessment. Furthermore, the evidence based assessment tool (PHQ-9) executed by MAs and LPNs was often not fully completed in the patient encounter prior to seeing the provider. Often times the MA conducting the depression assessment would only ask the first question on the PHQ-2. The MA then documented the patient's response for the first question on the PHQ-2 as the same answer for the second question without actually asking the second question on the tool. The current assessment method is substandard and is not accurately utilizing the evidence based assessment tool. Additionally, the American Academy of Family Physicians recommends if the patient has a positive response to either question on the PHQ-2 to consider administering the PHQ-9 (Maurer & Darnall, 2012). The MAs and nurses must be equipped with the skill set to talk about depression with patients in primary care (independent factor).

Furthermore, the fragmented depression screening process resulted in missed opportunities to investigate a patient's depressive symptoms further after a high score on the PHQ-9. In other words, the current process of depression assessments frequently left a known depressed patient (based on the high PHQ-9 score) without any management or treatment options and possibly a perception of being ignored. Improving the independent roles of the MAs and nurses such as their ability to effectively conduct the evidence based PHQ-2 and PHQ-9 depression assessment tool as it is intended to be used, has the potential to greatly impact patient outcomes.

Team communication is an interdependent factors found in the NRE model in regards to depression assessments at the health center. Focusing on an effective communication process for alerting providers about a positive PHQ-9 score has the potential to lead to improved patient outcomes. Not only should the improvement project focus on verbal communication, but also should incorporate the electronic health record (EHR) as a key communication variable. Timely and accurate documentation of the depression assessment score in the EHR is a critical first element of successful interdisciplinary communication. Additionally, the improvement in interdisciplinary communication processes (interdependent role) will contribute to continuity of patient care and care coordination. For example, once a patient is diagnosed with depression and a referral for outpatient behavioral health is indicated, the interdisciplinary team must effectively communicate, coordinate, and follow through with the patient on the referral in order to impact outcomes of care.

Outcome

The outcome component of NRE framework is categorized into six nurse sensitive outcomes, however the most relevant outcome is improved functional health. Doran (2011)

describes functional health as physical, psychosocial and self-care abilities. Concerning the clinical problem the primary goal is to achieve remission or to get the patient to be predominately symptom free, indicated by a PHQ-9 score of less than 5 (Mitchell et al., 2013). However, a five point drop in the PHQ-9 score is considered the minimally clinical significant difference when evaluating current depression treatment (Mitchell et al., 2013). There is limited research showing how to replicate improvement processes utilizing the PHQ-9 tool to improve depression management in primary care. However, it is well discussed in the literature that the PHQ-9 is a well validated and reliable tool for both detecting and monitoring depression in primary care setting (Mitchell et al., 2013; Maurer & Darnall, 2012). Accurate detection of depression is the first vital step towards improving functional health outcomes.

In the NRE model, cost is classified in the outcome component. Although the literature review did not identify high level evidence indicating that improved PHQ-9 depression assessments in primary care directly yields to a decrease in healthcare costs and utilization, it is an important consideration. The casual factors involved are not well understood, however over decades a persistent pattern exists. Psychological distress and mental health diagnoses, such as depression, are predictive of high healthcare utilization (Doran, 2011; Kurdyak, Gnam, Goerine, Chong, & Alter, 2008; Simon, Ormel, VonKorff, & Barlow, 1995). Even though the cost outcome is not the most relevant outcome of focus, a component of the improvement project will incorporate cost or healthcare utilization as an outcome to measure within the NRE framework due to the potential financial implications.

Conclusion

Assessment of depression is an essential first step in effective treatment. Thomas and Chan (2012) plainly state, no matter how complex the treatment of depression becomes, those

who are unassessed will remain untreated. Although this statement is matter of fact, it will be a solid reminder of the purpose of the improvement work. A strong assessment of depression is the first critical step for potentially improving a patient's depressive symptoms, and perhaps changing their life. Applying the NRE model to a complex clinical problem, like depression assessments at the primary care clinic, will provide the team a simplified, organized, and concrete improvement plan. It is encouraging because the NRE model suggests improvement in structures and processes of care will likely lead to improved patient outcomes (Doran, 2011).

Chapter 4: Clinical Protocol

The PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring, and measuring the severity of depression in the primary care setting (Kroenke & Spitzer, 2002). The brevity and practicality of the assessment makes the PHQ-9 an attractive tool to use in clinical practice (Kroenke & Spitzer, 2002). In this project, the clinical protocol to improve depression assessment will be implemented at a community benefit primary care office who serves a vulnerable population. The opportunity for improvement in the current depression screening process was identified by the MSN student after conducting a detailed microsystem assessment. The purpose of the protocol is to enhance meaningful PHQ-9 depression assessments and improve communication of positive PHQ-9 scores with the team. The protocol development and implementation is grounded in Doran's NRE model, an adaptation of Donabedian's Structure-Process-Outcome quality improvement framework. Figure 7 provides a picture of the key components of the protocol.

Factors Considered in Protocol in Context of the NRE Conceptual Model

According to the NRE model, each component is mutually dependent on the antecedent component (Doran, 2011). Therefore improvements in the structure of care should lead to

improvements in clinical processes that should in turn improve patient outcomes (Moore et al., 2015). Multiple variables within each component of the model must be considered in order to determine how best to improve depression assessments at the health center (see Figure 1).

Structure Component: Patient Variables

Patient factors, healthcare professionals factors, and organizational factors are represented in the structure category of the model. The patient factors most relevant are health literacy and culture. The patient population at the clinic represents a diversity of cultures and ethnicities. The MSN student will conduct mental health awareness sessions will occur during the lunch periods prior to implementation of the protocol. The goal of the awareness sessions is to educate (or remind) staff of the effects of culture and attitudes on patients' willingness to openly talk about depressive symptoms. In addition, the sessions will inform the staff of the meaning that is attached to a diagnosis of depression, patients' treatment preferences, and the pattern of utilization of services for individuals who are depressed (Jimenez et al., 2013; Miranda et al., 2003). Staff members at the clinic are also diverse, consequently part of the presentation will review how public stigma and the healthcare professionals' own culture can influence perceptions of depression (National Institute of Mental Health, 2014). If the staff understands that different attitudes and cultures play a critical role in actual help-seeking behaviors and reporting of symptoms, they may have more insight about these factors when conducting the PHQ assessment.

Health literacy is the degree to which individuals have the capacity to obtain and comprehend health information and services to make appropriate health decisions (AHRQ, 2016). The protocol will address the issue of health literacy by using standardized scripting by the frontline staff when they explain the purpose of assessing for depression at each primary care

visit. The staff member will then explain how to interpret the PHQ questions and rating scale. According to AHRQ (2010) nearly 50% of information retained by patients is incorrect; therefore staff will use the teach back method after explaining how to interpret the PHQ assessment questions to ensure the patient has a clear understanding of the tool (AHRQ, 2010). The protocol will emphasize to staff the need to take the time to correct any misinterpretations or questions that patients may have after directions are given. For non-English speaking patients, a process is already in place at the clinic that includes an interpreter. The same teach back process is expected to occur when a translator is present.

Once the patient's comprehension of the information is assessed by the teach back method, the staff member will slowly read out loud each question from the PHQ-2 and allow the patient to respond. In each examination room, a printed visual of the PHQ-9 response scale will be available for the patient to refer to while completing the assessment. The tool is offered in multiple different languages and has been shown to be valid when tested with African Americans, Chinese Americans, Latinos, and non-Hispanic white patient groups (Mitchell et al., 2013). An interpreter will be used for non-English speaking patients. Accessing the interpreter is not included in the process flow, as interpreters are requested prior to patient's appointment and a separate process is already in place to obtain interpreters for patient appointments.

Structure Component: Healthcare Professional Variables

According to the NRE model, the education and experience of the healthcare professionals who are conducting the depression assessments are structure variables that are necessary to consider in the protocol. Prior to implementation, a small work group consisting of frontline staff (MA and LPN), the CNL, and an advance practice provider will utilize the A3 framework to obtain a comprehensive list of the gaps and barriers in the current depression

process. The A3 will allow the work group to dig down to the root cause of why PHQ assessments are not effectively implemented in practice. The staff has already reported they feel uncomfortable with depression assessments due to the personal nature of the material. Further investigation of this theme will be considered in the structure component of the protocol.

Structure Component: Organizational Variable

Factors related to the work environment and the culture of safety are addressed in the protocol. Initially, input from the A3 work group and direct observations from the microsystem assessment will provide a "pulse" on the current state of the work environment and culture of safety. Doran (2011) reported that better patient outcomes are associated with hospitals that have high quality work environments and positive interactions between team members. A portion of the protocol focuses on fostering a transparent climate that encourages staff to feel comfortable speaking up when something seems wrong, reporting near misses or errors, and facilitates accountability of frontline staff.

During the protocol implementation phase, intentional time will be set aside to recognize near misses and errors as opportunities for learning and improving (Nelson et al., 2011). Understanding the current work environment and culture of safety characteristics (organizational variables) are foundational factors that will influence the entire improvement project.

Process Component

The independent roles and interdependent roles of effective depression assessments are the most relevant features of the process component of the NRE model. The independent roles include frontline staff (MAs and LPNs) conducting the PHQ-2 and PHQ-9 assessments during the "rooming" process. Direct observations and conversations with staff revealed some staff are uncomfortable with discussing the topic of depression with patients. Furthermore, the CNL

student observed that staff was inconsistent in how they conducted the PHQ assessment. The current process is such that when the assessment is given to the patient on paper, the patient is expected to complete the assessment while the MA or LPN asks other questions and vital signs are taken. Consequently, the patient is unable to given undivided attention to completing the assessment and is given no formal directions on how to complete the assessment or why the assessment is given in the first place. Other times, the completed paper assessment is not collected at the end of the visit; the assessment is not charted prior to the provider entering the room; or even worse, the assessment is missed altogether. Clinicians cannot appropriately treat depression unless it is first detected.

To determine further issues related to the process, the protocol will include a more extensive root-cause analysis and examination of the "rooming" work flow process. A change in the order of steps involved in "rooming" patients could require a redesign of activities, equipment, and time. Ideally, the protocol will allow staff to feel confidently equipped with the necessary tools (scripting, resources, and training) and have a standardized work flow processes in place (see Figure 9). In Figure 5, a draft flow chart is provided to build a common understanding of the ideal process. Multiple independent process variables will be examined in the protocol with substantial involvement of frontline staff in the discussion.

The independent role to be examined in the protocol is the process of how frontline staff communicates the positive results of a patient's PHQ-9 score to the clinician. As mentioned earlier, the PHQ-9 assessments (even those with results indicating depression) regularly go unnoticed or forgotten; not by choice but, rather by poorly designed systems. The protocol will address the multiple factors that contribute to the error and then improve that part of the system.

The problem may be due to how documentation occurs in the electronic health record, the timing of documentation, or in unclear processes.

For example, when assessing the current process, some providers indicate that they only notice that depression is a problem for the patient if the PHQ-9 paper assessment is left in the room by staff. In contrast, when talking with frontline staff, some reported they do the entire assessment verbally and eliminate the paper portion of the assessment altogether. This example reiterates there is a gap in the depression screening process. The A3 small work group will develop a flow chart of the current process and it will be compared to the real practice observed. This will allow the team to identify inconsistencies, delays, and work arounds. The team will then design the ideal process followed by testing and measuring to determine if the new process contributed to improvements for patients and staff. Throughout the protocol implementation phase, frequent Plan-Do-Study-Act (PDSA) cycles will be conducted to evaluate "three fundamental questions of improvement:

1. What are we trying to accomplish?
2. How will we know that a change is an improvement?
3. What changes can we make that will result in improvement?" (Langley et al., 2009, p. 23).

A bulk of the development of the protocol will be involving the independent variables and interdependent variables of the process component of the NRE model.

Outcome Component

Assessment of depression is the first step towards breaking down barriers and providing an open environment for patients to potentially achieve improvement in physical, social, cognitive, mental functioning, and self-care. Patients deserve this opportunity. It is vital to

provide evidence-based depression screening services in primary care as the primary care setting is often the patient's sole contact for assessing mental health (Ani et al., 2008).

An outcome measured for this protocol is a change in a patient's functional health (physical, social, mental functioning, and self-care) indicated by a decrease in the PHQ-9 total score. In the review of the literature, there was insufficient evidence illustrating a direct correlation between improved depression assessment and functional health outcomes. However, depressed patients who remain undetected will remain untreated (Thomas & Chan, 2012). It is better to effectively assess for depression than risk missing patients who suffer from a depressive disorder. A patient's functional health will be measured by an improvement (a decrease) in the PHQ-9 score at the next encounter. Another outcome to measure are the number of completed PHQ-2 and PHQ-9 assessments. This outcome will be compared to baseline data collected to determine if there was an improvement.

In the NRE model, cost falls under the outcome component. Doran (2011) and others link psychological distress and a mental health diagnosis, such as depression, as a predictor of high healthcare utilization. Although the casual factors involved are not well understood, over decades a persistent pattern exists and continues to be replicated (Doran, 2011; Kurdyak et al., 2008; Simon et al., 1995). Outcome data on utilization patterns (emergency department frequency, missed appointments, inpatient admissions) wil be assessed for patients with elevated PHQ-9 scores (≥ 10). This is not a major focus of the protocol, but may be a possible indirect finding that may have a large financial impact.

SWOT Analysis

In summary, the health center has many strengths that will fortify the protocol improvement plan including the staff's familiarity with depression screening using the PHQ-9

tool. The current electronic health record (EHR) has electronic versions of the PHQ-2 and PHQ-9 assessments and there is already a process in place to obtain data on the PHQ-2 and PHQ-9 scores. The most critical weaknesses related to the protocol include: limited staff education on how depression can impact health behaviors, lack of provider knowledge on evidence based depression management guidelines, knowledge of outpatient behavioral health community resources, and the fact that the setting is a fast paced time sensitive environment. The change in PHQ-9 assessments has the potential to increase the amount of time it takes to "room" a patient which can impact patient through-put. Many opportunities exist including: improved real time documentation, awareness about depression, and the potential to help depressed patients. Some threats identified include: time constraints, staff "buy in", and altered work flow delivery. Overall, the benefit of improved depression assessments at the site outweigh the risks that may be involved with altering the current process. Figure 6 provides an illustration of a SWOT analysis.

Resources and Challenges

This section will consider the additional resources needed and discuss anticipated challenges that may occur during the protocol development and implementation phase. The team is already practicing depression screening using the PHQ-2 and PHQ-9, therefore no additional human resources are anticipated. Additionally, the clinic already has a process and a budget for translation services when indicated. Standardized scripting, PHQ-9 rating scale, depression educational material, and paper copies of the PHQ-9 need to be printed and readily available for staff to review with patients. A large A3 and area for PDSA cycles to be documented will be required. Additionally, assistance from a data analyst from the ambulatory quality department will be needed for future reports during and after implementation of protocol.

Furthermore, a resource request that also may present as a challenge is the time and work required from frontline individuals that volunteer to assist in the A3 work group. Aligning and giving people the opportunity to be involved in change that is meaningful and has direct impact on their work is crucial for sustaining improvement (Langley et al., 2009). Sustainability of the new protocol is also a challenge to expect. Langley et al. (2009) suggests creating structures that make it easy for people to do the right thing (use new protocol) and hard to do the wrong thing (go back to old methods).

No matter what the change, people will usually have some form of reaction (Langely et al., 2009). According to Rocky (2015) the three questions everyone asks about change include: what's in it for me, is it good for my organization, team, or patients, and do we have what we need to be successful? Prior to implementation as I lead the work group I need to keep these three questions at the forefront of the implementation strategy and revisit along the way. Commitment to change will be an ongoing challenge that must be revisited often by gathering input from frontline staff that are impacted by the change and providing transparent information of the progress being made during the testing of the change (Langely et al., 2009).

Conclusion

Doran's NRE framework is a great tool for a Clinical Nurse Leader at the health center to use as a road map in the development and implementation of a depression assessment protocol. Multiple variables in the structure and process component of the model must be considered in order to completely realize improved outcomes. Frontline staff members will be an integral piece to the improvement protocol. The implementation process of the protocol will be managed as series of PDSA cycles with open communication between all involved parties. Several challenges may arise, however the CNL must remember no matter how well the change is

planned, there will be unanticipated challenges, miscommunications, errors, and resistance to the change (Langely et al., 2009). Part of the role of the CNL is to embrace the "mess" and help others adopt to the new idea.

Chapter 5: Evaluation of Protocol

Overall the depression protocol implementation process was a successful experience. The depression small group, CNL student, and the clinic manager are actively discussing methods to sustain the depression screening process after the CNL student graduates due to the positive outcomes and responses from the frontline staff. Figure 7 illustrates how the components of the protocol were integrated into the NRE framework (structure, process, outcome), while Figure 8. describes the specific activities implemented in the protocol in further detail.

Description of Implementation Process

The early steps in the protocol implementation involved selecting frontline staff champions to participate in the depression small work group and gaining the staff's' input to incorporate into the scripting, and standardized work flow. During this time, the CNL student intentionally made time to build trust among the members of the group and had purposeful conversations eliciting each member's view of the current depression screening process and the current barriers that impede successful completion of the depression assessment.

The CNL student created a printed formal education tool called the Depression Manual to use when training members of the small work group. The manual consisted of various forms of education tools including: a visual flow chart of the standardized process, evidence-based scripting, a concrete step by step summary of the process change, frequently asked patient questions about depression and scripted staff answers, a summary of the literature on how culture

and health literacy can impact how others view the topic of depression and the screening process, and a job aid screen shot of how to document the PHQ9 assessment in the EHR. Each team member received a depression manual to use to complete the "train the trainer" education with assigned staff members by a specific deadline (September 11, 2016). The trainer used role modeling and the depression manual to educate all fourteen staff members including the primary care providers.

Shortly after development of the work group, the CNL student worked directly with a data analyst from the informatics team to generate a meaningful daily and monthly report using clinical data documented in the EHR. Information technology is necessary for evaluating evidence based practice and client care outcome (King & Gerard, 2016). Determining the operational definition of the criteria to be included or excluded in the report was a critical component to the accuracy and meaningfulness of the data collected in the report. The CNL student had to blend the clinical requests of the report into terminology that could be abstracted and understood by a non-clinical data analyst. The report includes patient identifiers, date of appointment, reason for visit, the name of the staff who "roomed" the patient, the provider who the patient saw, and the PHQ-2 or PHQ-9 score.

The CNL student reviews the report daily and documents the results in a depression Excel dashboard (See Figure 12). When a patient does not have their PHQ assessment completed (otherwise known as a daily defect), the details on the daily defect are emailed to the Clinical Lead BSN, RN who then initiates a real time conversation with the accountable staff member to investigate the root cause of the defect. A root cause is determined and documented in a pareto chart to monitor any patterns or trends. An example of a common root cause is the staff member not pressing the "score" button in the EHR after completing the assessment. The

daily report allows the CNL student to quickly identify defects from the day before (a missed depression assessment) and hold accountability with frontline staff in real time. Every Friday, the CNL student emails the Clinical Lead a bar graph summary of the outcomes of the past week and a comparison to the previous week's results to be displayed on the huddle board (see figure 10). Each Monday, the rotating leader of huddle reviews the previous week's results to build awareness and set the intention for the week.

Summary of Successes and Challenges

Two major successes of the depression protocol were the effective use of data to support the change process and holding the staff accountable. The CNL student could easily transform the raw data in the excel depression dashboard into a visual that plotted the data over time allowing staff to quickly review and determine if the change was resulting in improvement or not. Furthermore, transparently displaying data over time allowed staff to view patterns and generated small "wins" when improvements were made. The s staff stated that they are encouraged that the small changes they are making in their practice are valuable and contributing to the successful outcomes. The CNL student also celebrated small wins by posting 100% completion days on the huddle board; in addition, the clinic manager was advised to congratulate the staff on their performance.

A culture of accountability and even competition among staff was a result of transparently displaying the name of responsible staff members associated with each defect for the week (a missed depression assessment). Holding accountability in this manner was effective because the process change incorporated real time face to face non-punitive conversations when a defect occurred to try to understand the barriers present, rather than focus on the individual at

fault. Rounding with staff increased the energy towards the change, showed respect for the people doing the work, and allowed for open communication.

Some unforeseen challenges occurred during the protocol implementation plan. Approximately nine weeks into the process change a mandatory EHR upgrade was expected to occur. It is unclear how the upgrade will influence the process change, however the small work group plans to convene approximately a week after the EHR upgrade to discuss and review the any changes in the outcomes data.

The depression protocol requires someone to review reports daily and provide graphs of weekly progress. In the beginning phase of implementation, the CNL student was responsible for these duties. This was challenging when the CNL student was only at the clinic approximately two days a week and often not on the days when the data was needed for display. Once the team feels the process change is embedded into the culture and outcomes data remains consistent, the goal is to move away from daily and weekly reporting and begin to spot check progress. The beginning work of the process improvement data display is person dependent and this will be addressed in the sustainability plan.

Strengths, Weaknesses, and Sustainability of Protocol

The quality improvement principles that lay the foundation of the depression protocol are easily reproducible for other quality improvement efforts at the clinic or other clinic sites. In fact, the CNL student presented the depression protocol and progress thus far at a monthly ambulatory care regulatory readiness Clinical Lead meeting. Many clinics in the system are now using the daily and monthly generated depression assessment report and quality improvement principles presented by the CNL student in their own clinic to improve their depression assessment process. The CNL student selected a microsystem process for improvement that was later also cited by a

regulatory agency. Although the citation was unanticipated, the timing of the event occurred approximately 1.5 months into the protocol which reinvigorated staff and created an increased energy and urgency.

Using an interdisciplinary approach to the protocol and incorporating frontline staff in the small work group was critical to the success of the protocol. Engaged staff champions are responsible to support and role model the change and be a resource to other staff members. The positive outcomes are largely due to the first-hand experience of the staff champions who are experts in the process change. Identifying staff champions built trust among the group, empowered staff to practice to their full extent, and built an understanding of how the various actions of each member impacts one another.

Some weaknesses of the depression protocol have been identified. Part of the daily report requires some manual abstraction and chart audit; this increases the amount of time the CNL or staff member must spend in reviewing the daily outcomes. When a patient screens positive for depression (PHQ 9 $\geq$ 10) the CNL student must audit the chart to verify that staff communicated the positive result to the provider in the chief complaint section. This documentation is freetext communication to the provider therefore the data analyst is unable to capture the documentation in the daily report. The time spent manually auditing for four to eight patients a day (those who have a PHQ 9 $\geq$ 10) is quite manageable, taking approximately ten minutes. In addition it is noted that one or two providers prefer to have the communication documented in the History and Present Illness section of the EHR rather than the chief complaint section. This drift from the standard process flow requires the CNL student to review another location in the chart for the same information which again can add additional time to the already time intensive manual abstraction.

In order to sustain the protocol the CNL student with the assistance of the small work group has delegated key aspects of the protocol to individuals in the work group. The CNL student plans to teach one member of the team (a LPN) how to read the daily report, input the data into the Excel depression dashboard, and create the weekly graphs. The Clinical Lead will continue real time rounding with staff and documentation of root causes in the pareto chart. The MA and the Doctor of Nursing Practice prepared nurse practitioner will be collaborating on how to improve the current state of the communication of positive results to providers. The protocol may evolve further as there is outside energy with various community key stakeholders to create a behavioral health community resource guide that is insurance specific to assist primary care providers in the management of depression.

Evaluation of Outcomes and Implications for Practice

The performance of the CNL is measured by the extent to which he or she succeeds in improving clinical and cost outcomes in groups of clients within a microsystem (American Association of Colleges of Nursing 2007). In regards to the depression protocol the key clinical outcome of interest is the completion of depression assessments. A secondary outcome measure is the communication to providers when a positive depression screen is assessed. Accurate and consistent detection of depression in patients is an essential first step in effective treatment and perhaps changing a life. The project goal is for the clinic to be 100% compliant by December 1, 2016 as it relates to completing PHQ 2 and PHQ 9 depression assessments and 80% compliant with documented communication to the provider of positive PHQ 9 results (PHQ 9 score $\geq$ 10).

Three months of baseline data collection from the old EHR system (NextGen) indicated between October 2015 and December 2015, on average the clinic assessed for depression 81% of the time (n= 1634). Due to the change in EHR operating system, a second set of baseline data

were also collected to validate the pre-implementation data obtained from the old EHR system to the new EHR system. The results were consistent with the first set of baseline data from the old EHR, demonstrating on average the clinic assessed for depression 83% of the time (n= 247). After about two months of data collection (or seven weeks), the clinic is assessing for depression on average 96% of the time. After one month post-implementation of protocol the clinic increased the percentage of assessments by 9% (83% to 92%) and after two months post-implementation the clinic increased the percentage of assessments by 13% (83% to 96%). After only two months of the depression protocol implementation plan the clinic is in reach of the end goal of 100% compliance by December 1, 2016 (see Figure 11).

The secondary outcome measured (the measurement of positive depression screens communicated to the provider through documentation in the chief complaint) is still a work in progress. Seven weeks into the implementation, the clinic is communicating positive depression screens to providers 62% of the time. There is no baseline data for comparison on this aspect of the protocol because it is a new process, however there is a noticeable improvement from week one of implementation to week seven with, an increase of 36% (26% to 62%). Figure 11 provides a graphical representation of the primary and secondary outcomes of the depression protocol in more detail.

A goal of the protocol was to also measure the cost component of health utilization in depressed patients. The hope was to collect and analyze outcome data on utilization patterns of patients with elevated PHQ-9 scores (such as emergency department visits or inpatient admissions). Unfortunately, this aspect of the protocol was not implemented. This may be something the clinic will want to track in the future.

MSN Essentials Reflection

The CNL role is aimed at managing a distinct patient population through the day to day management of clinical issues, decisions, and focusing on patient outcomes (King & Gerard, 2016). Under the domain of care environment management, the CNL student fulfilled the essentials of being a system analyst/risk anticipator, information manager, and team manager.

As a system analyst/risk anticipator the CNL student conducted a microsystem review to critically evaluate and anticipate risks to client safety and outcomes in order to improve the quality of the care delivered at the clinic (AACN , 2007). A patient population with many psychosocial stressors and vulnerabilities was at risk for inadequate behavioral health assessments in the primary care setting. The CNL student reviewed the evidence based practice around depression screening tools in primary care and the impact of culture and health literacy on how patients and healthcare providers perceive or discuss depressive symptoms. With this information the CNL student worked with an interdisciplinary team to design and implement an improved depression screening process to decrease the risk of inadequate depression detection and monitoring. The protocol developed is anticipating the risk of poorly managed behavioral health by promoting health and wellness of individuals at the clinic by improving the depression screening process to prevent or reduce the risk of undetected or untreated depression. The protocol will enable staff to detect and monitor a disease (depression) early in its course and prevent further deterioration of an individual's functioning due to the disease (AACN, 2007).

The CNL student enacted the essential of being an information manager, by using the EHR (information technology) to improve health care outcomes, in this case completed depression assessments at every patient visit and communication to providers when patients screen positive for depression. Clinical data documented in the EHR yields important

information about processes and outcomes involving clients (AACN, 2007). With this realization, the CNL student and help from an informatics specialists used clinical data to build reports to collect aggregate data sets to justify the need to improve the current depression screening process at the clinic. Additionally, reports were created to track daily and monthly protocol implementation progress allowing the CNL student to evaluate and transparently display to the frontline staff the outcomes of the new protocol in real time. The ability to highlight clinical outcomes of the protocol in close to real time created a culture of accountability and awareness with those doing the work. Carefully collecting and analyzing nursing care data to improve the quality of care patients receive is a key component of being an information manager.

Throughout the depression protocol the CNL student enacted the team manager CNL essential. The protocol was designed and coordinated with input from the interdisciplinary team from the beginning phases through the sustainability phase. Actively listening and valuing and incorporating the voices of the frontline team members into the protocol created an environment of mutual respect between the leader and the followers and increased staff engagement. As a team manager you want to empower the frontline staff to take ownership of the outcomes of the protocol. This was illustrated during the protocol when real time face to face conversations occurred with accountable staff to determine the root cause of why the defect occurred. A colleague of equal level was initiating crucial conversations with fellow colleagues contributing to the growth of a Just Culture. The CNL student delegated aspects of the protocol appropriately to members of the team so the protocol was not entirely person dependent. The CNL student illustrated team manager skills by leading and partnering with other members of the team by seeking collaboration and consultation with other interdisciplinary professionals.

Conclusion: Implications for Practice

The data thus far substantially demonstrates that implementing an improved depression screening process enabled frontline staff to consistently and accurately assess for depression and provide communication of positive results to providers during a patient's visit in order for depression to be further assessed and managed. It was possible to improve the practice problem by using an interprofessional team approach and using quality improvement principles. Aspects of all nine CNL essentials were enacted by the CNL student throughout the protocol development and implementation phases. A special thanks to the staff at the clinic, the depression small work group, and the CNL student's preceptor who embraced the protocol.

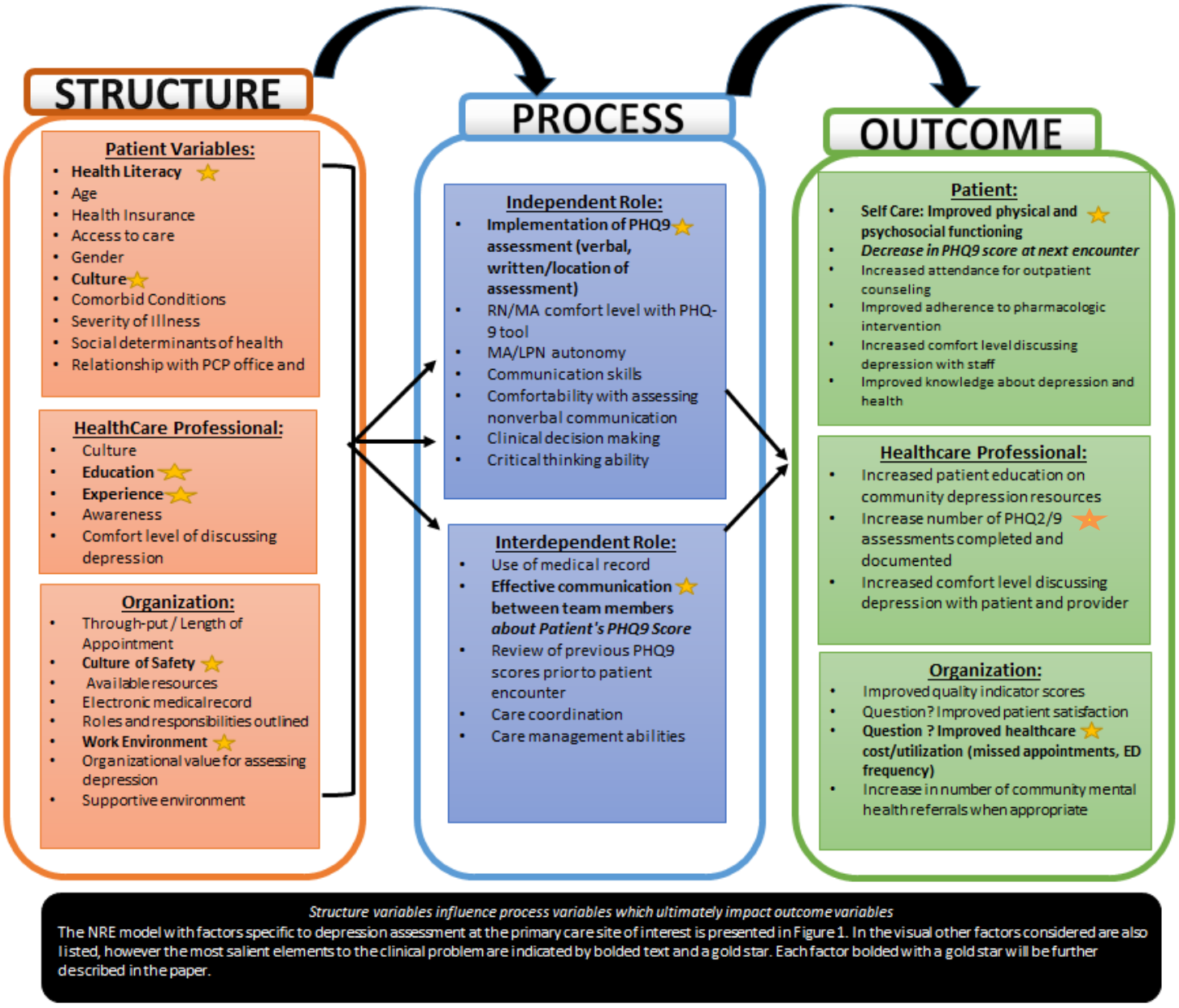


Figure 1. Nursing Role Effectiveness Model. The NRE model with factors specific to depression assessment at the primary care site of interest is presented in Figure 1. In the visual other factors considered are also listed, however the most salient elements to the clinical problem are indicated by bolded text and a gold star. Each factor bolded with a gold star will be further described in the remaining sections.

PHQ-9 score	Severity/provisional diagnosis	Treatment recommendations
<5	Community norm	No action recommended
5-9	Mild symptoms	Watchful waiting, self-management education, periodic rescreening
10-14	Major depression, mild	Pharmacotherapy or psychotherapy, creation of a treatment and follow-up plan, education, reevaluation
15-19	Major depression, moderately severe	Immediate institution of treatment (pharmacotherapy and/or psychotherapy)
≥20	Major depression, severe	Pharmacotherapy AND psychotherapy, referral

Figure 2. Patient Health Questionnaire-9 (PHQ-9) Scores, Severity, and Treatment. The PHQ-9 directly correlates to the nine DSM-IV signs and symptoms of major depression. Treatment guidelines are presented based on PHQ-9 result, however a patient should not be solely diagnosed on the basis of the PHQ-9 score. From "A System-Based Approach to Depression Management in Primary care Using the Patient Health Questionnaire-9", by DeJesus, Vickers, Melin, & Williams, 2007, Mayo Clinic Proceedings, 82(11), 1395-1402. doi. 10.4065/82.11.1395 Copyright [2007] by Mayo Foundation for Medical Education and Research.

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
3. Trouble falling asleep, 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're a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or, the opposite - being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
Column Totals	_____ +	_____ +	_____	
Add Totals Together	_____			

10. If you checked off any problems, how difficult have those 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

Figure 3. Patient Health Questionnaire-9 (PHQ-9) Assessment Tool. The PHQ-9 total score for the nine item ranges from 0 to 27. From "STABLE Resource Toolkit", by The Center for Quality Assessment and Improvement in Mental Health, 2007, Copyright [1999] Pfizer Inc.

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
(a) Little interest or pleasure in doing things	☐	☐	☐	☐
(b) Feeling down, depressed, or hopeless	☐	☐	☐	☐

Figure 4. Patient Health Questionnaire-2 (PHQ-2). The first two questions on the PHQ-9 make up the PHQ-2. A cutoff score of 3 is the optimal cut point for screening purposes. Patients who screen positive should be further evaluated with the remainder of the PHQ-9. Not at all =0 Several days= 1 More than half the days = 2 Nearly every day 3. From "Detecting and Monitoring Depression with a Two- Item Questionnaire (PHQ-2)", by Lowe, Kroenke, and Grafe, 2004, Journal of Psychosomatic Research, 58(2), 163-171. doi:10.1016/j.jpsychores.2004.09.006. Copyright [2005] by Elsevier Inc.

From The Macarthur Foundation. (2009). Depression management tool kit. In The Macarthur initiative on depression and primary care. Retrieved from http://otgateway.com/articles/13macarthurtoolkit.pdf

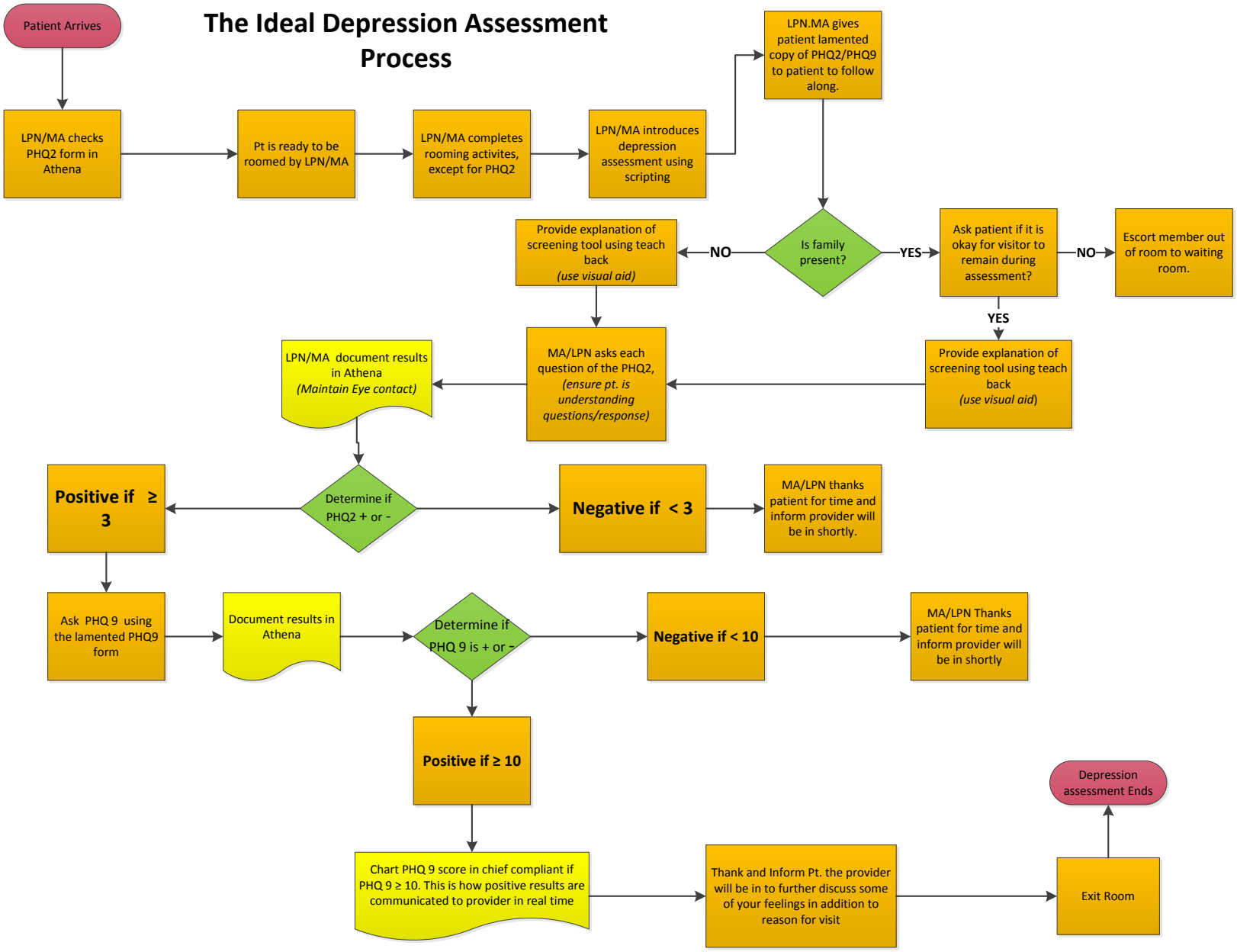


Figure 5. Standardized Flow Chart of Improved Depression Screening Process at Primary Care Site.

Figure 6. SWOT Analysis. The analysis assisted in the depression assessment protocol development.

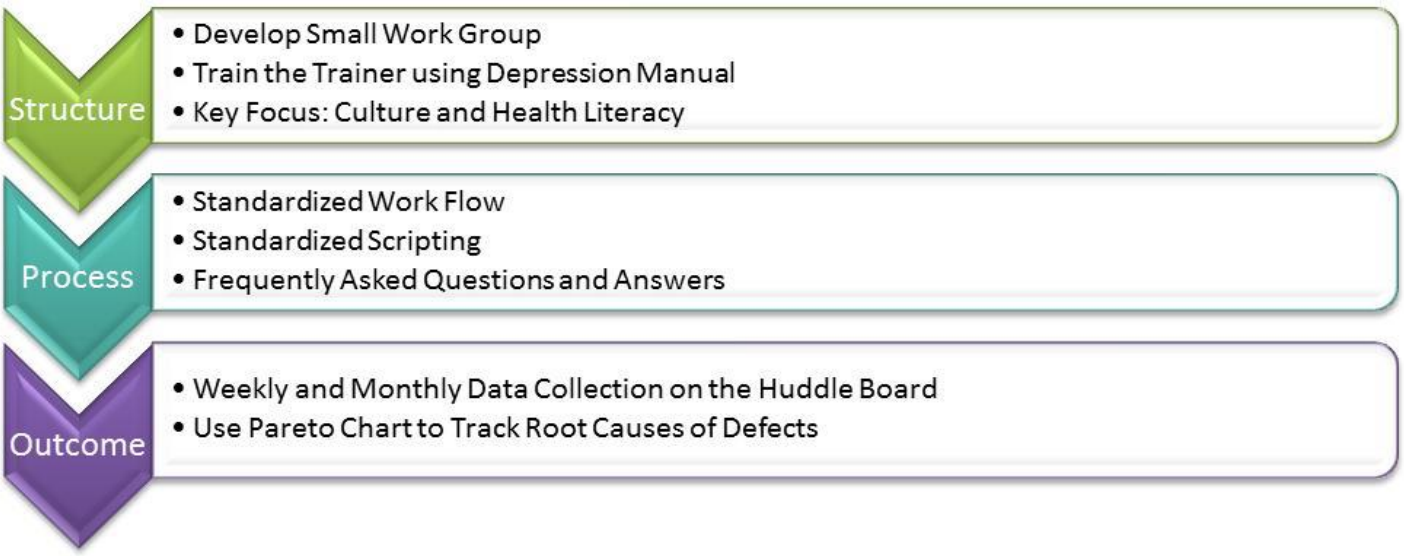


Figure 7. Depression Protocol Key Components incorporated into the NRE Model. According to the NRE model, the structure variables influence the process variables, which ultimately impact the outcomes variables. Figure 7 highlights the specific actions of the protocol implemented throughout each component of the NRE model.

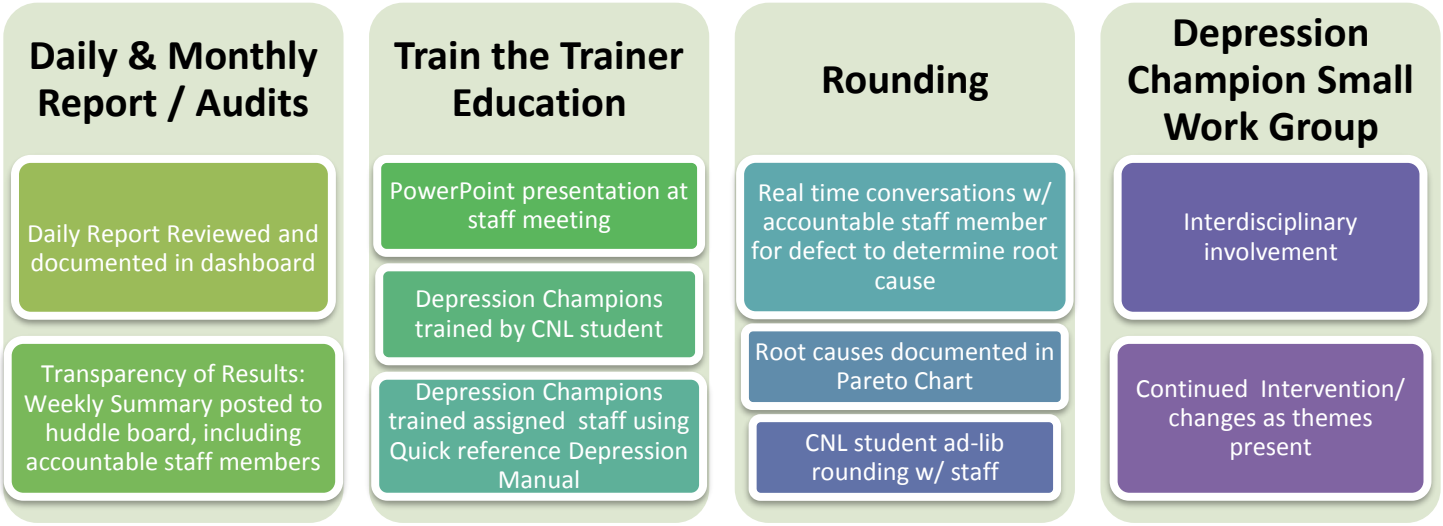


Figure 8. Detailed Protocol Implementation Processes. The protocol was effective due to a combination of displaying daily and monthly reports, using the "train the trainer" education method, real time rounding with staff, and having an engaged depression small work group with interdisciplinary members. The colored boxes describe each component in further detail.

Helping Medical Assistants, LPNs, and RNs Talk with Patients about the PHQ-9 Assessment

- It is important to send the message that all staff at Browning Claytor feel comfortable addressing mental health and the clinic treats these conditions the same as they do any other condition being treated at the clinic.
- **Scripting idea:**
    - "At today's visit I will be using a tool called the PHQ-9 which assesses how your mood is lately. It is like taking your blood pressure or temperature, but is focused on how you've been feeling over the past 2 weeks. We ask these questions to all our patients at every visit, because we care about how you are doing in your physical health and your emotional well-being, and the information is confidential. Is it okay that I ask these questions with you today?
- Hand patient the laminated PHQ9-tool and instruct patient on how the assessment will work including how the scoring works. Remember to use teach-back techniques and remember health literacy may play a barrier in the patient's ability to understand the questions and scoring.
    - Review how the scoring works. Point to 0 column (not at all), 1 column (several days) etc.
    - State again, in the last 2 weeks, how often have you been bothered by any of the following problems?
    - Read the questions out-loud, and give the laminated PHQ9 document to the patient to follow along. Before moving on to the next question ensure the patient understands what the question is asking and how the scoring works.
- If PHQ 2 is negative, thank the patient for answering the questions and tell them based on their responses no further questions are required at this time.
- If the PHQ 9 is positive, thank the patient for answering the questions and tell them based on their responses the provider will be in shortly to discuss how they are feeling further and see if there are options to help.

Frequently Asked Questions by Patients

Question	Why do I need to answer these questions?
Answer:	**Screening:** Your provider is interested in how you are feeling, just like how we take your blood pressure at every visit. We ask these questions of all patients using an evidence based tool to help our team care for you better. **Follow up (already in treatment):** Your provider wants to know how you are feeling to determine if your treatment is working. We need to measure your progress regularly so that we can change treatment

	course if it is not working.
Question	**I don't have these problems. Why do you want me to answer these questions?**
Answer:	We check everyone so that we can keep track of how you're feeling over time. Your emotional wellness is just as important as your physical health. If you are concerned about the questions you can talk with your provider about it
Question	**Do I have to answer even if I'm not comfortable answering these questions?**
Answer:	You never have to answer questions that you're not comfortable with. We will let your provider know that you did not want to answer the PHQ9 and they can talk with you in more detail.
Question	**I would rather just talk with my provider about these questions instead of answering them to you. Is that OK?**
Answer:	Yes, of course.
Question	**I don't understand some of the questions. Can you help me?**
Answer:	If you have specific questions about the form and how they apply to your situation, it would be best to talk with your provider. I will let them know you had some questions.

Figure 9. Standardized Scripting in the Depression Protocol and Frequently Asked Questions Tool. Frontline staff was trained in the Depression Protocol by using a Depression Manual. Standardized scripting and the Frequently Asked Questions tool are two sections found in the manual. The purpose of the Depression Manual is to provide frontline staff with tools to successfully complete the Depression Protocol.

PHQ Assessment Results for Week October 24- October 28	
PHQ2 / PHQ9	**October 24- October 28**
# of patients seen at clinic for primary care visit	203
# of PHQ 2/9 assessments completed	196
Percentage of completed PHQs	**96.2%**
# of PHQ 2/9 assessments not done	7
# of PHQ 9 ≥ 10	25
# of PHQ 9 ≥ 10 w/ Communication to Provider in Chief Complaint	14
Percentage of communication doc.	52%
# of PHQ 9 ≥ 10 w. documented f/u plan	12
Percentage of addressed by provider	56%
# of PHQ 2/9 refused	0
Front Line Staff Accountable	**Total Not Done**
Sally	4
Sammy	1
Steven	1
Shelly	1

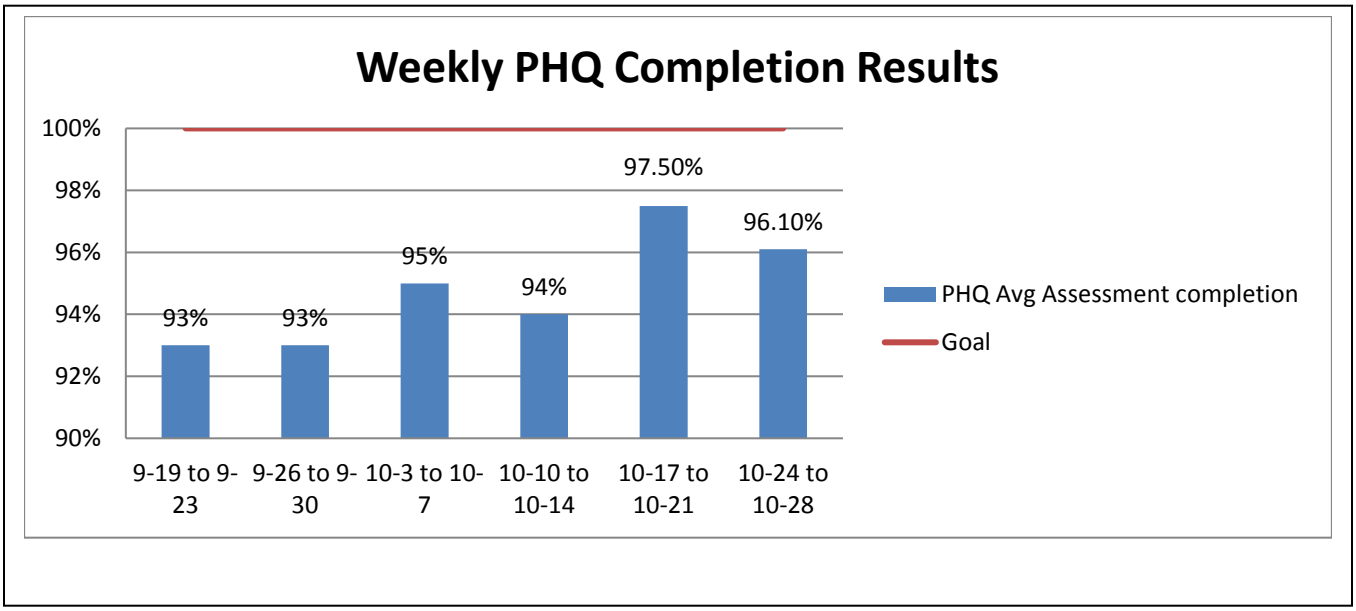
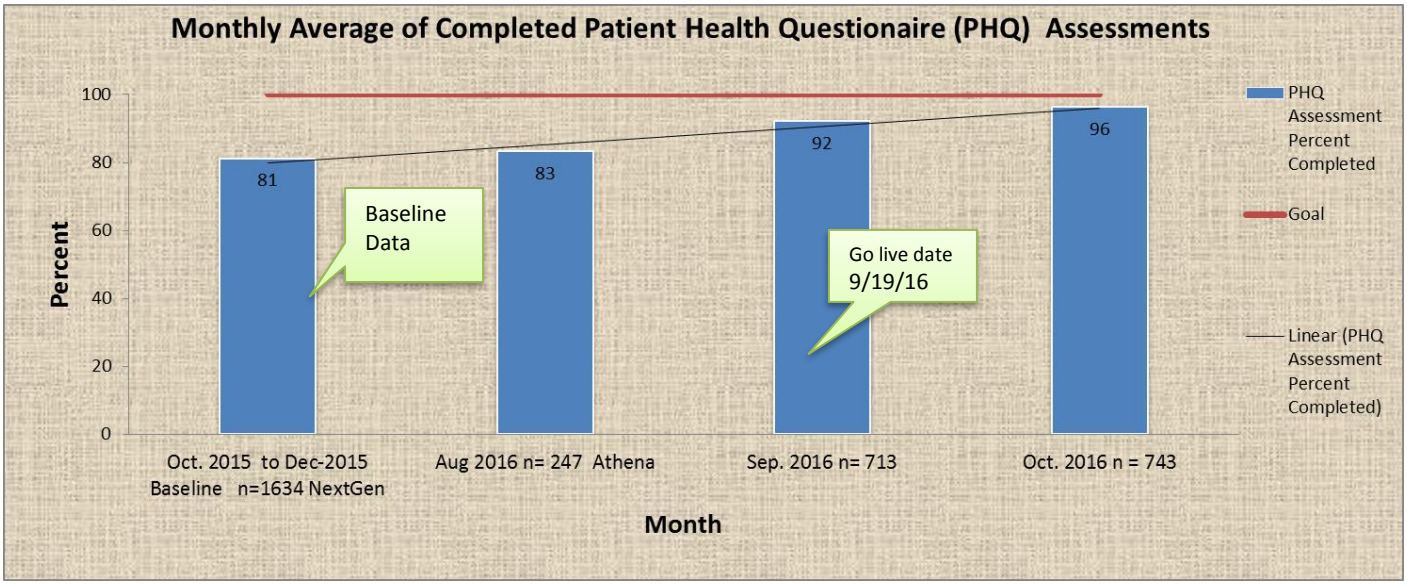
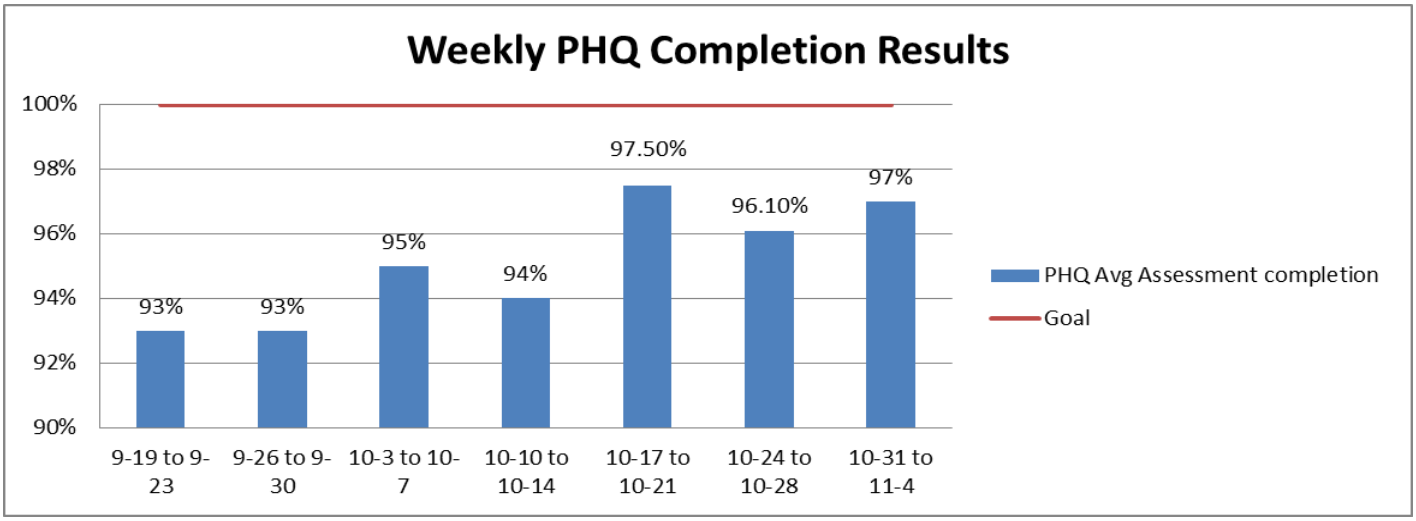


Figure 10. Example of Friday summary report. The CNL student creates this document weekly and emails to Clinical Lead to post on huddle board for discussion on Monday with staff at huddle session.





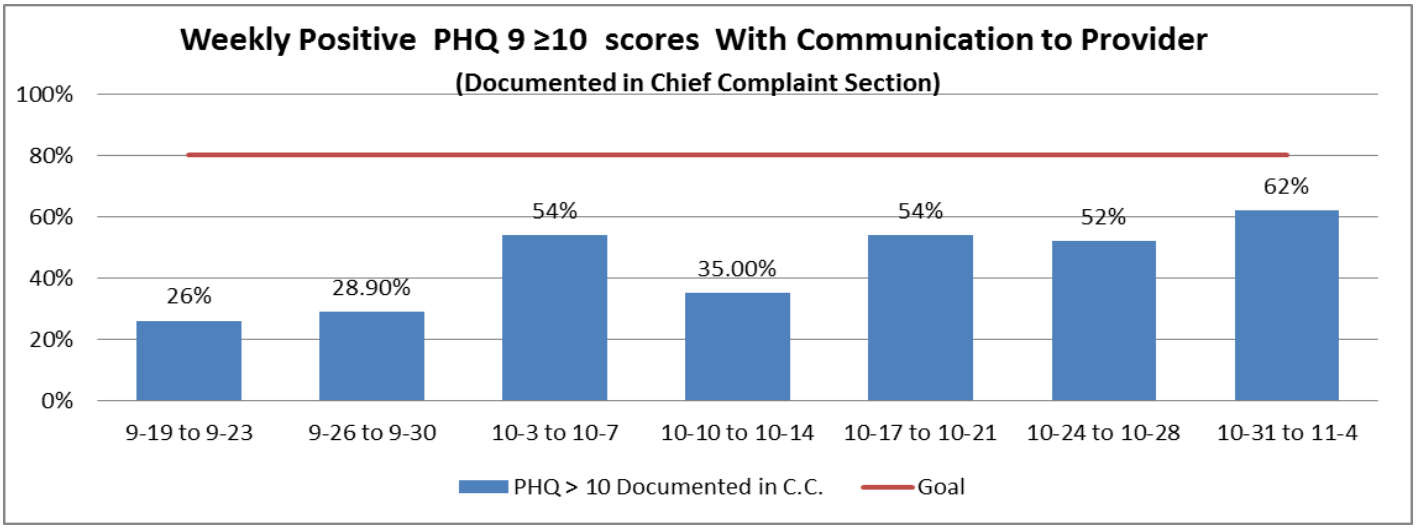


Figure11. Pre and Post Implementation Outcomes and Weekly Outcomes

PHQ2 / PHQ9	9/19/2016	9/20/2016	9/21/2016	9/22/2016	9/23/2016	9/26/2016	9/27/2016
# of patients seen at clinic for primary care visit	30	47	42	27	43	34	43
# of PHQ 2/9 assessments completed	29	43	38	26	39	31	39
Percentage of completed PHQs	96.67%	91.49%	90.48%	96.30%	90.70%	91.18%	90.70%
# of PHQ 2/9 assessments not done	1	4	4	1	4	3	4
# of + PHQ 2 without PHQ 9							
# of PHQ 9 ≥ 10	0	5	3	3	5	3	7
# of PHQ 9 ≥ 10 w/ Communication to Provider in Chief Complaint	0	2	1	1	0	2	0
Percentage of communication doc.		40.00%	33.33%	33.33%	0.00%	66.67%	0.00%
# of PHQ 9 ≥ 10 w. documented f/u plan		2	2	3	3	2	5
Percentage of addressed by provider		40.00%	66.67%	100.00%	60.00%	66.67%	71.43%
# of PHQ 2/9 refused	0	0	0	0	0	0	0
Front Line Staff Accountable							
Allison	0	0	0	0	0	0	0
Colleen	0	0	0	0	0	0	0
Debbie	0	1	0	0	0	0	0
Elisa	1	1	2	0	2	0	1
Heidi	0	0	1	1	0	0	1
Jessica	0	2	1	0	0	0	0
Jana	0	0	0	0	0	0	0
Kim	0	0	0	0	1	0	0

Figure 12. An example of the Excel Depression Dashboard used to capture weekly data collection from the PHQ daily report.

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