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Implementation of Evidence-based Culturally Adapted Interventions, Collaborative Care, and Change Management for Improved Mental Health Outcomes in a Community-based Safety-net Clinic

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Abstract

Mental health disorders are prominent and devastating in the United States. They are more prevalent in low-socioeconomic and minority groups with lower rates of diagnosis and treatment in these populations. Primary care settings are the foremost location for screening, diagnosis, and treatment for common mental health disorders but do not always provide adequate care due to limitations of time, knowledge, and resources. Evidence has shown that collaborative care models can provide more effective treatment for behavioral health services through a team-based approach to holistic patient care. This project focused on implementing culturally adapted, collaborative care models to improve mental health screening, documentation, and interventions at a community-based safety-net clinic and provide the clinic with a change management toolkit for future projects and initiatives. This quality improvement project utilized Kotter's 8-Step Change Model to improve implementation and sustainability of the project and to develop the toolkit for change management. Results of this project displayed significant improvement of screening, diagnosis, and intervention rates after implementation of volunteer education of new behavioral health processes through development and utilization of educational materials and a change management toolkit.

Keywords: behavioral health, collaborative care, change management, primary care, screening

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Executive Summary

Background

Depression and anxiety are prevalent and devastating disorders in the United States. The lifetime incidence of anxiety disorders in the United States is 28.8% and 16.6% for depression. Depression is predicted to become the third highest cause of disease burden by 2030. Depression and anxiety can be co-occurring, chronic, and debilitating if not identified and treated promptly and effectively. These disorders are also two and a half times as likely to occur in those living below the poverty line, higher in minority populations in the US, and treated dramatically less frequently in these populations. Therefore, screening and treatment for mental health disorders is crucial for low income minority populations.

The World Health Organization stated that for every dollar spent on treatment for anxiety and depression, there would be a fourfold return in overall health. In order to provide this care, depression and anxiety must be identified, documented, and treated for best outcomes. The United States Preventive Services Task Force (USPSTF) currently recommends that all adults be regularly screened for depression; this screening must occur in locations with appropriate means for diagnosis, treatment, and follow-up based on the findings.

Purpose

The purpose of this Doctor of Nursing Practice (DNP) project is to design a quality improvement program for behavioral health screening, documentation, and interventions using evidence-based, culturally appropriate, collaborative care methods. In 2016 this clinic delivered medical services to 2,186 patients providing 5,854 visits for urgent, acute, and chronic medical concerns. The patient population served within this clinic has been identified as high-risk for behavioral health disorders with likelihood of 362 to 630 of these patients to have mental health issues. A grant

was recently obtained to support full time collaborative behavioral health services at the clinic, but it is in early stages of application; improvement in screening, documentation, and interventions for mental health disorders have been identified as a need. The overall goal is the triple aim for healthcare: lower cost, better patient care, and improved outcomes. This can be obtained through collaborative care for behavioral health services to provide more holistic patient centered care shown to decrease overall healthcare costs for those with mental health disorders.

Significance

Depression and anxiety can be debilitating, comorbid, chronic disorders that need multifactorial treatment for successful care. Research has shown that collaborative care models can improve patient compliance and overall outcomes including mental health and other comorbidities. Though behavioral health services have been made available to this clinic, they are not being utilized to their full potential due to training difficulties of the high volume of volunteer staff. Initiating a change management model and providing adequate education to core and volunteer staff could improve rates of screening, documentation, and interventions for the patients that would benefit from the behavioral health services. This would improve overall patient health outcomes and decrease cost of patient care.

Current Practice

Current practice at the clinic suggests that each patient should be screened at every visit for depression, anxiety, and substance use (using PHQ-9, GAD-7, and UNCOPE; respectively). These are evidence-based screenings for mental health assessment. The scores must be assessed by the practitioner and interventions provided when appropriate. Interventions (including medication, behavioral health referral, or care management discussion) must be charted and

follow-up appointments scheduled as appropriate. Currently, screenings are not always being assessed during an appointment creating disconnect between elevated scores and services provided. Though screenings are being performed, they are not being assessed and addressed consistently to provide applicable services. Scores that suggest mental health distress must be addressed to provide efficient patient care and prevent practitioner license risk if future problems occur.

New Evidence

The complexity of mental health care requires collaboration between care teams and services to provide holistic, cost-effective, patient-centered care. The collaborative care model, based on the principles of chronic disease management, is applicable for providing this care. The model can involve multiple interventions including: screening, education of patients, changes in practice routines, and developments in information technology which can require interprofessional collaboration and case management. Though collaborative care does take many different forms, multiple studies and reviews have shown that a collaborative approach comprised of a case manager and an interprofessional team with patient-centered focus can improve outcomes for cultural minority patients with depression.

Intervention

Interventions for this project include implementation of Kotter's Change Model to improve practitioners' involvement in mental health screenings and diagnoses. Goals of this project include: increased collaborative care measured by rates of positive mental health screenings being addressed. Rates of diagnoses and interventions charted for positive mental health screening scores (PHQ-9, GAD-7, UNCOPE) will be assessed. These goals will be obtained by applying Kotter's Change Model to implement effective change management for mental health

policy through creation of a change coalition, staff and volunteer education, and increased Electronic Health Record (EHR) utilization.

Cost Analysis

Cost requirements for this project only involve time for staff and volunteers to receive education. This time can be utilized during shifts already being performed; no extra shifts or time are required. Primary time requirements will be for the facilitator of this project to provide education and collect and assess data related to screening, documentation, and interventions for mental health concerns. The initial project may provide improved revenue based on evidence of a collaborative care model for mental health care in a primary care setting yielding an average return on investment (ROI) of $6.50 per dollar spent on behavioral health interventions. This project will also help to increase overall mental health referrals and interventions, utilizing the current behavioral health grant.

Considerations

This clinic has patient needs and the adequate clinical resources to address the mental health concerns of the population it serves. This clinic has behavioral health resources for treatment and follow-up for positive screenings as recommended by the United States Preventative Services Task Force. The required change is better collaboration between staff and volunteer practitioners and the behavioral health services. Since Medicaid is the primary external source of reimbursement for this clinic, a collaborative care model could be beneficial. Medicaid encourages the collaborative care model due to improved patient outcomes and decreased cost. As few as 20% of patients started on antidepressant medications in usual primary care show substantial clinical improvements, collaboration with the case manager, primary care provider,

and psychiatric specialist increases these improvement rates. This will assist to obtain the triple aim for healthcare at this clinic.

Recommendations

The recommendation is to allow the intervention of staff and volunteer education and EHR utilization to improve collaborative care for behavioral health services at this clinic. Research has shown that collaborative care is cost effective and improves patient outcomes for mental and physical health. Implications for this practice include better patient outcomes based on improved screening, documentation, and intervention rates for mental health disorders. This quality improvement project can increase patient access for behavioral health services, decrease overall health cost, and provide better patient outcomes for mental and physical health.

Implementation of Evidence-based Culturally Adapted Interventions, Collaborative Care, and Change Management for Improved Mental Health Outcomes in a Community-based Safety-net Clinic

Depression and anxiety are prevalent and devastating disorders in the United States. The lifetime incidence of anxiety disorders in the United States is 28.8%, and depression has a lifetime prevalence of 16.6% (Kessler et al., 2005). Depression and anxiety can be co-occurring, chronic, and debilitating if not identified and treated promptly and effectively. These disorders are also two and a half times as likely to occur in those living below the poverty line than those living above the poverty line (Pratt & Broody, 2014). Minority populations in the United States, including Hispanics and African Americans, have a slightly higher rate of depression than Caucasians (Pratt & Broody, 2014). However, the rate of antidepressant use in minority populations is less than one quarter of the Caucasian population (Pratt, Broody, and Gu, 2011).

The World Health Organization (WHO, 2016) states that for every dollar spent on treatment for anxiety and depression, there is a fourfold return in overall health and ability to work. In order to provide this care, depression and anxiety must be identified, documented, and treated for best outcomes (Siu & U.S. Department of Health and Human Services, 2016; WHO, 2016). The United States Preventive Services Task Force (USPSTF, 2016) recommends that all adults be regularly screened for depression; this screening must occur in places with appropriate means for diagnosis, treatment, and follow-up based on the findings. Therefore, screening for and treating mental health disorders is crucial for the low income, uninsured, heavily Hispanic population that is served at the midwestern community-based safety-net clinic addressed in this Doctor of Nursing Practice (DNP) project.

This midwestern safety-net health clinic is a small, free-standing primary care clinic providing services to uninsured and Medicaid patients. This clinic was established in 1996 to provide care for the uninsured and underserved population in the area. This service was established in a city with a large amount of healthcare services available, but with a recognizable disparity in healthcare provided due to income and insurance variation. In order to provide services to those that are uninsured and cannot afford the cost of healthcare, a sliding scale payment system is provided for those at or under 250% of the Federal Poverty Index. The clinic relies on volunteer services and monetary and material donations to bridge the gap between cost of service and available patient payments and Medicaid reimbursements. In 2016, the income from donations was 4 times the income from patient payments and Medicaid reimbursements.

The clinic currently relies on 20 paid staff members and over 130 active volunteers each month to provide care. Services provided include medical, dental, optical, counseling and case management. Over half of all visits to the clinic are for primary care health services. In 2016, medical services were delivered to 2,186 patients providing 5,854 visits for urgent, acute, and chronic medical concerns. Due to the broad spectrum of specialists volunteering at this clinic, they are able to provide services in family practice, internal medicine, urgent care, gynecology, cardiology (non-surgical), orthopedics (non-surgical), endocrinology, ear nose and throat, diabetic education and counseling, minor procedures, neurology, specialist referrals, lab services, medication support, interpretation services, eye exams, glasses, dental hygiene, dental exams, dentures, root canals, minor oral surgery, integrated behavioral health care, spiritual care, insurance navigation, and medical payment resources.

The organizational strategic plan expresses that the primary goal of this clinic is to serve the socioeconomically disadvantaged and at-risk population and to use collaborative methods

with the community for an effective and efficient system. The population served includes uninsured and Medicaid patients that have difficulty accessing care elsewhere and a substantial minority population including Hispanics (many of whom are primarily Spanish-speaking), African Americans, and refugees from 21 different countries in need of translation services for care. The lead clinical nurse, some support staff, and many volunteers are bilingual to assist with care for the heavily Hispanic population.

Due to insufficient access to health resources for the population served at this clinic, primary care is the most common point of access for mental health treatment. This requires unique consideration to improve assessment, diagnosis, and treatment for this culturally diverse population. The behavioral health staff and practitioners at this clinic have noted mental health as an important issue at this clinic. However, there was no official policy or procedure in place for effectively assessing, documenting, and treating patients with mental health issues. Development of a policy and effective education of volunteer staff was indicated.

In addition to the need for appropriate mental health screening and treatment, the clinic site for this DNP project did not use change management principles, attributing to barriers for implementing change. Literature suggests that though change is critical to success in the current business and healthcare climate, without an effective change management system in practice only a small percentage (possibly 20-30%) of change initiatives are successful (Kash, Spaulding, Johnson, & Gamm, 2014; Kotter, 2012; Pringle, Nippak, & Isaac, 2010). Due to the complexity of change management in the healthcare system, ineffective change process can create excessive cost and poor outcomes which are hard to calculate due to the complexity of the healthcare system and constant change (Flower, 2012; Pringle et al., 2010).

In order to overcome these barriers, development of a change management toolkit for quality improvement was indicated. A change model that has shown to be effective for implementation of change in business and healthcare settings is Kotter's 8-Step Change Model. This model has been applied in various healthcare environments to assist with change process (John, 2017; Mbamalu & Whiteman, 2014; Small et al, 2016; Su, 2016). An evidence-based change model was important for this project because this behavioral health implementation was already attempted but interventions did not display successful change.

In order to improve behavioral health interventions and outcomes, collaborative care and cultural adaptation have shown to be effective tools for the Hispanic population. For this DNP project, a change management toolkit was developed using Kotter's Change Model and assisted in education of volunteer providers and assessment of change in the clinic. This included applying information from an organizational assessment and literature review in order to enhance collaborative care for improvements in screening, documentation, and interventions for those with mental health concerns at the clinic.

Problem Statement

Depression and anxiety are prevalent disorders in the United States with depression predicted to become the third highest cause of disease burden by 2030 (Archer et al., 2012). Minority populations in the United States including Hispanics and African Americans have a higher rate of mental health concerns than Caucasians with significantly lower diagnosis and treatment rates (Pratt & Broody, 2014; Pratt et al., 2011). Due to poorer income, lack of insurance coverage, lack of primary care providers, and mental health disorder stigma, the populations at higher risk for anxiety and depression disorders are often undiagnosed and untreated (Pratt & Broody, 2014). Therefore, screening for and treating mental health disorders

is essential for the low-income, uninsured, heavily Hispanic population that is served at this clinic. The staff and practitioners at the clinic noted these mental health issues as a concern for this clinic. As identified in the organizational assessment, there was no written procedure for assessing, documenting, and treating patients with mental health concerns. Development of a behavioral health procedure with written materials and education for core and volunteer staff was indicated.

This clinic was awarded a grant one year prior in order to implement additional behavioral health services at their facility. When this began, behavioral health case managers were hired for full time coverage at the clinic. Additionally, screenings for depression, anxiety, substance abuse, and childhood trauma (Patient Health Questionnaire [PHQ-9; Kroenke, Spitzer, & Williams, 2001]; General Anxiety Disorder [GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006]; Use, Neglect, Cut down, Objected, Preoccupied, Emotional [UNCOPE; Hoffmann, Hunt, Rhodes, & Riley, 2003]; and Adverse Childhood Events [ACE; Glowa, Olson, & Johnson, 2016]; respectively) were initiated for all patients. However, these screenings were not being applied and assessed uniformly. Not all practitioners were assessing or addressing the scores from the screenings; patients with high depression and anxiety scores were not being referred to behavioral health services; documentation of interventions was not always being completed. Therefore, the behavioral health grant was not being applied efficiently to its full potential and services were not being provided to all patients that could benefit from them.

Barriers to implementation of new policy at this clinic included lack of engagement and minimal involvement of volunteers, ineffective communication and education with volunteers, difficulty coordinating schedules, and skepticism of need for change and use of the electronic health record (EHR) system. Other barriers to project implementation included patient

participation, volunteer provider inconsistency, health literacy, financial limitations, language barriers, and lack of change management resources. The major barrier was volunteer involvement and availability in the change; there are volunteer medical assistants, nurses, scribes, and providers that all affect change. The engagement, opinions, and willingness of the volunteers must be positive in order to implement effective change. Since volunteers make up the majority of those involved in direct patient care, their education and involvement are crucial.

Change is a continuous element in all organizations, especially in the health care system. As new evidence-based practice guidelines emerge and patient health needs change, implementation of quality improvement methods is required. This clinic did not have a change management system in place to assist with new policy and procedure implementation. Evidence-based change management tools will be applicable for this clinic in the future and may address some barriers in communication and involvement from their volunteers. A change management toolkit including change planning tools (Kotter's Change Model worksheet and infographic), educational material templates (poster format), and data display templates (histogram, run chart, control chart) was compiled, tested, and provided for future clinic use at the end of the project.

This DNP project focused on quality improvement through implementing change as well as screening and treatment of anxiety and depression in the low-income, heavily Hispanic population at this safety-net clinic. The clinical question to be addressed was: Does implementation of a change management model improve interventions including screening, documentation, and intervention rates for behavioral health patients in a safety-net health clinic?

Evidence Based Initiative

For this DNP project, a literature review was performed to identify change management principles utilized in healthcare settings, as well as useful screening and treatment tools for

mental health concerns in a low-socioeconomic Hispanic population at elevated risk for healthcare disparities. High levels of evidence-based research, as determined by The Hierarchy of Evidence Table for Intervention Studies (see Appendix A) was used for this review (Fineout-Overholt, Melnyk, Stillwell, & Williamson, 2010). This table classifies studies according to the research design and denotes levels from one to seven indicating quality of evidence. Articles were evaluated to determine practices which have been shown to improve patient outcomes and healthcare cost for the Hispanic population with common mental health disorders. Education of volunteer providers and support staff regarding these practices and policy interventions was applied for this project. Two separate literature reviews were performed to identify effective, evidence-based behavioral health care practices and applicable change management recommendations.

For the psychiatric intervention focus, several databases were used in the search for applicable studies including Web of Science, the Cumulative Index of Nursing and Allied Health Literature (CINAHL), the Cochrane Database of Systematic Reviews, and PsycArticles. Different combinations of search terms were used and included the following: primary care providers, depression or anxiety or mental health, interventions or strategies or best practices, minority or Hispanic, or Latino. For all searches, date ranges were between 2007 and 2017 or 2012 and 2017 to ensure the information was relevant to the current healthcare environment. Further limits included an available abstract and to be printed in English.

The literature search resulted in a total of 490 potential articles (see Appendix B). After examining the titles, 51 abstracts were read to determine eligibility for inclusion. Exclusion criteria included lack of specific focus on the primary care environment, emphasis on comorbidities, lack of specific focus on minority populations, or low level of evidence. Of the

31 articles which remained, there were 13 identified to be most appropriate for the research question chosen for inclusion in this literature review (see Appendix C). All articles reviewed identified culturally adapted psychiatric interventions and/or collaborative care models as evidence-based tools for improved outcomes in depression and anxiety in the Hispanic or minority population.

A second literature review was performed to assess use of change management theory in the healthcare environment. The database CINAHL was used with search terms change management models and healthcare. This search yielded 624 results with many different change models suggested for use in healthcare. After analyzing change models, Kotter's 8-Step Change Model was chosen for use in this DNP project. With a more specific search in CINAHL using Kotter's Change Model as the primary search term, there were 22 results using the time restrictions from 2007 to 2017. After examining the titles, seven abstracts were read to determine eligibility for inclusion. Exclusion criteria included lack of focus on a specific change implementation or lack of application of Kotter's Change Model (see Appendix D). The remaining four articles were identified to be appropriate for the research question and were included in the literature review (see Appendix E). The following section will focus on evidence-based culturally adapted psychiatric interventions and success of the collaborative care model. Application of Kotter's Change Model in healthcare with be discussed in the conceptual model for implementation section.

Culturally Adapted Psychiatric Interventions

Culture is an integrated part of all health care. The American Psychiatric Association (2013) defined culture in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as a "system of knowledge, concepts, rules, and practices that are learned and transmitted across

generations" (p.749). Culture can include language, religion and spirituality, family structures, life-cycle stages, customs, and moral and legal systems. These factors have an influential role in mental health and symptom treatment. Cultural awareness has been noted as an important part of patient care and has been introduced into most medical profession curriculums. One form of cultural awareness described by Holden et al. (2014) is the CRASH Course; an abbreviation for: Considering Culture, showing Respect, Assessing/Affirming differences, showing Sensitivity/Self-Awareness, and to do it all with Humility. Using these concepts, any treatment plan can be culturally adapted to assist with culturally diverse populations.

Most studies assessed in this literature review focused on the Hispanic population and found that culturally adapted psychotherapy interventions produced better results for mental health therapy (Bedoya et al., 2014; Interian, Allen, Gara, & Escobar, 2008). Though there was no common intervention tool, length of intervention, or depression measurement tool, cultural adaptations showed improved results or patient approval compared to usual care options.

Studies found that a culturally adapted psychiatric program can improve patient engagement, appropriate diagnosis, and effective treatment for Hispanic patients with depression (Bedoya et al., 2014; Interian, Allen, Gara, & Escobar, 2008). It has been noted that culturally adapted psychiatric assessment, psychoeducation, cognitive-behavioral tools, and tailored treatment recommendations provided greater reduction of depressive symptoms than those receiving usual care. Cultural adaptations based on patient preferences also showed greater improvement in depression and anxiety (based on PHQ-9 and GAD-7 scores, respectively) for older adults and ethnic minorities (Lovell et al., 2014). Interian et al. (2008) found that cultural adaptation was related to "acceptable treatment retention rates and clinically meaningful reductions in depressive symptoms" (p. 67).

Two cohort studies showed patient appreciation for culturally adapted interventions but did not assess symptom improvement (Ramos & Alegría, 2014; Trinh et al., 2014). These studies assessed acceptability and patient perceptions of a culturally focused psychotherapy intervention program. The cultural adaptation process was described as a dynamic process, requiring multiple refinements to ensure an appropriate intervention relevant to the target population (Ramos & Alegría, 2014).

One systemic review by Antoniades, Mazza & Brijnath (2014) had mixed findings regarding efficacy of depression treatments for immigrant patients. There was remarkable variability in all studies regarding type of intervention, length of treatment, follow-up time, and symptom measurements. Results showed that many forms of psychotherapy, including Cognitive Behavioral Therapy (CBT) and Behavioral Activation, were more effective for treatment of depression when culturally adapted.

VanVoorhees, Walters, Prochaska, and Quinn (2007) performed a systematic review of depression interventions for ethnic minority populations. Multiple culturally adapted psychotherapy methods were assessed through a life-course model. This model separated interventions into categories of system, community, provider, and person. These four areas were able to be assessed and modified to provide improved outcomes. Findings showed that cultural tailoring and collaborative care were useful tools to improve outcomes and decrease disparities.

One theme that emerged in culturally adapted intervention literature was difficulty in diagnosing depression in minority populations due to an atypical presentation of symptoms including somatic symptoms instead of traditional mood alterations (Hails et al., 2012; Trinh et al., 2014; VanVoorhees et al., 2007). A tool shown to improve assessment of the somatic symptoms is the PHQ-15 which is an addition to the PHQ-9 screening tool (Interian et al., 2008;

Kroenke, Spitzer, & Williams, 2002). This tool could be a useful cultural adaptation to improve depression screening and assessment for minority populations at this clinic.

Findings from the literature showed that though there is not a common culturally adapted intervention described in all studies, cultural awareness and culturally modified adaptations can be beneficial for patient adherence to treatment and overall outcomes. However, the literature reviewed for this study focused primarily on the Hispanic population and not possible variations for other cultures. Also, there was minimal description of specific cultural adaptations that were performed in the studies. Simply awareness and acknowledgement of the culture was prominent; specific methods or templates for adapting care would be helpful. With the evidence provided, applying culturally adapted methods for behavioral health services could be beneficial to this clinic with high minority population with needs for mental health interventions.

Collaborative Care Model

Archer et al. (2012) conducted a systematic review to evaluate the effectiveness of collaborative care for depression and anxiety. This review assessed 79 randomized control trials assessing collaborative care in the primary care setting. Patients could include adults and adolescents and some studies also addressed co-morbid conditions. To be considered collaborative care, the study had to include a multi-professional approach to patient care, a structured management plan, scheduled patient follow-ups, and enhanced interprofessional communication. Though there is methodological variation between studies in terms of participants, interventions, comparisons and outcome measures, Archer et al. (2012) concluded that there is "clear and robust evidence of effectiveness for collaborative care in improving depression outcomes in the short- and medium-term" (p. 26). This is a high-level study with

compelling evidence that collaborative care is a useful addition to mental health treatment in primary care.

There were multiple studies that assessed patient-preference as a useful screening tool to adapt treatment programs. Dwight-Johnson et al. (2010) found that patients in the collaborative care intervention were 21 times more likely to receive their preferred care type than those receiving usual care. Similar to the cultural adaptation studies, symptom outcomes were not assessed in all studies. However, patient acceptance and adherence to treatment was noted which has shown improvement of outcomes in other studies (Archer et al., 2012; Interian et al., 2008; Lovell et al., 2014). Lagomasino et al. (2017) also based a treatment plan on patient preference for treatment; patients given collaborative care treatment versus those receiving usual treatment in a primary care setting showed statistically significant improvement in depression, quality of life, and satisfaction. This shows that collaborative care and patient preference can influence depression treatment outcomes.

Hails et al. (2012) also performed a systematic review of the use of a collaborative care model to provide more effective mental health treatment with decreased barriers to care. This review assessed 11 studies that examined cross-cultural, collaborative care methods for treatment of depression. This study found that culturally focused collaborative care methods for psychotherapy are effective for improvement in mental health diagnosis and acceptance of treatment for depression for ethnic minority patients.

Wells et al. (2007) performed a longitudinal randomized control trial over the course of nine years to assess disparity in health outcomes for mental health patients. This study assessed use of quality improvements to encourage collaborative care methods for mental health in primary care settings. Minor interventions, such as provider education on mental health, did not

show significant symptom improvement at the initial stages; however, there was significant long-term improvement in depression and quality of life scores at the 5- and 9-year assessments. There was also a significant decrease in disparity of results between minority populations and whites at the 9-year mark when compared to the usual care group (Wells et al., 2007).

Overall, the literature reviewed showed that applying collaborative care methods in a primary care setting can significantly improve patient outcomes in depression, anxiety, and quality of life. However, none of the studies assessed use in a safety-net clinic or volunteer settings. Due to volunteer environment at this clinic, more research in this setting would be beneficial to other safety-net and volunteer organizations. For this project, the collaborative care model is defined as a program made of a patient, primary care provider, and case manager, and supported by other behavioral health clinicians and other resources as needed. Though collaborative care may occur in different forms, various studies and reviews have shown that a collaborative approach comprised of a case manager and an inter-professional team with patient-centered focus can improve outcomes for Hispanic patients with depression.

Conceptual Models

To improve both implementation and sustainability, this project was based on both a theoretical and an implementation model. The theoretical model used was the Collaborative Care Model based on a relationship between the patient, the primary care provider, and a case manager assisting with care and needs for further services (see Appendix F). The implementation model for this project was Kotter's 8-Step Change Model with steps including: establishing a sense of urgency, creating a guiding coalition, developing a vision and strategy, communicating the change vision, empowering employees for action, generating short-term wins, consolidating gains and producing more change, and anchoring new approaches in the

culture (see Appendix G). These models assisted in planning and implementation of this project to improve internal procedure and encourage lasting change.

Theoretical: Collaborative Care Model

Throughout the literature it has been noted that treatment of common mental health problems, which are frequently chronic disorders, is a complex task. This complexity requires collaboration between care teams and services in order to provide holistic, cost-effective, patient-centered care. This need for collaboration inspired the collaborative care model based on the principles of chronic disease management for conditions including diabetes and hypertension (Archer et al., 2012). The collaborative care model can involve multiple interventions including: screening, education of patients, changes in practice routines, and developments in information technology which can be improved by interprofessional collaboration.

Case management is a common theme in collaborative care which has been defined as "a health worker taking responsibility for proactively following up patients, assessing patient adherence to psychological and pharmacological treatments, monitoring patient progress, taking action when treatment is unsuccessful, and delivering psychological support" (Archer et al., 2012, p. 3). This collaboration consists of an integrated, interprofessional team within an organization or appropriate communication between multiple services with the patient, a primary care provider, and a primary "case manager" at the center of behavioral health care (see Appendix F). Overall, research has shown that use of the collaborative care model in a primary care setting can significantly improve patient outcomes in depression, anxiety, and quality of life. This model is also supported by Medicare with encouragement for behavioral health services and collaborative care in primary care settings (Unützer, Harbin, Schoenbaum, & Druss, 2013).

Implementation: Kotter's 8-Step Change Model

Kotter's Change Model (Appendix G) was chosen for change implementation in this project. A literature review was performed with focus on change implementation in healthcare settings using Kotter's Change Model. There were only four articles evaluated with variable goals of change in different healthcare settings. Though there were distinct variables in goals and locations of change in each study, there was a common theme of Kotter's Change Model application.

When reviewing the setting of each study, two studies were performed in inpatient acute care settings (Su, 2016; Small et al., 2016), one was performed in an inpatient mental health setting (Mbamalu & Whiteman, 2014), and one was planned for an outpatient hemodialysis setting (John, 2017). All of the articles described the planning and implementation of interventions using the eight steps of Kotter's Change Model. Discussion of each step of the model and examples will be described. Application of the model will be discussed in the project plan section.

Step 1: Create urgency. The first step of Kotter's Change Model is to create urgency within the organization to encourage change. Creating an awareness of possible crisis can inspire an organization to think about, initiate, and maintain a change (Kotter, 2012). Examples include infection risks and recent outbreaks with risks to patients and staff (Mbamalu & Whiteman, 2014; Su, 2016), staff and teamwork breakdown (John, 2017), and sentinel events at shift change (Small et al., 2016) to create urgency and provoke change. This step can help to begin the cycle of change and inspire staff and volunteers. Urgency can create involvement and guide future implementation of change. Success of this step was assessed by staff and volunteer buy-in and involvement.

Step 2: Form a coalition. The next step in the model is building a team to initiate and drive the change (Kotter, 2012). Each of the articles assessed proposed one or multiple specific teams to assist with the change process. This could include specified teams with assigned duties in the change process (Su; 2016) or recruitment of team members with a passion or vision to assist with the problem (John, 2017; Mbamalu & Whiteman, 2014; Small et al., 2016). This team creation is required to move on to the next step of developing a vision. This was assessed by number of staff and volunteers recruited for the team and reliable involvement.

Step 3: Create a vision. This step requires the guiding coalition to define a picture and logic for possible ways to improve the issue at hand (Kotter, 2012). Each of the studies reviewed had meetings and discussions to create feasible, communicable plans for improving their stated problems. These plans included re-education for policies already in place (Small et al, 2016; Su, 2016) and developing new policies and procedures (John, 2017; Mbamalu & Whiteman, 2014). For this project, the vision would encompass the perfect outcome of all appropriate patients receiving adequate behavioral health services. This vision could include screening and intervention for every patient, at every visit, by every clinician. The strategy for achieving this includes adequate team member involvement with notable passion for future interventions and outcomes.

Step 4: Communicate the vision. In order for change to be successful, the vision and strategy must be communicated to all of the stakeholders in the change. It must be communicated effectively to promote engagement from all staff members involved (Kotter, 2012). Many strategies for communication and education are available including classes, staff meetings, and printed material (John, 2017; Mbamalu & Whiteman, 2014; Small, 2016; Su,

2016). For this project, individual volunteer education interactions and printed materials were used to convey the vision of "every patient, every visit, every clinician."

Step 5: Remove obstacles. Empowerment strategies in the next change management step include removing structural barriers that inhibit the vision of change and providing appropriate training to allow for successful implementation (Kotter, 2012). These obstacles could be financial, special, and time limitations that inhibited the vision (John, 2017). Small et al. (2016) empowered their staff by encouraging communication changes and allowing staff to develop a consistent system that fit their needs. Obstacles for this project were identified as team meetings and process of implementation began.

Step 6: Create short-term wins. Small, short-term wins can show staff that their efforts are worthwhile and that the long-term goal is attainable (Kotter, 2012). These short-term wins can include evidence of problem improvements, celebration with staff, and specific staff benefits such as getting out of work on time and more effective care (John, 2017; Mbamalu & Whiteman, 2014; Small, 2016; Su, 2016). For this project, improvements in screening and intervention rates and improvement in understanding of process displayed short-term wins. This evidence was displayed with a dashboard of charts and graphs made visible for staff and volunteers.

Step 7: Consolidate the change. Because change is a long and ongoing process, identified gains must be acknowledged and further improvement can be encouraged (Kotter, 2012). Each of the studies displayed short term gains but could all continue to improve processes and outcomes with continued action (John, 2017; Mbamalu & Whiteman, 2014; Small, 2016; Su, 2016). This step was identified after completion of the project implementation. As success of short-term wins and possible improvements are discovered, change consolidation and project sustainability were identified.

Step 8: Anchor the changes. After a change is implemented, results may be extremely positive. However, these improvements need to become part of the culture of the organization in order to be maintained long-term (Kotter, 2012). All of the studies assessed were short-term in nature. However, Su (2016) implemented "champions" on the unit to encourage management of practices. Small et al. (2016) had buy-in from most of the nursing staff and continued to support bedside report after the initial study was completed. Finding "champion" staff members (including behavioral health staff and core providers) to continue education and support of this process will be useful to anchor the changes implemented in the project.

Due to the poor rate of effective change in the medical system, change management is a critical tool to create an environment for effective and sustainable change. Also, because of the atypical structure of the clinic for this DNP project, having a change management system in place with appropriate tools and strategies for effective change is beneficial for current and future change. As stated by Kotter (2006, p. 17), "just as a relatively simple vision is needed to guide people through a major change, so a vision of the change process can reduce the error rate. And fewer errors can spell the difference between success and failure." This vision and change process proved to be a useful tool for the clinic in need of continuing effective change.

Need and Feasibility Assessment of the Organization

At the time of conducting the organizational assessment, a need for behavioral health services became clear. A previous DNP project at this clinic found that current rates of screening and follow-up remain low. In January and February of 2017, the rate of charting of PHQ-9 and GAD-7 scores was under 40% and the rate of referral to appropriate services for qualifying patients was under 30% (Hendriksma, 2017). During the organizational assessment, the stated goal for screening at this clinic was every patient at every visit in order to capture all patients that

may benefit from screening and referral. Though behavioral health services noted an increase in charting of screening scores since the previous DNP project, there is still an inadequate number of acknowledgement, referrals, and interventions for positive screenings from the providers. The disparity between screening goals, charted scores, and referrals needed to be addressed.

In order to enhance quality improvement methods and initiate change, a thorough organizational assessment using an appropriate assessment model was performed. Several factors are involved in any change including external environment and organizational culture and resources (Burke & Litwin, 1992). The feasibility and culture for change of this clinic was assessed using the Burke-Litwin Model (see Appendix H) and a strength, weakness, opportunity, threat (SWOT) assessment (see Appendix I).

Burke-Litwin Causal Model

Burke and Litwin (1992) divide variables of change into two separate categories: transformational factors and transactional factors. Transformational factors are those that have a high impact on the organization including: external environment, mission and strategy, organizational culture, individual and organizational performance, and leadership. Transactional factors are defined as operational factors that may or may not have a broad effect on change throughout an entire organization including: structure, systems, management practices, work climate, task and individual skills, motivation, and individual needs and values (Burke & Litwin, 1992).

The twelve variables identified in this model (Appendix H) contribute to the readiness for change in an organization and were used to assess the readiness for change at this clinic. Understanding strengths and weaknesses of these variables within the clinic can assist with planning and implementation of this organizational transitional change process. After close

assessment of each variable, this clinic was noted to be prepared for this change process. Discussion of select key factors from this model for this project follow.

External Environment. One crucial variable for this project was the volunteer staff presence. Quantity and category of volunteered time can vary. In 2016, the clinic relied on 5,907 hours of volunteer service and had an average of 130 active volunteers each month. With only two physicians, one nurse, one medical assistant, one financial navigator, and one receptionist on staff for medical services, the clinic could not function at its current volume without the support of external volunteers. Decrease in volunteer time would greatly decrease number of patients seen at the clinic. These volunteers were an important factor in project implementation and were sought to be involved in the entire process.

Mission and strategy. The 2016-2019 Strategic Plan adopted by the clinic's Board of Directors in January 2016 identified three strategic priorities for the following three years which supported this project. The first goal is to prioritize service to members of the community classified as most in need and disadvantaged who are seeking medical and dental services. The second priority is for the clinic to pursue collaborative opportunities with health and human service organizations to create a more effective and efficient health care system. The final strategic priority is to seek opportunities to provide services in socio-economically disadvantaged areas. All of these priorities support the goals of this DNP project to assist this patient population with a collaborative care method for mental health through use of evidence-based change management strategies.

Leadership. Certain leadership roles were crucial for implementation of this project. The core team leaders work together and meet regularly to be a strong leadership team for the volunteers they support and direct. Since the number of core staff is small, each of these staff

members has a leadership role for volunteers in their area. As the volunteers provide services, staff members are role models and educators for the duties, goals, and behaviors appropriate in the clinic. The volunteer coordinator helps to recruit, orient, and schedule all volunteers available for the clinic. This individual greets and orients volunteers, making this position one of influence in the clinic. There are two social workers coordinating case management and behavioral health services within the clinic. They provide leadership and education for providers addressing mental health issues. Each of these roles contributes to the collaborative care process.

Communication. Communication is an important factor for change implementation. At this clinic, communication occurs formally and informally between clinical staff. Informal discussion with each volunteer was used for individual education of new processes. There is also a weekly medical clinic meeting with for staff to discuss current issues. This meeting was utilized for the dissemination of information for implementation of this project.

Management information system. The clinic has a management information system within their electronic health record documentation system. The clinic uses the Athena Health software system for their medical documentation, scheduling, and billing. This system was used to extract data and assess progress and performance within many areas of the practice. However, the clinic currently does not track many areas of performance. There are no specific quality improvement staff or strategies currently in place. Since the clinic is not dependent on quality of care for reimbursement from services like Medicare or private insurance, they have not made assessment of these qualities a priority. The first activity in this clinic to extract and assess data from the EHR was in the recent DNP project by Hendriksma (2017). This data was used to initiate a clinical dashboard displaying rates of identified essential charting and services provided for patients with specific diagnoses (Hendriksma, 2017).

Performance appraisal. One concern for change implementation was lack of inspiration for practice improvement or outcomes from the volunteers. Volunteers are not paid or formally assessed for performance; therefore, their main reward is the satisfaction of volunteering. This lack of performance appraisal or incentives was one difficulty for the clinic with volunteer education and performance quality. Communication with the volunteers can be minimal since some are at the clinic only once a week or once a month. Volunteers are not involved in staff meetings and do not engage in improvement of outcomes or policy changes. This was shown with a volunteer education and survey email performed for the previous DNP project. Email surveys were sent to volunteer providers and nurses with later email reminders; however, there was only a 14.7% response rate to the surveys showing poor email utilization and response from volunteers (Hendriksma, 2017, p. 41). This identified volunteer engagement as a weakness of this clinic.

Individual and organizational performance. Organizational performance at this clinic is assessed by their profit, productivity, quality improvement, and volunteer engagement. Most of these performance indicators are assessed internally since they are not heavily regulated by insurance or Medicare requirements. The main profit goal is to obtain adequate donations and reimbursements to cover services provided. Recently, a focus on appropriate charting and billing to improve Medicaid reimbursement was initiated.

Strengths, Weaknesses, Opportunities, Threats Analysis

Along with the Burke-Litwin Model, a Strengths, Weaknesses, Opportunities, Threats (SWOT) analysis is a useful tool for identifying the internal strengths and weaknesses along with the external opportunities and threats of an organization. This analysis showed internal and

external factors that could affect corporate planning, solution identification, plan revision, and change implementation (Appendix I).

There were many strengths and opportunities previously identified for this clinic. The strengths include a team-based environment, positive culture to embrace change, engaged team with similar motives to provide quality care, committed and involved leadership, commitment to high-quality, low-cost care, and dedicated staff with leadership roles to direct and educate volunteers. Another strength of the clinic is its small size; implementing change can be more successful on a smaller scale with fewer participants to engage and educate.

A notable strength for this clinic is the recently established behavioral health services. Validated mental health screening tools, (PHQ-9, GAD-7, UNCOPE, and ACE) were recently made available to the clinic in English and Spanish. Case management and counseling were recently made more accessible by hiring a social worker and a counselor on staff. The goal to provide depression and anxiety screening to every patient at every visit was initiated in the past year. This was implemented in congruence with the USPSTF (2017) guidelines for depression and anxiety screening.

Opportunities for this clinic include dedicated clinical volunteers to utilize including computer-fluent volunteer scribes to assist with charting and providing information. The clinical volunteers and scribes are a resource that provides an opportunity to improve education of policy and procedure and documentation systems in order to improve GAD-7 and PHQ-9 documentation rates and referrals. A recent assessment of the documentation and referral rates based on patient GAD-7 and PHQ-9 scores is another opportunity. This assessment was completed within a previous DNP project, which produced a dashboard system to assist with continuing assessment of charting of GAD-7 and PHQ-9 scores as well as rates of referral to

counseling services if scores were above an acceptable level (Hendriksma, 2017). There are many local psychiatric resources available for collaboration when needed for more complex patients. Another opportunity for this project is to embed and utilize change management principles for this project and future use at this clinic.

Weaknesses of this clinic include infrequent and varying involvement of volunteers, minimal use and understanding of the clinic's EHR by some volunteers, and language barriers with patients if interpreters are not available. Since most of the volunteer providers deliver services for only one or two four-hour blocks per month, there is minimal exposure to policy and procedure changes within the clinic. Also, some infrequent providers are not familiar with the EHR used at the clinic. For this reason, volunteer scribes are a critical asset for proper information access and charting in the electronic health record.

External threats to this clinic include the risk of decreased monetary donations and volunteer involvement, high rates of no-show patients (due to transportation issues and language barriers), and high rates of patient non-compliance with suggested medications and care (due to cultural beliefs, cost, and misunderstanding). A major external threat to transitional change in this clinic is poor communication with and education for external volunteers. Due to the infrequency of volunteer time, poor reading and response rates to emails, and focus on other clinical responsibilities (many providers work in other full-time practices), it is difficult to have an efficient and effective education and communication system to share planning and implementation of changes within the clinic. This is where well trained and involved full-time staff members play a strong role in education and communication with the infrequent volunteers.

Stakeholders

Stakeholders are a crucial part of any change or implementation process. The definition of a stakeholder is "a party that has an interest in a company, and can either affect or be affected by the business" (Investopedia, 2017). This can include investors, employees, customers, a community, government or trade association. Stakeholders for this project included all employees, volunteers, and clinic directors, patients, board members, and the broader community; all staff members include the two lead physicians, the lead nurse, the medical assistant, all care coordinators, case management, counselors, the president, and the board of directors.

Each of these stakeholders has a certain amount of power and interest in the change process. A grid displaying these levels of power and interest and the stakeholder role in the implementation process (including manage closely, keep satisfied, keep informed, and monitor) is displayed in Appendix P.

Project Plan

This DNP project focused on two interconnected interventions for this clinic. The first area is behavioral health screening, documentation, and intervention through a collaborative care method. This included development and implementation of a procedure and education materials for behavioral health collaborative care. The second area of focus included change management methods. Development of a change management system at this clinic was performed to improve the change process for this behavioral health intervention and for future change implementations. The goal of this area of the project was to provide a change management toolkit that is applicable for current and future change initiatives.

Purpose of Project

The purpose of this DNP project was to design a change management toolkit paired with a quality improvement program for behavioral health screening, documentation, and interventions using evidence-based, culturally appropriate, collaborative care methods. This quality improvement initiative was implemented using Kotter's Change Model and a correlating change toolkit. The clinical question to be addressed was: Does implementation of a change management model improve interventions including screening, documentation, and intervention rates for behavioral health patients in a safety-net health clinic?

Objectives

Improving both the behavioral health care collaboration and overall change methods was the focus of this project. Outcomes of the project are based on completion of the following objectives by the DNP student:

- Utilize change management principles to impact mental health screening, diagnosis, and intervention practices at this clinic by the end of project implementation.
- Embed and showcase evidence-based change management practices to impact mental health screenings with development of a change management toolkit for future use by clinic leaders throughout implementation of the project.
- Encourage project sustainability and further improvements with dissemination of results of change implementation, a dashboard of behavioral health practices, and a tested change management toolkit to clinical leaders by the end of project implementation.

Type of Project

This DNP project had two quality improvement areas regarding behavioral health collaborative care and change management methods. Quality improvement projects are defined

as organized actions performed to produce measurable improvements in health care services and health outcomes of the targeted population (Human Resources and Services Administration [HRSA], 2011). These measures can be divided into outcomes and outputs. Outcomes are defined as "what is created at the end of a process" (Jones, 2014) which is easily assessed by quantity of product or services. Outputs are defined as "the level of performance or achievement that occurred" (Jones, 2014) which is an assessment of quality of services provided.

Quality measures for outcomes of this project include rates of screening, documentation of screenings, and documentation of diagnoses and interventions for positive screenings following intervention. The quality measure for outputs of this project is appropriate enactment of change management strategies and principles, with creation of educational materials and a change management toolkit for future use within the organization.

Setting and Resources Utilized

This DNP project took place in a small, Midwestern, free-standing safety-net primary care health clinic providing services to uninsured and Medicaid patients. This clinic was established in 1996 to provide care for the underserved population in the area. The clinic relies on many volunteer services to bridge the gap between cost of service and available reimbursements. In 2016, the income from donations was 4 times the income from patient and Medicaid payments. The clinic currently relies on 20 paid staff members and over 130 active volunteers each month to provide care for the underserved population. Services provided include medical, dental, optical, counseling and case management. Over half of all visits to the clinic are for primary care health services. In the year of 2016, medical services were delivered to 2,186 patients providing 5,854 visits for urgent, acute, and chronic medical concerns. The patient population served here has been identified as high-risk for behavioral health disorders. A grant

was recently obtained to support collaborative behavioral health services at the clinic but is in early stages of application.

For this project, resources included collaboration with clinical staff, time of stakeholders for education and participation, EHR quality improvement reports, student time, technology needs, and staff and volunteer education materials. The medical director operated as the clinical liaison and the behavioral health team worked closely with the DNP student for project planning and implementation. Educational materials included printed information, guidelines, and instructions for behavioral health procedures and printed posters for instant access to change implementation information.

Design for the Evidence-Based Initiative

Kotter's 8-Step Change Model (Kotter, 2012) was used to engage all volunteer providers and support staff in the change process while developing a change management toolkit for future application. A description and application of the model for this project is displayed in Table 1 and each step of this model will be described in this section.

Table 1

Kotter's 8-Step Change Model Step Description and Project Application

Kotter's 8 Steps	Step Description	Project Application	Timeline
1. Create Urgency	Creating an awareness of ongoing concern or possible crisis to inspire an organization to think about, initiate, and maintain a change.	Discussed BH concerns with many areas of staff (nursing, spiritual care, BH team, medical director, volunteer coordinator) to gain insight for current process and create awareness of ongoing low rates of screening score charting and interventions.	By January 12
2. Form a Powerful Coalition	Building a team to initiate and drive the change process. It is useful to have members from different areas of the organization to assist with process.	Worked with medical director, BH services, and nursing to discuss areas of concern, current practices, and suggestions for improvement.	By January 19

3. Create a Vision for Change	Define a picture and logic for possible ways to improve the issue at hand.	Provided quick education poster at volunteer and medical work area to define and display need for improvements of our BH screening process.	By January 31
4. Communicate the Vision	Communicate the vision and strategy to all of the stakeholders in the change. It must be communicated effectively to promote engagement from all staff and volunteers involved.	Sent email to all staff and volunteers including quick education poster, screening process packet, and new guidelines for placing screening diagnoses and orders based on screening scores.	By February 28
5. Remove Obstacles	Empowerment strategies for change include removing structural barriers that inhibit the vision of change and providing appropriate training to allow for successful implementation	Provided direct education to each volunteer and staff member to make aware of available material, give quick lesson on why and how the BH process is changing, and allow for direct use of new system and asking questions in real time.	By March 9
6. Create Short-Term Wins	Small, short-term wins can show staff that their efforts are worthwhile and that the long-term goal is attainable. These wins could include evidence of problem improvements and celebration with staff.	Providing of dashboard information to show improvement of screening charting, interventions, and utilization of new order set for all screenings.	By March 9
7. Consolidate the Change	Change is a long and ongoing process, identified gains must be acknowledged and further improvement encouraged.	Providing the change toolkit to assist with continuing and further changes. Maintenance of strong core staff to continue improvement of process and education for all volunteers.	By March 30
8. Anchor the Changes	After a change is implemented, short-term results may be extremely positive. These improvements need to become part of the culture of the organization in order to be maintained long-term.	Maintenance of strong core staff to continue to maintain these changes and continue to educate new volunteers in the process. BH and medical staff have strong buy-in to this project and will continue to support its implementation.	By March 30

Note. BH = Behavioral Health

Step 1: Create urgency. Creating an awareness of possible crisis can inspire an organization to think about, initiate, and maintain a change (Kotter, 2012). Establishing urgency

for this project included education of behavioral health concerns for this population with case study examples including information of high volume and devastation of mental health issues in the served population. Another way to create urgency was remind clinicians of personal licensure risk if high screening scores are not addressed and documented on during a visit. The staff is performing and charting screenings, but if practitioners do not address high scores, their license could be at risk. This education involved printed materials and individual discussion with staff and volunteers.

Step 2: Form a coalition. The next step in the model was building a team to initiate and drive the change (Kotter, 2012). This coalition included the DNP student, the behavioral health team, regular staff, and the medical director. Assistance from volunteers in this coalition for development of the plan was a goal, but due to minimal participation at the clinic and infrequent interaction with other volunteers, this was not achieved. The involvement of the staff physicians and behavioral health team was beneficial for volunteer engagement in this project.

Step 3: Create a vision. This required the guiding coalition to define a mission and strategy for possible ways to improve the issue at hand (Kotter, 2012). The vision for this project was the ultimate goal of adequate behavioral health services for all appropriate patients. This required the mantra of screening and intervention for "every patient, at every visit, by every clinician." The strategy to obtain this vision included working with key stakeholders in development of a behavioral health policy, creation of educational materials, and implementation of education for staff and volunteers. This also involved development of a toolkit to enhance change management methods.

Step 4: Communicate the vision. In order for the change to be successful, the vision and strategy must be communicated to all of the stakeholders and must be conveyed to promote

commitment from all staff members and volunteers involved (Kotter, 2012). This communication began with dissemination of the vision of "every patient, every visit, every clinician." Further communication included emails with description of the project and educational materials, printed materials posted in the clinic, and individual discussion and demonstration of new policies and documentation methods. The change toolkit was also shared with staff and leaders.

Step 5: Remove Obstacles. Empowerment strategies include removing structural barriers that inhibit the vision of change and providing adequate training to allow for effective implementation (Kotter, 2012). These strategies included various education methods to engage all stakeholders, frequent project updates for staff meetings, and regular interaction with volunteer staff to ensure adequate education and engagement.

Step 6: Create short-term wins. Small, short-term wins can show stakeholders that their efforts are worthwhile and that the long-term goal is attainable (Kotter, 2012). These short-term wins included evidence of problem improvements (dashboards) and constant volunteer support from the behavioral health team.

Step 7: Consolidate the change. Because change is a long and ongoing process, identified gains must be acknowledged and further improvement can be encouraged (Kotter, 2012). With successful implementation (dashboard shows improvement in charting and referrals), the practice needs to be supported and maintained. Providing a change method toolkit to management staff and encouraging continued education and support for volunteers and staff are indicated. One deliverable of this project includes changes to behavioral health procedure, educational material, and the change management toolkit.

Step 8: Anchor the changes. After a change is implemented, and results prove to be working, these improvements need to become part of the culture of the organization in order to be maintained long-term (Kotter, 2012). Again, the toolkit for the management staff to support this change culture will be useful for maintaining these new approaches and applying them in the future. Also, continual encouragement and support from core staff to maintain evidence-based behavioral health interventions by every practitioner for every patient at every visit is required. A sustainability plan will be identified and shared in partnership with clinic leaders.

Participants

Participants for this DNP project included interdisciplinary involvement from behavioral health staff, medical staff, volunteer practitioners, support staff and volunteers, and management in order to provide a collaborative care model for behavioral health services. Also, each practitioner and the scribes present received individual discussion and instruction to create personal engagement in the change process in order for implementation to be successful. Patient outcomes were not directly assessed for this project, but rates of patient participation in provided services (screenings and treatment plans) were needed in order to assess care interventions. Two crucial participants were the medical director for the clinic and the behavioral health coordinator, who assisted with the project through ideas for change and mentorship of the DNP student throughout project implementation.

Measurement: Sources of Data and Tools

Data for this project included provider names, PHQ-9, GAD-7, and UNCOPE scores to assess screening rates; diagnoses for patients with positive PHQ-9, GAD-7, or UNCOPE scores to assess clinician acknowledgement; interventions (medication, behavioral health referral, patient refusal) for positive scores to assess clinician action; and rates of use of the newly

implemented International Classification of Disease, Tenth Edition (ICD-10) Z13.9 diagnosis and developed order-set.

The Z13.9 diagnosis of "Encounter for Screening for Other Diseases and Disorder" can be used to gain reimbursement from Medicaid for performing some screenings and is a method to post screenings and results on patient history in the EHR. The diagnosis was recently applied at this clinic to make dates and scores of last behavioral health screening less ambiguous to practitioners and visible in the opening screen of the patient chart. These diagnoses and scores were being added after each encounter by the behavioral health team and students to make previous scores more visible for future encounters. This was a tedious task to assess each patient chart and add these diagnoses and scores individually. Therefore, the Z13.9 diagnosis order-set was developed for this project to decrease the behavioral health team workload and transfer this task to practitioners to apply the diagnosis immediately during an encounter. The order-set developed for this diagnosis includes prompts for behavioral health referrals, patient educational materials, and high-risk screening score reminders.

For this project, there were plans to implement pre- and post-surveys regarding the behavioral health process and suggestions for project improvement from staff and volunteers (see Appendix J). However, availability of volunteers during implementation which allowed only one interaction with each volunteer practitioner made pre- and post-implementation surveys impractical. Therefore, the actual surveys were not implemented. There were less structured discussions performed with providers during the education process for informal assessment of understanding and project improvement suggestions.

Behavioral health data including screening, diagnosis, and intervention rates was gathered by the DNP student from individual patient charts. Data was gathered for five-weeks

prior to the intervention and five-weeks after the intervention was initiated. The DNP student generated tables and run charts to display screening and intervention rates for patient encounters. Results included changes in behavioral health screening (any within the past year; PHQ-9, GAD-7, and UNCOPE at this encounter) and intervention rates (psychiatric diagnoses and interventions; use of the Z13.9 diagnosis at this encounter).

Assessment of effectiveness of Kotter's 8-Step Change Model is displayed based on discussion of implementation of each step in the Design for the Evidence-Based Initiative section. The outcomes of the project can also be used to reflect on the effectiveness of this change management model and utilization of the developed change management toolkit.

Steps and Timeline for Implementation of Project

The goal of this DNP project was to assess effectiveness of a change management model to improve behavioral health services including screening, documentation, and intervention rates for behavioral health patients in a safety-net health clinic. The objectives were to assess staff and volunteer understanding of behavioral health services, implement change process for education of behavioral health services, and assess effectiveness of change process based on documentation rates and practitioner understanding. In order to obtain these goals and objectives for this project, the following steps were developed. A timeline for these actions is included in Appendix K.

1. Meet with the medical director, nursing manager, and behavioral health coordinator to discuss desired behavioral health policy terms by November 30, 2017.
2. Meet with the volunteer coordinator to develop schedule for volunteer education by December 16, 2017.

3. Implement the pre-education survey for staff and volunteer practitioners to assess their understanding of the behavioral health screenings, treatment, and referral processes available at this clinic and create urgency (Step 1) by December 31, 2017.
4. Form a coalition with interested staff and volunteers (Step 2) by December 31, 2017.
5. Assess current mental health screening practices through a report of PHQ-9, GAD-7, UNCOPE, and ACE score documentation rates from December 2017 by January 13, 2018.
6. Perform a chart review to assess documentation of diagnoses, treatment, and referrals for positive screenings consisting of data from December 2017 by January 13, 2018.
7. Create a change management toolkit for current future use by the clinic by January 20, 2018.
8. Identify education needs and develop training modules at this clinic – create a vision (step 3) by January 31, 2018.
9. Implement and assess training modules and education material – communicate the vision (Step 4), remove obstacles (Step 5) by January 31, 2018.
10. Analyze data for changes in behavioral health practices after education and change management implementation by February 14, 2018.
11. Implement the post-education survey to assess changes in knowledge of behavioral health practices by February 28, 2018.
12. Create a dashboard showing results of change implementation on behavioral health practices and use of change management principles – create short-term wins (Step 6) by March 10, 2018.

13. Provide toolkit for future change needs and plan for next steps of behavioral health collaborative care and change management to provide to medical director – consolidate the change (Step 7) and anchor the changes (Step 8) by March 31, 2018.

Ethics and Human Subjects Protection

An application for this project was submitted to the Grand Valley State University (GVSU) Human Research Review Committee's for Institutional Review Board (IRB). This project was determined to be a quality improvement project and not research based (see Appendix L). The student was also given permission to access data and perform interventions by the medical director of the clinic since no IRB was required at this small clinic (see Appendix M). There was also a cover letter composed for the survey involvement of the practitioners that was made to accompany the questionnaire for participation consent (Appendix N). However, official submission of this survey to practitioners did not take place.

Budget

The financial plan for this project consisted of revenue and expenses. Cost for this DNP project included time and resources required of the DNP student to gather data, develop educational and toolkit materials, and implement education to practitioners (see Appendix O). The average hourly rate for family practice physicians in the area is $91 (Salary.com, 2017a); these rates were applied for the assistance required from the medical director and time needed for education of the providers working in the clinic. The time from the behavioral health manager was based on an average hourly rate of $29 (Salary.com, 2017b) determined by the average social worker pay for the area. Time from the Nursing Manager would average $34 per hour (Salary.com, 2017c), IT consultant would average $44 per hour (Salary.com, 2017d), and a

statistician hourly rate would average $25. All of these services were utilized for project development, implementation, and data gathering and interpretation.

Cost mitigation included decreased cost of treatment for patients receiving collaborative care for mental health concerns. There has been previous research on decreased cost, improved outcomes, and improved productivity from collaborative care utilization (Jacob et al., 2012; Unützer et al., 2013). There are varying findings for cost improvement in variable settings, but evidence of an average 6% decrease in cost for short-term behavioral health services when provided with collaborative care services was used for this budget (Jacob et al., 2012). This cost improvement came from utilizing needed services (therapy, correct medications) and decreasing excess use of unneeded primary care services (medication adjustments, psychosomatic symptoms, disability requests). When appropriate treatment for the underlying mental health condition is provided, inappropriate utilization of medical services was decreased (Jacob et al., 2012). Findings from collaborative care model studies also include decreased patient disability and increased patient overall income which is a cost-effective plan for the patients (Jacob et al., 2012).

With a prediction of 20 patients per month with moderate to severe depression and/or anxiety that would benefit from these services and cost of one complex appointment being $348, a 6% decrease in cost for services for this patient group could provide savings up to $418 for one month, $1,253 over the three-month scope of this project, and $5,011 for one year (Healthcare Bluebook, 2017; Jacob et al, 2012). When looking at the long-term revenue of this project, there has been evidence that estimates return on investment (ROI) from implementation of a collaborative care model for mental health services in a primary care setting to average a

staggering $3.02 for two years and $6.5 for five years per dollar spent (Jacob et al., 2012; Unützer et al., 2013).

The budget table displays similar data in both the expenses and revenue columns. This was performed to show that the time and resources (staff, space) needed to support this project is donated from the clinic, staff, and volunteers (revenue). However, there could be an expense to the clinic if staff and volunteers are removed from their regular practices for meetings with the DNP student. Overall, the budget table shows the net operating budget for three months to be $1,213. Though this is only a 0.4% decrease in overall clinic expenses for this quarter, long term outcomes with high ROI projections could be extremely beneficial for this clinic. Sustainability of the project is crucial to the financial benefit.

Project Outcomes

The outcomes of this DNP project were evaluated based on meeting the objectives of this project and answering the stated clinical question. There was also an unplanned formulation of a new order-set for the Z13.9 "Encounter for Screening" diagnosis that became an additional factor to assess for success of change implementation and education. Final data assessed included overall rates of screenings, diagnoses, and interventions.

Objectives Assessment

A major objective was to improve screening, diagnosis, and intervention of behavioral health disorders. To meet this objective, training modules were developed to educate the practitioners along with printed educational materials. Educational sessions were performed for each practitioner and materials were provided through email and posted in paper format at the clinic. Materials developed include updated Behavioral Health Screening Guidelines (Appendix Q), a Quick Education Poster (Appendix R), an Intervention Cheat Sheet (Appendix S), a

Behavioral Health Screening Procedure Education Packet (Appendix T), and an email for project explanation and dissemination of educational material (Appendix U).

Education of practitioners was conducted through personal contact with the clinical staff members and volunteers to make them aware of the new behavioral health procedure, familiarize them with resources available, provide printed information as needed, and answer any questions. Though interacting with every volunteer member was tedious due to variable volunteers every day, this was a crucial aspect of the project to assure that each volunteer was made aware of the new procedure. The necessity of these interactions was observable due to lack of knowledge base when education was implemented. Though information of the new process and educational materials had been emailed to all providers before initiation, most providers were unaware of the changes being made. Individual interactions with all practitioners was an effective way to assure they were aware of the new procedure and materials. The total number of practitioners educated was 11 as well as nine scribes present during education (n=20). Many other support staff and volunteer members present during educational sessions, including medical assistants and nurses, also gained knowledge of the process and educational material location. Improvements in screening and diagnosis rates were used to assess the effectiveness of the education process.

Development and showcasing a tested change management toolkit for behavioral health practice improvement was also obtained. The developed toolkit includes a list and description of all documents (Appendix V), a format for a Quick Education Poster for dissemination of information for desired change (Appendix R), a worksheet in Excel and Word format for applying Kotter's 8-Step Change Model for implementing change (Appendix W), an infographic displaying Kotter's 8-Step Change Model (Appendix X), an Excel worksheet with dashboard examples from the Behavioral Health Project (Appendix Y), and printed quality improvement

education about using a Histogram, Run Chart, and Flow Chart for data display and assessment (Appendix Z).

Improvement in screenings, diagnoses, and interventions for behavioral health disorders was obtained through initial and post-intervention chart reviews. Pre-intervention data was collected weekly for five weeks from December 18 through January 19. This data included rates of any screening (PHQ-9, GAD-7, UNCOPE) performed within the past year and rates of individual screenings at the current encounter to assess overall screening rates (Appendix Y). To assess provider recognition of scores and actions taken, rates of Z13.9 diagnoses for any screenings performed, and mental health diagnoses and interventions for positive screenings noted were also obtained (Appendix Y). The total number of patients seen, number screened, those with positive screenings from pre-intervention data is shown in Table 2.

Table 2

Total numbers of patients seen, screened on encounter, and screened positive on encounter

	Total number of patients seen (N)	Total number of those screened	Total number of positive screenings
Pre-intervention	202	111	45
Post-intervention	227	157	53

To evaluate improvements in behavioral health practices after education and change management post-intervention data collection and analysis were performed. Post-intervention screening and diagnosis practices were compared to pre-intervention data collected. Patient chart reviews were performed for five weeks after initiation of the educational intervention (January 22-February 23). Rates of screenings, Z13.9 diagnoses for screenings performed, and mental health diagnoses and interventions for positive screenings were obtained. Table 2 provides post-intervention values for number of patients seen, number screened, and number of

positive screenings. Figure 1 contains average percentages of all screenings performed comparing pre- and post-intervention data.

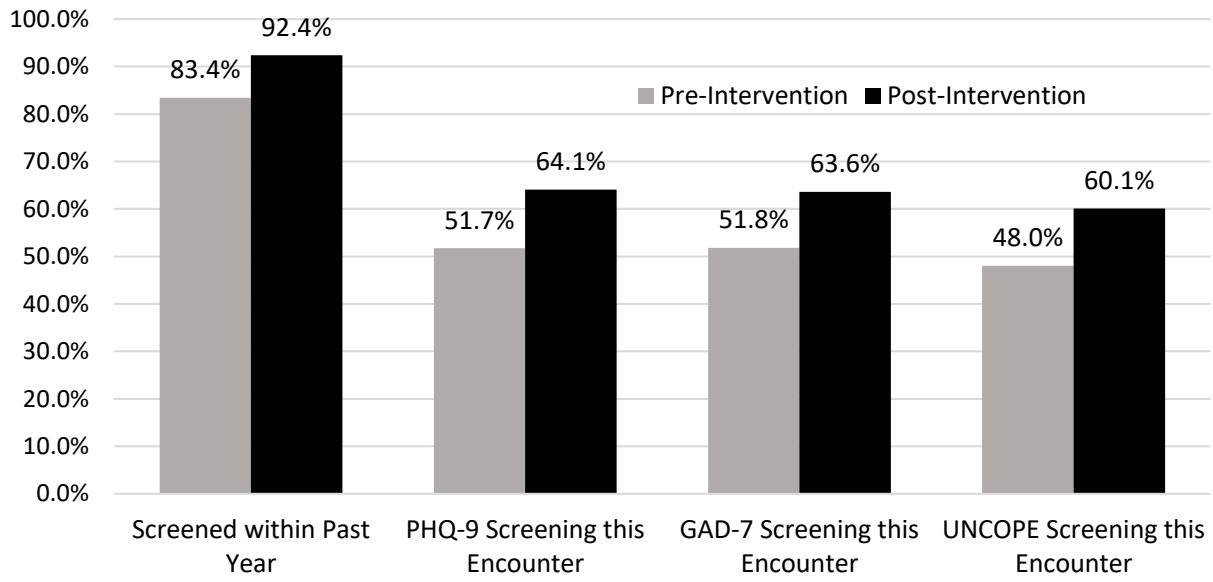

Figure 1. Comparison of Average Percentages of Screening Rates Before and After Intervention

Average pre- and post-intervention rates of practitioner documentation of diagnoses and interventions for positive screenings as well as rates of Z13.9 diagnoses based on number of screenings are displayed in Figure 2. Interventions included any behavioral health referrals, psychiatric medication prescriptions, and discussion of care planning along with a psychiatric diagnosis. The average rate of pre-intervention diagnosis was 56.5% and the average use of the Z13.9 diagnosis was only 4.1%. The low rate of Z13.9 use was not unexpected due to absence of a policy to use this diagnosis before initiation of intervention. Discussion of significance of improvements following project intervention will follow.

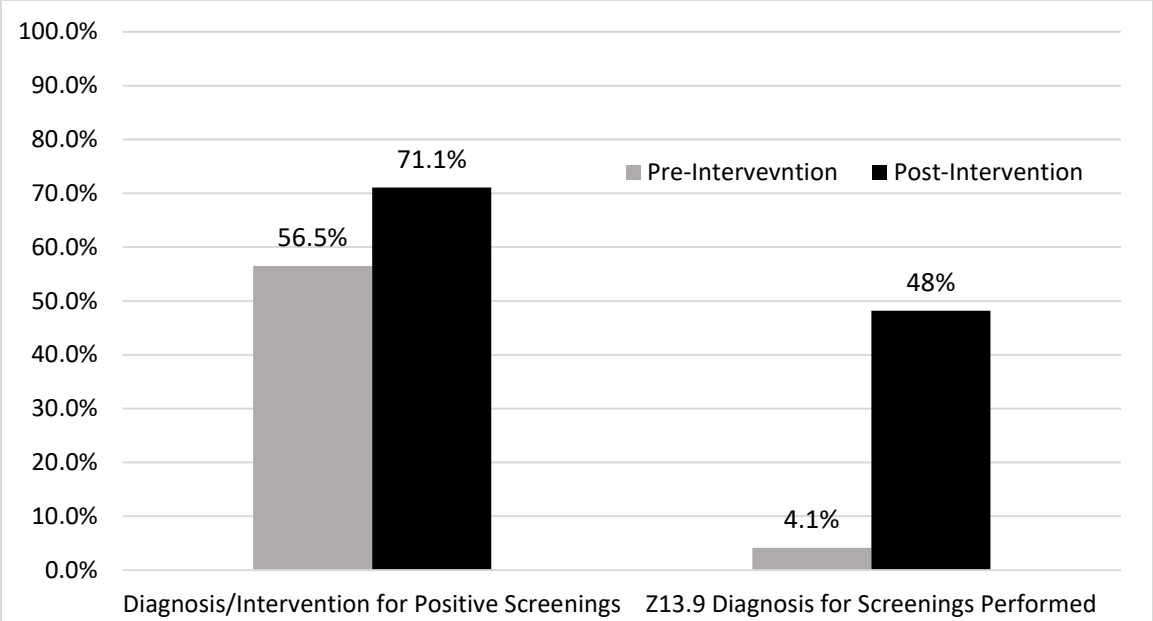

Figure 2. Comparison of Average Percentages of Diagnosis and Intervention Rates Before and After Intervention

There were higher rates of all screenings and diagnoses following intervention initiation. The weekly variations in these rates with note of initiation of intervention are displayed with trend lines in Figures 3 and 4. Figure 3 displays rates of screenings within the past year and on the current encounter which indicates that at least one of the screenings was performed (PHQ-9, GAD-7, and UNCOPE). All charts along with tables of specific data were displayed as a dashboard in the clinical area and given to the project stakeholders which met the objective of providing results of change through creation of a dashboard (Appendix Y).

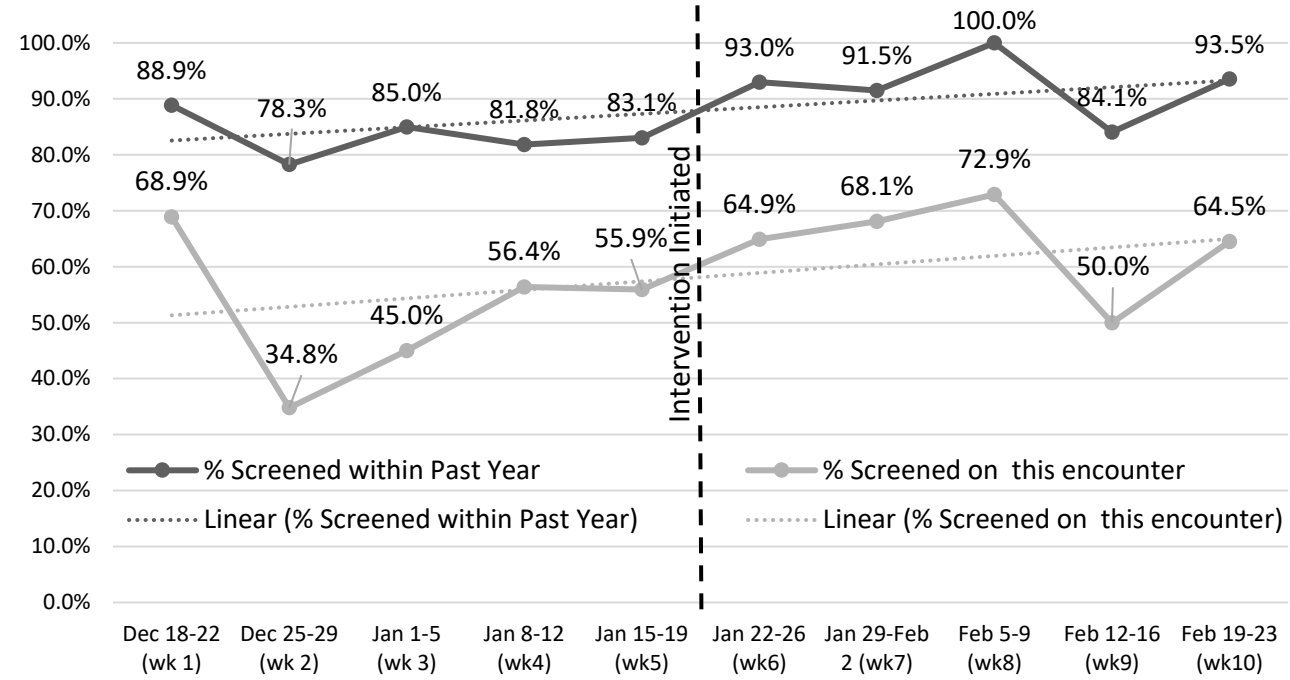

Figure 3. Weekly Rates of Screenings within the Past Year and on this Encounter

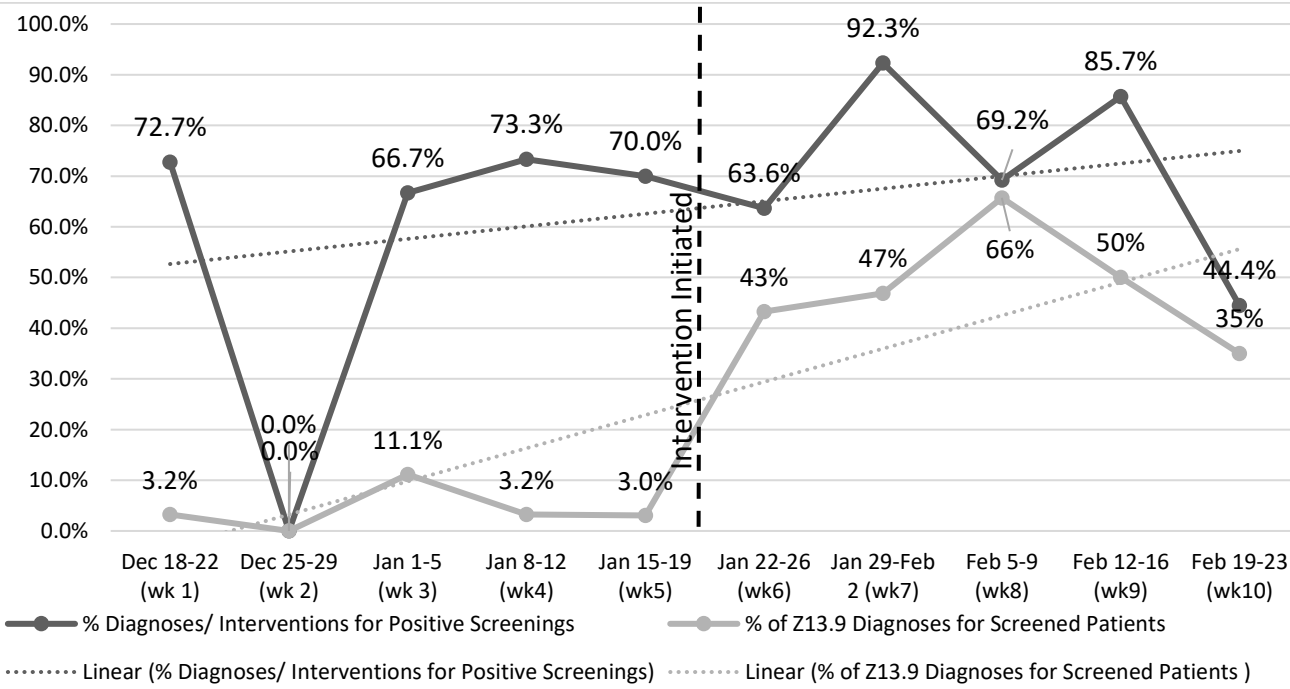

Figure 4. Weekly Rates of Behavioral Health Diagnosis and Intervention and Z13.9 Diagnosis

Significance of these increases was analyzed using SAS™ software in collaboration with the statisticians at the university. An Odds Ratio (OR) comparison was used to compare rates of

documentation before and after the intervention. The ORs were computed using the average of percentages of occurrences (screenings, interventions, diagnoses) from the five weeks prior to intervention and five weeks after intervention initiation. All rates of screenings, including screenings performed in the past year, PHQ-9 screenings, GAD-7 screenings, and UNCOPE screenings, showed significant increase in occurrence within a 95% confidence interval. Values are displayed in Table 3.

Table 3

Odds Ratio and Relative Risk for Screenings

Screenings Performed in Past Year					
	Value	95% Confidence Interval		z-statistic	p-value
Odds Ratio	2.42	1.61	3.63	1.88	0.0428
Relative Risk	1.11	1.06	1.16		
PHQ-9 Screening Performed this Encounter					
	Value	95% Confidence Interval		z-statistic	p-value
Odds Ratio	1.66	1.29	2.14	1.71	0.0429
Relative Risk	1.24	1.11	1.38		
GAD-7 Screening Performed this Encounter					
	Value	95% Confidence Interval		z-statistic	p-value
Odds Ratio	1.63	1.26	2.09	1.71	0.0429
Relative Risk	1.23	1.10	1.37		
UNCOPE Screening Performed this Encounter					
	Value	95% Confidence Interval		z-statistic	p-value
Odds Ratio	1.63	1.27	2.10	1.70	0.0592
Relative Risk	1.25	1.12	1.41		

The statistically significant increase in screening documentation rates was somewhat unexpected. Rates of screenings has already improved recently, so rates of screening documentation were already somewhat high prior to project implementation. The increase in

screening documentation suggests that the education was beneficial to the clinical support staff implementing these screenings as well as the practitioners.

The main focus of the project intervention was on the changes in diagnosis and intervention for positive screenings from the practitioners. Increases in these rates were also analyzed with an OR to compare rates of documentation before and after the intervention (Table 4). The OR for diagnosis and intervention suggests that practitioners were almost 2 times more likely to perform appropriate diagnoses and interventions for positive behavioral health screenings after project implementation.

Table 4

Odds Ratio and Relative Risk for Diagnoses and Interventions

Diagnosis and Intervention for Positive Screenings					
	Value	95% Confidence Interval		z-statistic	p-value
Odds Ratio	1.89	1.45	2.45	2.05	0.0276
Relative Risk	1.26	1.14	1.38		
Z13.9 Diagnosis for Screenings Performed					
	Value	95% Confidence Interval		z-statistic	p-value
Odds Ratio	21.77	13.53	35.02	5.65	<0.0001
Relative Risk	11.76	7.62	18.14		

The increase in application of the Z13.9 diagnosis for screenings performed was also analyzed with an OR (Table 4). The OR for this diagnosis was the most substantial of the results. This OR suggests that the likelihood of use of the Z13.9 diagnosis after the intervention is almost 22 times more likely than before the intervention. This dramatic increase in use of the new diagnosis and order-set suggests that the educational intervention for the practitioners was effective. Change management planning was utilized throughout the implementation process and correlates with the positive outcomes in each area of this project.

Clinical Question Assessment

The clinical question posed for this project was: Does implementation of a change management model improve interventions including screening, documentation, and intervention rates for behavioral health patients in a safety-net health clinic? The outcomes discussed above show that the implementation of Kotter's Change Model including use of staff collaboration, educational material development, and individual volunteer education correlated with significant short-term improvements in the behavioral health process. Significant increases were seen in all areas of screening and diagnosis rates following project implementation.

Implications for Practice

As previously noted, mental health disorders are common in the primary health care setting. Depression and anxiety can be debilitating, comorbid, chronic disorders that need multifactorial treatment for successful care (Pratt & Broody, 2014; Unützer et al., 2013). Patients in low-socioeconomic status, minority populations, and with language barriers are at a higher risk for mental health disorders and have a lower rate of diagnosis and treatment for these disorders (Pratt & Broody, 2014; Pratt et al., 2011). This population is also less likely to have access to psychiatric specialty services and more likely to present with mental health concerns to their primary care provider (Unützer et al., 2013).

The USPSTF (2016) has recommended for adults to be screened regularly for depression and anxiety; screenings must occur in facilities with means for diagnosis, treatment, and follow-up if suggested by screenings. Research has shown that application of collaborative care models may improve patient compliance and overall outcomes including mental health and other comorbidities (Archer et al., 2012; Interian et al., 2008; Lovell et al., 2014). This clinic has a

perfect setting to provide collaborative care with patient, primary care, and case management through screening, diagnosis, and intervention for the high-risk patients they serve.

Project coordination by the DNP student resulted in demonstrating change management in order to make this a successful collaborative intervention. Official procedure development, educational material development, and change management toolkit development for mental health screenings and future change management was performed by the DNP student. Use of these materials demonstrated benefits for the clinic. Provision of the change management toolkit to all appropriate stakeholders can assist with future change management endeavors.

Implications for this practice include improved patient outcomes based on higher screening, diagnosis, and intervention rates. Quality improvement application can increase patient access to behavioral health services and provide better patient outcomes for mental and physical health. These outcomes are not only beneficial to this clinic but may be applicable to other safety-net and free clinics using varying or volunteer services for underserved populations. Data analysis for this project did not include overall mental health improvement due to the time limits of the study. However, the data does show that collaborative care and involvement of behavioral health services is a successful first step to make providers more aware of behavioral health concerns and involve them in the collaborative care process.

Summary of Successes and Difficulties Encountered

This project was successful in improvement of overall screening, diagnosis, and intervention rates. This project implementation produced more immediate involvement of staff and volunteers than previous attempts of behavioral health education and change. These improvements also demonstrate the success of implementing change management application for project planning and management. Deliverables, including education materials and a change

management toolkit, were also strengths of this project. Discussion of the existing screening and intervention process with the behavioral health team inspired some changes in the process. These changes were provided to staff and volunteers through printed materials and initiation of a new diagnosis and order-set. This printed material and diagnosis order-set provided solidity and clarity of the new process to make it accessible for staff and volunteers.

The major challenge for this project was the infrequency and variability of volunteers throughout the implementation process. This inconsistency required frequent education and dramatic variability in diagnosis rates from week to week due to lack of involvement from a few of the providers. Some practitioners were very open to the new process and applied it easily. Others had less buy-in to the process and were less proficient in the EHR system which caused difficulty in education of the changes. Minimal use of the Z13.9 from specific practitioners following the intervention was noted during chart reviews.

Another challenge was difficulty of data extraction. The available reports generated by the EHR system did not provide the current PHQ-9, GAD-7, and UNCOPE scores charted. Due to changes in location of charting and scoring methods, this information was not able to be generated. Therefore, individual chart audits were required to obtain accurate and current information.

Sustainability

This project shows sustainability through practices implemented for education and change in behavioral health. There has been support and buy-in for this project stated by many of the stakeholders. The medical director, staff members, and behavioral health team have all given positive feedback and personal utilization of the process throughout the project. The development of deliverables including a change management toolkit and printed educational

materials contributes to project sustainability. Increasing knowledge of the change management process and ability for application in future change also contribute to sustainability. No current plans for change are in place, but this toolkit can be utilized at any time.

This project will also be sustainable due to dedicated support from the behavioral health director and stated plans for future use of education and encouragement for staff and volunteers. The behavioral director was supportive and involved throughout the process and was provided files of all educational materials, progress reports, and the change management toolkit to assist with continuing education and monitoring of progress. The Behavioral Health Director regularly precepts social work students. He can utilize their skills to continue to monitor progress, continue education, and change procedures and order-sets as needed. The Behavioral Health Director has voiced hopes to continue to enforce the current process and does not want to implement more change until this process is reliable from most practitioners (Kotter's Step 8: Anchor the Changes). The medical director and nursing manager were also given all developed files with emphasis on the Change Management Toolkit for future application in change endeavors.

Relation to Other Healthcare Trends

As noted in the literature review of collaborative care methods, the concept of direct behavioral health involvement in primary care is a growing and proven healthcare trend (Archer et al., 2012; Hails et al., 2012). Behavioral health services within this clinic are being utilized to provide immediate and effective interventions. Another healthcare trend is recommendation for frequent screening for common mental health issues when these behavioral health services are available (USPSTF, 2016). Implementation of education demonstrated improved rates of screenings and the application of diagnosis and treatment in this project. The change

management toolkit and educational materials could be applicable in other healthcare settings to improve change and increase behavioral health screening and intervention rates.

Limitations

One limitation of this project is the atypical nature of this safety-net clinic. Though it has many typical features of a primary health clinic with embedded behavioral health services, the volunteers are an atypical feature. This may be a weakness of this project that could mean a more effective intervention process for a clinic with consistent staff and practitioners. However, due to implementation in a volunteer-based clinic the project may not be directly applicable to a typical primary care environment.

Also, the time constraints of the study make sustainability of the project difficult to assess. Screening and diagnosis changes were usually measured only on the same shift on which a volunteer was educated due to infrequent volunteer presence at the clinic. This makes it difficult to assess if they will apply these processes on their next volunteer session. However, the core staff and behavioral health team are dedicated and can assist in maintenance of these processes.

Enactment of DNP Essentials

In addition to evaluating the behavioral health processes and change management methods, this project was assessed through application of the American Association of Colleges of Nursing (AACN) DNP Essentials (2006). The DNP Essentials state a primary goal of leadership and dissemination of nursing knowledge (AACN, 2006)

Essential I (Scientific Underpinnings for Practice) calls for integration of nursing science with knowledge from multiple sciences, use of science-based theories to understand and enhance health care delivery and evaluate the outcomes, and development and enhancement of new

practice approaches (AACN, 2006). Essential I was achieved in this project by performing a literature review and using the knowledge gained to develop and implement a new behavioral health screening and intervention process and to evaluate the outcomes.

Essential II (Organizational and Systems Leadership for Quality Improvement and Systems Thinking) focuses on developing and evaluating care delivery models. This essential focuses on ensuring accountability for the quality of care provided, using advanced communication skills to lead quality improvement and safety initiatives, and developing and implementing effective, system-wide initiatives which improve the quality of care delivery (AACN, 2006). Essential II was attained through a second literature review and application of Kotter's Change Model which assisted with development of a change management toolkit. This project aspect was also implemented and assessed for effectiveness and sustainability.

Essential III (Clinical Scholarship and Analytical Methods for Evidence Based Practice) identifies translation of research into practice through use of information technology to collect and analyze data and participation in collaborative research to disseminate findings as required activities of DNP graduates (AACN, 2006). Determining behavioral health needs and developing an appropriate procedure and change management system through organizational assessment and literature review comply with this essential and competency. Collaboration with the behavioral health team, presentations, and publishing in ScholarWorks are also congruent with these requirements.

Essential IV (Information Systems/Technology) emphasizes demonstration of technical skills to develop and execute an evaluation plan for data extraction and evaluating health information for accuracy, timeliness, and appropriateness. This essential was displayed through assessment and use of the available EHR system for data extraction. Discovery of inaccuracy of

reportable information occurred during the data extraction process. This EHR flaw was evaluated and a new system for more appropriate and accurate information was developed. The timeliness of this data extraction was poor and could be addressed with the EHR company to improve future data extraction.

Essential V (Health Care Policy for Advocacy in Health Care), includes advocating for social justice, equity, and ethical policies within all arenas (AACN, 2006). This essential was applied in the development of screening and diagnosis practices provided for all patients served at this clinic. This procedure increased equity of healthcare for this underserved, high-risk population.

Essential VI (Interprofessional Collaboration for Improving Patient and Population Health Outcomes) prepares a DNP student for effective communication and collaborative practice for development and implementation of practice guidelines and to lead intra- and interprofessional teams to create change in complex healthcare delivery systems (AACN, 2006). This was a strong essential applied in this DNP project. There was constant collaboration with the behavioral health team to develop and implement a new practice model for screening and diagnosis. There was also intra- and interprofessional collaboration with nursing and medical directors to develop and improve change management processes within the organization.

Essential VII (Clinical Prevention and Population Health for Improving the Nation's Health) defines analysis of scientific data for improvement of population health and evaluation of care delivery models for various community, socioeconomic, and cultural factors in healthcare as important (AACN, 2006). This project focused on the underserved population seen at this clinic including minority and low socioeconomic patients to apply appropriate behavioral health practices for improvement of community mental health. This was displayed through the quality

improvement project with the focus of the literature review, organizational assessment, and proposal planning on culturally adapted behavioral healthcare methods.

Essential VIII (Advanced Nursing Practice) focuses on systematic assessment of health and illness with culturally sensitive approaches and analytical assessment of practice, population, fiscal, and policy issues. This essential was applied throughout the entire project experience. Each element including literature review, organizational assessment, proposal presentation, and project implementation displayed assessment of a culturally sensitive behavioral health issues and developed new procedures for behavioral health screenings and interventions as well as change management policy. These aspects were analyzed for effect on individual practice, community population, and fiscal implications.

Plans for Dissemination of Outcomes

The AACN (2006) suggests dissemination of evidence-based nursing knowledge for current use in practice in its publication highlighting the Doctor of Nursing Practice Essentials. As stated in AACN DNP Essential III, Clinical Scholarship and Analytical Methods for Evidence-Based Practice, a primary aspect of DNP education include interpretation of current, applicable research into practice, frequent assessment of this practice, continual improvement of healthcare practices and outcomes, and understanding and participation in collaborative research (AACN, 2006). Plans for dissemination of this project include poster presentations, project defense, ScholarWorks publication, and possible journal publication. These methods will help to direct future practice related to mental health services including collaborative care and cultural adaptation in primary care settings as well as change management methods.

Mental health is a prominent issue that affects a significant part of the population in the United States. Primary care providers have a foremost position for diagnosis and treatment of

common mental health disorders including depression, anxiety, and substance abuse. Providing behavioral health policies, education, and resources for primary care providers can improve patient screening, diagnosis, and intervention rates. More efficient and effective interventions can lead to better patient outcomes for mental and physical health for this specific population as well as other populations served in primary care.

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Appendix A

Hierarchy of Evidence Table

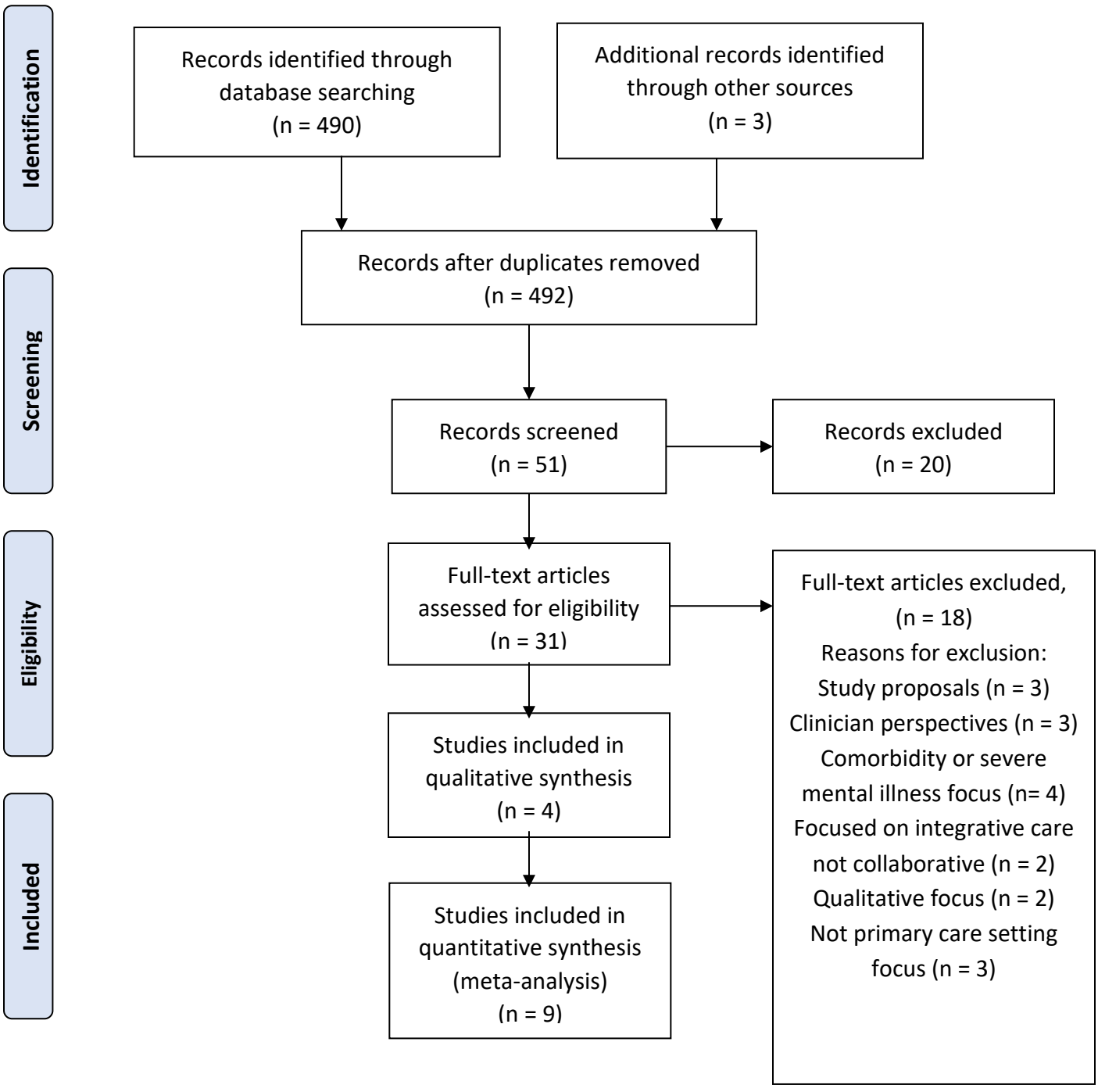
Hierarchy of Evidence for Intervention Studies

Type of evidence	Level of evidence	Description
Systematic review or metaanalysis	I	A synthesis of evidence from all relevant randomized, controlled trials.
Randomized, controlled trial	II	An experiment in which subjects are randomized to a treatment group or control group.
Controlled trial without randomization	III	An experiment in which subjects are nonrandomly assigned to a treatment group or control group.
Case-control or cohort study	IV	Case-control study: a comparison of subjects with a condition (case) with those who don't have the condition (control) to determine characteristics that might predict the condition. Cohort study: an observation of a group(s) (cohort[s]) to determine the development of an outcome(s) such as a disease.
Systematic review of qualitative or descriptive studies	V	A synthesis of evidence from qualitative or descriptive studies to answer a clinical question.
Qualitative or descriptive study	VI	Qualitative study: gathers data on human behavior to understand *why* and *how* decisions are made. Descriptive study: provides background information on the *what*, *where*, and *when* of a topic of interest.
Opinion or consensus	VII	Authoritative opinion of expert committee.

Table. Hierarchy of Evidence for Intervention Studies. Fineout-Overholt, E., Melnyk, B. M., Stillwell, S. B., & Williamson, K. M. (2010). Used with permission from Wolters Kluwer Health.

Appendix B

PRISMA Flow Diagram: Psychiatric Interventions



Appendix C

Literature Review Table: Psychiatric Interventions

Author (Year)	*Title*	Theme	*Design and Methodology*	*Sample Size and Description*	*Interventions and Measurements*	*Major Findings*	*Limitations*
Antoniades, Mazza & Brijnath (2014)	Efficacy of depression treatments for immigrant patients: results from a systematic review	Cultural Adaptation/ Collaborative care	Systematic review of culturally adapted psychotherapy and collaborative care models for Hispanic population (Level V)	n=15 original research articles; 9 quantitative, 5 mixed methods, 1 qualitative	Investigated depression interventions in first generation immigrants including psychotherapies and collaborative care models; some studies showed culturally adapted interventions	Culturally adapted psychotherapy provided decrease in depressive symptoms and increased participation and follow-up; collaborative care methods did not show significant improvement in depression	Only included first-generation immigrant populations; mostly studies with small sample size; diverse methodological approaches in studies, most not RCT.
Archer et al. (2012)	Collaborative care for depression and anxiety problems	Collaborative care	Systematic review of RCTs assessing collaborative care (Level I)	n=79 RCTs including 24,308 participants; variable age, race, diagnoses, and assessment modalities	Comparison of outcomes of studies using collaborative care versus usual care for adults and adolescents with depression, anxiety, and/or quality of life changes	Collaborative care showed greater improvement in symptoms, quality of life, and medication compliance for adult patients with depression and anxiety for up to 2 years following treatment	Complexity of collaborative care is difficult to define, "usual care" is also difficult to define, inclusion and exclusion criteria may affect results, no specifics on age or race related differences in outcomes
Bedoya et al. (2014)	Impact of a culturally focused psychiatric consultation on depressive symptoms among Latinos in primary care	Cultural Adaptation	RCT of culturally focused psychiatric intervention compared to traditional care for depression symptom changes (Level II)	n=118 Spanish monolingual speakers with depression	2-session culturally focused psychiatric treatment compared to traditional care measured with Quick Inventory of Depressive Symptomatology–Self Rated (QIDS-SR)	Depressive symptoms remained in the moderate range for both groups, but was symptom reduction was significantly greater for the intervention group; even a short intervention of CFP can improve depressive symptoms	Short intervention in terms of psychotherapy (only 2 sessions); relatively small sample size from one site; treatment was PCP versus psychiatry, different areas of medicine providing care, not just cultural adaptation

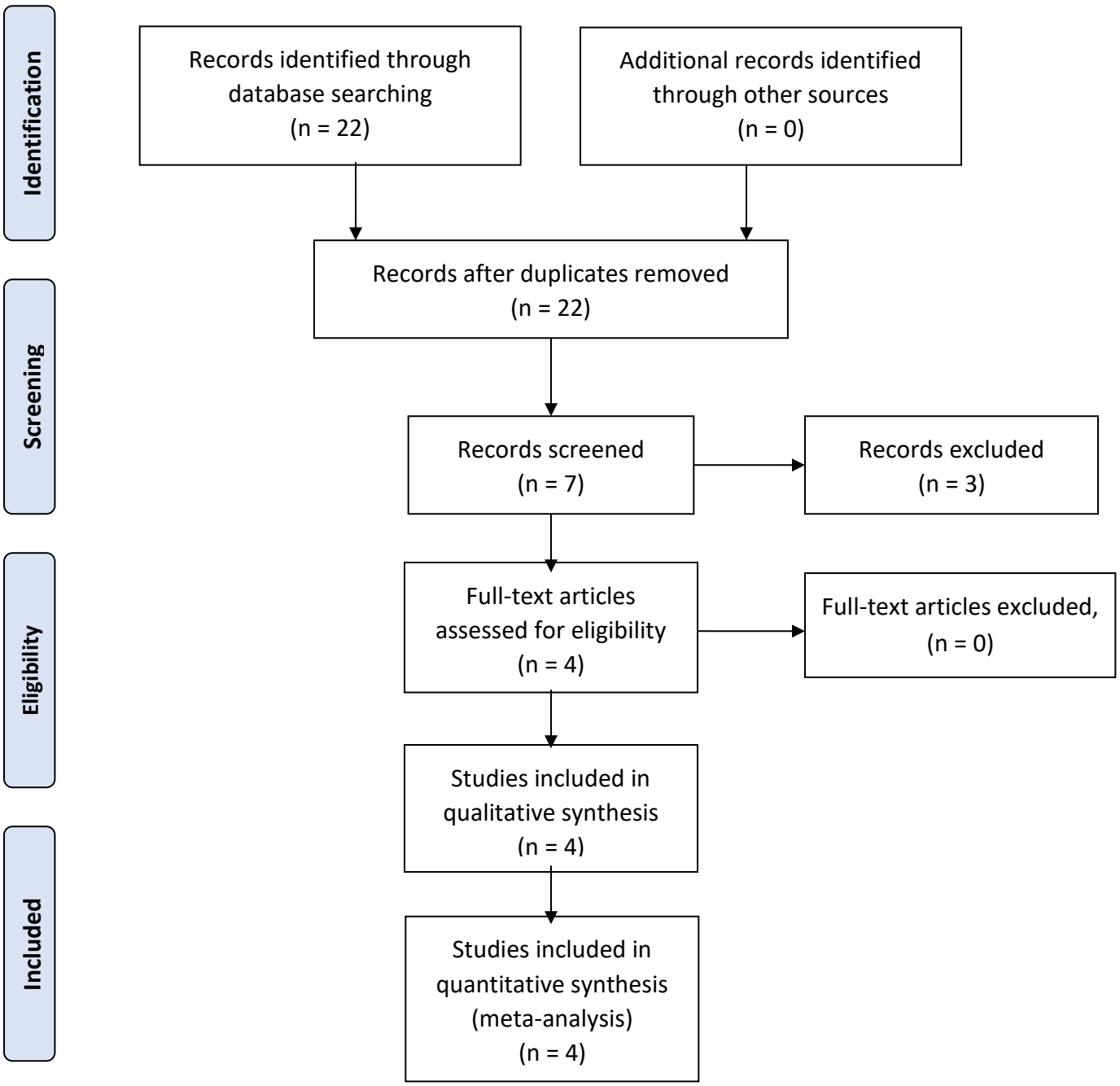
Author (Year)	*Title*	Theme	*Design and Methodology*	*Sample Size and Description*	*Interventions and Measurements*	*Major Findings*	*Limitations*
Dwight-Johnson et al. (2010)	Effectiveness of collaborative care in addressing depression treatment preferences among low-income Latinos	Cultural Adaptation/ Collaborative Care	RCT comparing use of patient preference to direct care in collaborative care versus enhanced usual care (Level II)	n=339 Latino patients with depressive symptoms	Treatment preference survey; assessment of type of treatment given (counseling, medication, or counseling and medication); measurements based on survey responses	Collaborative care interventions provided higher rates of preferred treatment for patients (intervention group was 21 times more likely to receive preferred treatment)	Study does not assess depression results, just if treatment received was similar to patient preferences
Hails et al. (2012)	Cross-cultural aspects of depression management in primary care	Cultural Adaptation/ Collaborative care	Systematic review of qualitative studies regarding collaborative care models and culturally tailored treatment plans (Level V)	n=11 studies examining cross-cultural depression management	Comparison of collaborative care models culturally tailored to provide treatment for depression for minority populations	Collaborative care, culturally tailored collaborative care and other culturally sensitive therapies were shown to improve outcomes for depression in minority populations	Study compared different forms of collaborative care and other psychiatric therapies, may not be consistent types of therapy; findings were generalized across many minority groups, may not be accurate for all groups
Holden et al. (2014)	Toward culturally centered integrative care for addressing mental health disparities among ethnic minorities	Cultural Adaptation/ Collaborative care	Expert opinion on culturally centered and collaborative care methods in mental health for ethnic minorities (Level VII)	N/A	Proposal of a comprehensive, innovative, culturally centered integrated care model to address the complexities within the health care system causing disparities in mental health care	The proposed model will be useful for health practitioners, contribute to the reduction of mental health disparities, and promote better mental health and well-being for ethnic minority individuals, families, and communities	Simply an expert opinion, no actual research performed
Interian, Allen, Gara & Escobar (2008)	A pilot study of culturally adapted cognitive behavior therapy for Hispanics with major depression	Cultural Adaptation	Cohort study to assess outcomes of culturally adapted CBT for Hispanic patients with depression. (Level IV)	n=15 Hispanic patients with depression; 12 retained for full study	Pre- and post-test of BDI-S, BAI and PHQ-15 scores including depressive, anxious, and somatic symptoms; retention rates	57% mean reduction of depression symptoms at posttreatment; treatment retention rates acceptable (73%)	Small sample size; not a controlled trial; pilot study suggesting future, more rigorously controlled studies of the intervention.

Author (Year)	*Title*	Theme	*Design and Methodology*	*Sample Size and Description*	*Interventions and Measurements*	*Major Findings*	*Limitations*
Lagomasino et al. (2017)	Effectiveness of collaborative care for depression in public-sector primary care clinics serving Latinos	Cultural Adaptation/ Collaborative care	RCT comparing depression outcomes of patients given collaborative care treatment versus enhanced usual care based on patient preference (Level II)	n=400 Latino patients with depression	A collaborative care team approach providing regular screening, education, and CBT was the intervention; enhanced usual care included printed information given, referral to primary care for treatment; depression measured with PHQ-9.	Patients in the intervention group had statistically significant improvement in depression, quality of life, and satisfaction outcomes; case managers with no previous mental health training were effective at providing CBT for improved depression	Many potential participants refused screening or intervention which could limit generalizability of results
Lovell et al. (2014)	Development and evaluation of culturally sensitive psychosocial interventions for under-served people in primary care	Cultural Adaptation	RCT; assessment of referral and recruitment rates, uptake and delivery of the intervention, outcomes, and acceptability of the culturally adapted intervention per user and provider (Level II)	n=57 ethnic minority or elderly patients positive for depression and anxiety	Developed and implemented a culturally sensitive "wellbeing intervention" versus usual care based on patient preferences; measurements were based on CORE-OM, PHQ-9, and GAD-7 scores	Improvement in GAD-7 and PHQ-9 scores (anxiety and depression, respectively) in ethnic minority groups receiving culturally adapted care; patient and facilitator response to individual and group therapies were positive	Trial was in England, may be less applicable to minority population in the US; was focused on minority groups but not specifically Latino
Ramos & Alegría (2014)	Cultural adaptation and health literacy refinement of a brief depression intervention for Latinos in a low-resource setting	Cultural Adaptation	Cohort study to develop culturally adapted education material; data was part of a larger study assessing depression treatments for Latino population (Level IV)	n=11 Latino patients with PHQ-9 score of 10 or higher with no previous mental health interventions for past 6 months	Material changes were based on feedback gathered throughout clinical trial; qualitative data to assist with creating culturally appropriate tools for depression treatment	Cultural adaptations for material included condensation of the sessions, review, and modifications of materials including the addition of visual aids, culturally relevant metaphors, values, and proverbs; suggestions can be used as a process for culturally adapting health information for the Latino population.	Did not test how the intervention worked before the adaptations, which limits the comparisons about its effectiveness; did not assess outcomes after the full clinical trial; simply outlines the process of how material was culturally modified, does not show depression results of material or sessions

Author (Year)	*Title*	Theme	*Design and Methodology*	*Sample Size and Description*	*Interventions and Measurements*	*Major Findings*	*Limitations*
Trinh et al. (2014)	A study of a culturally focused psychiatric consultation service for Asian American and Latino American primary care patients with depression	Cultural Adaptation	Cohort study using qualitative and quantitative analysis of depression outcomes and patient satisfaction regarding culturally focused treatment plans (Level IV)	n=63 Latino-American patients positive for depression on a PHQ-2 screen at their PCP; 56 completed follow up visit, 29 completed qualitative interview	Culturally focused psychiatric consultation and education toolkits over 2 visits and one follow up call in 6 months; assessment of patient satisfaction and symptom improvement	96% of sample were satisfied with results; 98% stated clinician was culturally sensitive; 85% stated their understanding of depression improved; 98% would recommend treatment option to others	Questions were based on opinion, no reassessment of PHQ-2 scores was discussed, no discussion of other treatments involved or actual depression outcomes
Van Voorhees, Walters, Prochaska, & Quinn (2007)	Reducing health disparities in depressive disorders outcomes between non-Hispanic whites and ethnic minorities	Cultural Adaptation/ Collaborative care	Systematic review of depression interventions for the ethnic minority population. (Level I)	n=73 articles describing interventions to remove ethnic disparities in mental health treatment in primary care	Evaluated psychotherapy interventions, preventative interventions, and collaborative care methods for depression	Case management and socioculturally tailored screening and treatment along with multi-component treatment methods produce better overall outcomes; preventative culturally tailored CBT is useful to prevent recurrent depression	No standard approach, measurement, or training across studies; though showing positive outcomes, not all similarly measured
Wells et al. (2007)	The cumulative effects of quality improvement for depression on outcome disparities over 9 years: Results from a randomized, controlled group-level trial	Collaborative Care	Longitudinal RCT over 9 years based in primary care settings (Level II)	n=1188 initially enrolled and living patients depressed at baseline; data from primary care settings	Data from another study based on depression outcomes following changes in care management in treatment; assessment of outcomes were done at baseline, 12-months, 24-months, 5-years, and 9-years to assess cumulative outcomes and racial disparities; depression was assessed with the Mental Health Inventory (MHI-5)	There was less disparity in positive health outcomes between white and minority populations compared to the usual care group showing better overall outcomes at the 9-year mark and decreased cost for long-term treatment; improved mental health services can improve overall health over time	Decreased response rates to surveys over time, may not be fully accurate data to assess full population.

Appendix D

PRISMA Flow Diagram: Change Management



Appendix E

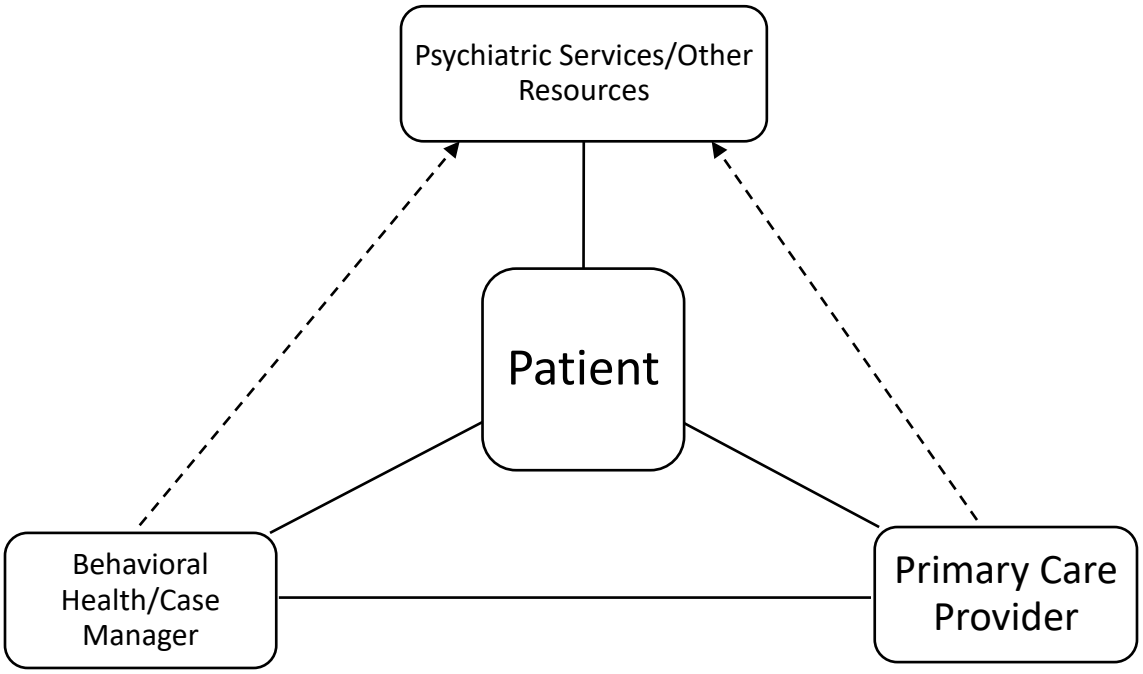
Literature Review Table: Change Management

Author (Year)	*Title*	*Design and Methodology*	*Sample Size and Description*	*Interventions and Measurements*	*Major Findings*	*Limitations*
John (2017)	Setting up recovery clinics and promoting service user involvement	Qualitative study of change implementation in behavioral health (Level VI)	not stated	Assessment of effectiveness of addition of one-on-one clinic time for behavioral health patients. Qualitative interviews with patients and nurses involved in the change.	Overall change was effective and implementation was successful using Kotter's Change Model	Short term assessment of success (3 months); change many not be sustainable
Mbamalu & Whiteman (2014)	Vascular access team collaboration to decrease catheter rates in patients on hemodialysis: Utilization of Kotter's Change Process	Expert opinion for implementation of vascular committee and improved vascular access policy for hemodialysis patients (Level VII)	not stated; article is a plan, not tested implementation	Description of implementation plans for gathering a vascular access team and decreasing central venous catheter use for chronic hemodialysis patients using Kotter's Change Model	Not a study, no results but a well-described plan for implementation of change using Kotter's Change Model	Not yet implemented, no actual evidence to show success.
Small et al. (2016)	Using Kotter's Change Model for implementing bedside handoff	Cohort study of quality improvement project (Level IV)	n=28 nurses, 34 patients	Assessment of effectiveness of implementing change of bedside handoff process using Kotter's Change Model	Kotter's Change Model was effective for implementing this healthcare change; handoffs occurred more consistently with patient and nurse satisfaction of process compared to when change was first implemented without a change model	Small implementation of change; may not be as effective on a larger scale

Author (Year)	*Title*	*Design and Methodology*	*Sample Size and Description*	*Interventions and Measurements*	*Major Findings*	*Limitations*
Su (2016)	A collaborative approach to reduce healthcare-associated infections	Cohort study of infection prevention skills improvement (Level IV)	n=35 healthcare workers	Quality improvement was initiated for hand hygiene, environmental cleaning, use of chlorhexidine on high-risk patients; measured by performance audits, knowledge improvement, and hospital acquired infection rates	Rates of knowledge of hospital acquired infection, hand hygiene rates, and environmental cleanliness improved with use of Kotter's Change Model and involvement and buy-in from staff involved	No medical practitioner involvement in the committees; interprofessional collaboration may have increased effectiveness; no length of project was stated but seemed short term (mentioned "one-week later" regarding some assessments; does not show sustainability

Appendix F

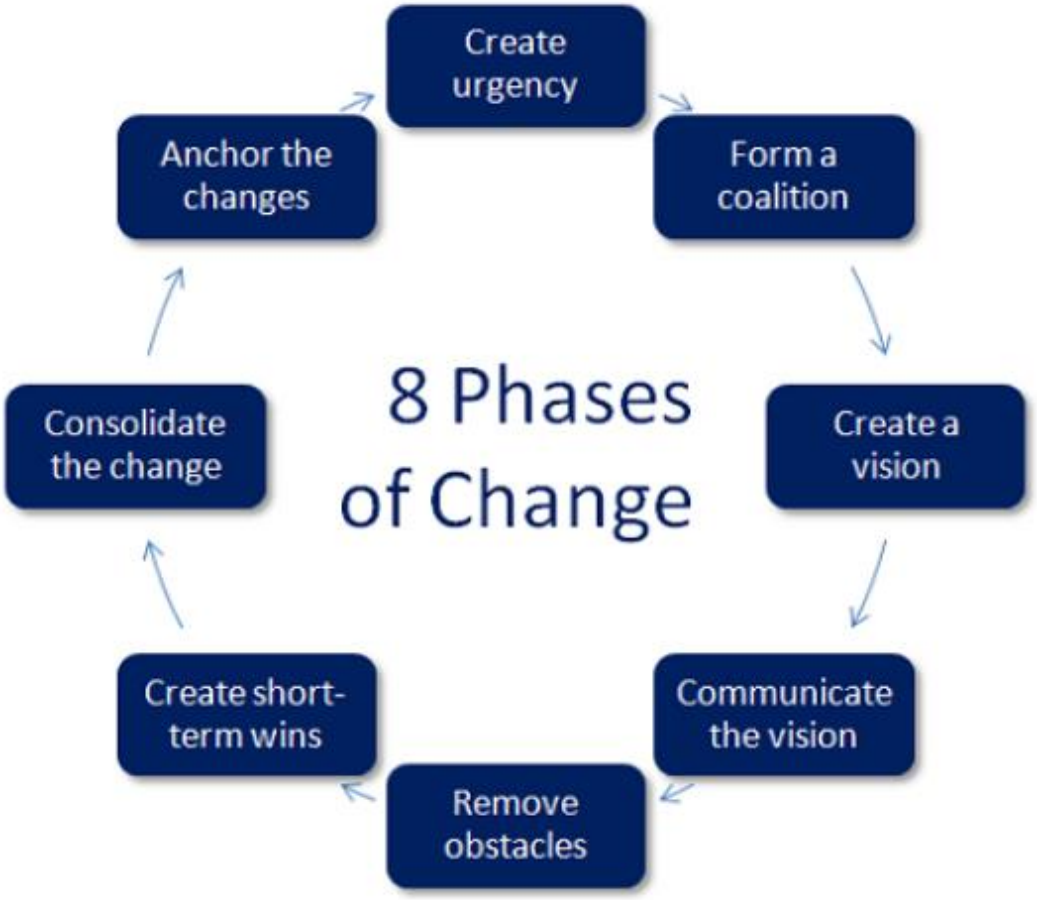
Collaborative Care Model



Adapted from Tran, Voltz, & Conejo. (2017). A health collaboration ecosystem leads to patient homeostasis.

Appendix G

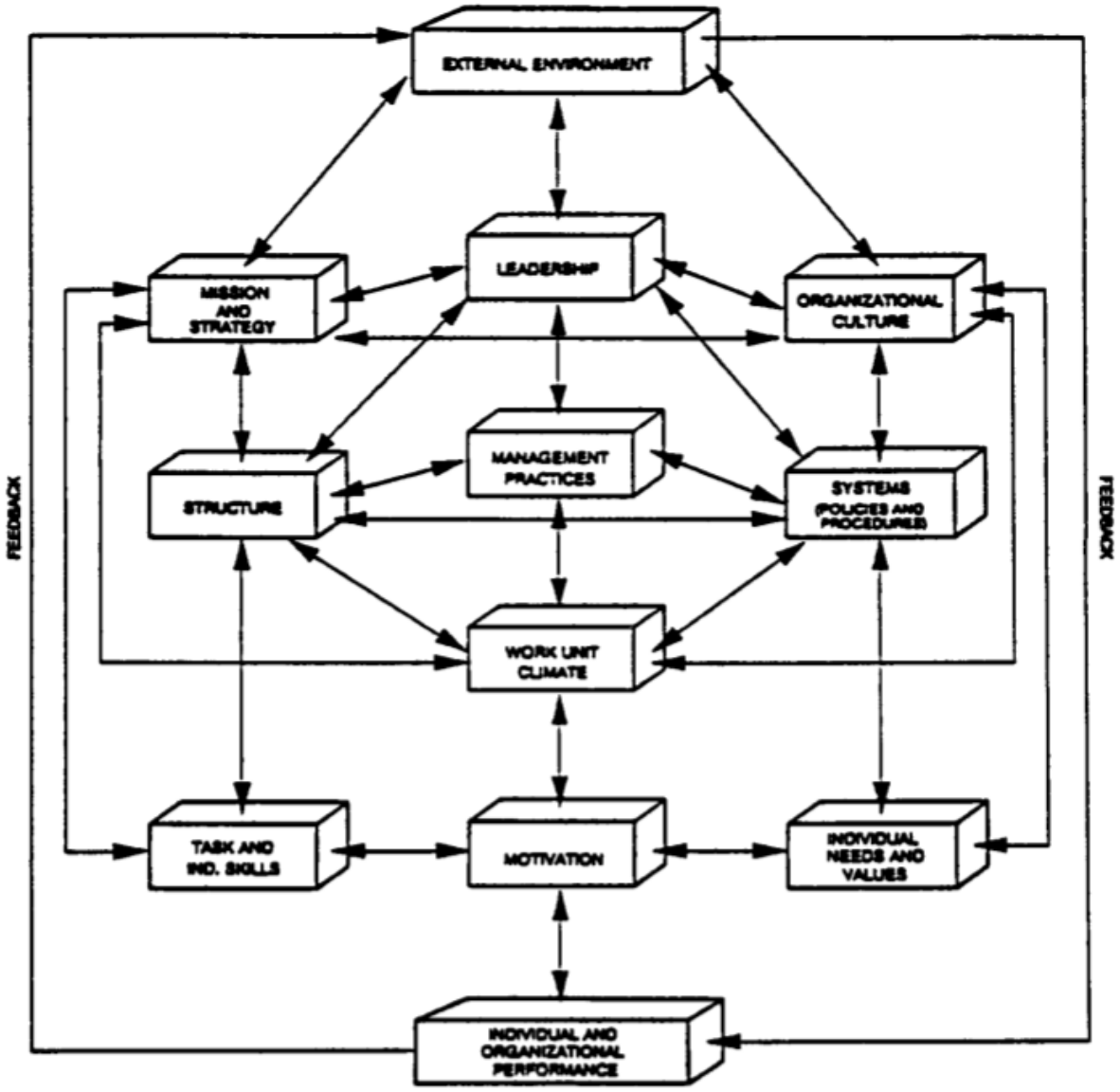
Kotter's 8-Step Change Model



Adapted from Kotter, J. P. (2012). *Leading Change: With a New Preface by the Author.* Harvard Business Review Press: Boston, Mass. Used with permission from Kotter International.

Appendix H

Burke-Litwin Model of Organizational Performance and Change



Burke, W. W., & Litwin, G. H. (1992). A causal model of organizational performance and change. Journal of Management, 18(3), 523-545. Used with permission from Sage Publishing.

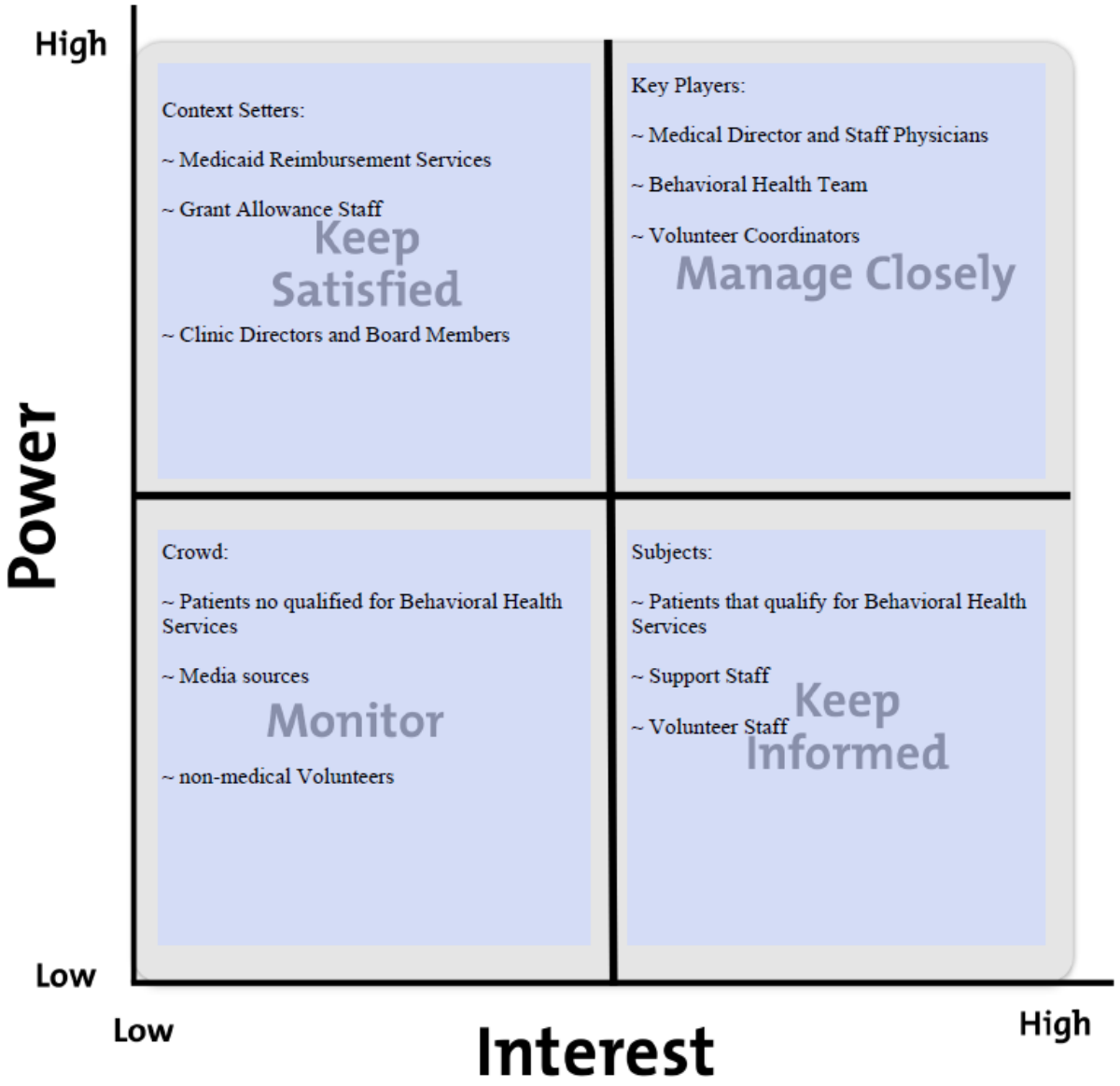
Appendix I

Organization SWOT analysis

Strengths	**Weaknesses**
• Team-based environment • Positive culture to embrace change • Engaged team with similar motives to provide quality care • Committed and involved leadership • Commitment to high-quality, low-cost care • Dedicated staff with leadership roles to direct and educate volunteers • Internal case management and counseling services available • Validated depression (PHQ-9) and anxiety (GAD-7) assessment tools recently put into place in English and Spanish	• Infrequent and varying involvement of volunteers • Minimal use and understanding of electronic health record (EHR) by some volunteers • Language barriers with patients if interpreter not available
Opportunities	**Threats**
• Dedicated volunteers • Young, computer-fluent scribes to assist with charting • Recent assessment and dashboard DNP project of charting and referral rates based on GAD-7 and PHQ-9 scores • Many local psychiatric resources available for collaboration where needed	• Risk of decreased monetary donations • Risk of decreased volunteer involvement • High rates of no-show patients • High rates of patient non-compliance (due to culture, cost, and misunderstanding) • Poor communication and education with volunteers

Appendix J

Stakeholder Power Interest Grid



Appendix K

Pre- and Post-Survey for Practitioners

1. Are you aware of the behavioral health services available here?

   Yes No

2. Do you know what the PHQ-9 is used to screen for?

   Yes No

3. Do you know what the GAD-7 is used to screen for?

   Yes No

4. Do you know what the UNCOPE is used to screen for?

   Yes No

5. Do you know where these screenings are documented in the Athena system?

   Yes No

6. Do you know where to find the Clinic screening procedure?

   Yes No

7. Do you feel comfortable ordering a behavioral health consult and know how to consult?

   Yes No

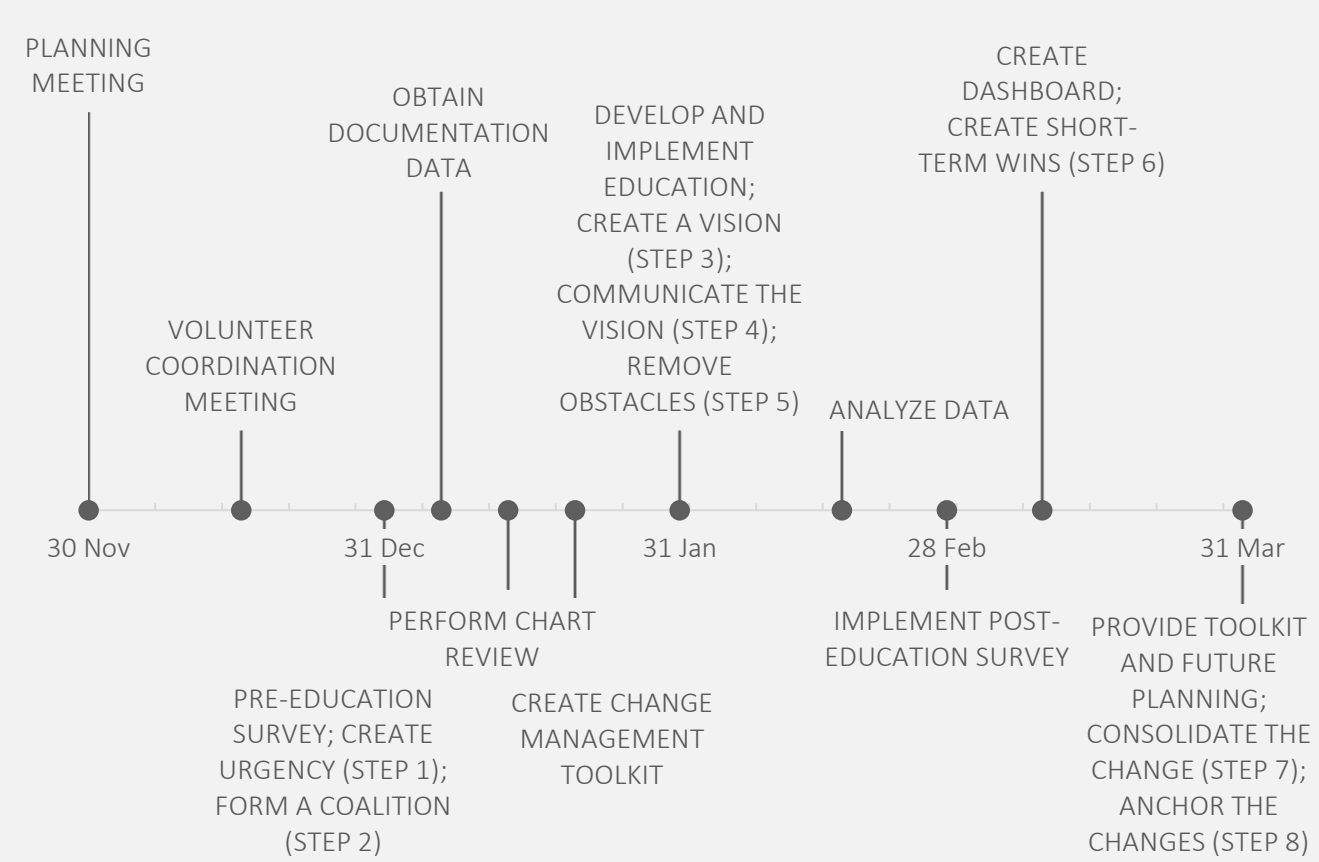
8. Please describe any barriers/challenges you have to using this process.

9. What is going well with behavioral health screenings/collaboration?

10. Do you have any suggestions for improvement with behavioral health collaborative care?

Appendix L

Project Timeline



Appendix M

GVSU IRB Approval

DATE: November 14, 2017

TO: Amy Manderscheid
FROM: HRRC
STUDY TITLE: Implementation of Evidence-based Culturally Adapted Interventions, Collaborative Care, and Change Management for Improved Mental Health Outcomes in a Community-based Safety-net Clinic
REFERENCE #: 18-108-H
SUBMISSION TYPE: HRRC Research Determination Submission

ACTION: Not Research
EFFECTIVE DATE: November 14, 2017
REVIEW TYPE: Administrative Review

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

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

The purpose of this study is to implement quality improvement strategies to increase screening, diagnosis, interventions, and collaboration with behavioral health resources for mental health problems at a single healthcare clinic. The study is systematic in nature, but is not designed to contribute to generalizable knowledge. Therefore, this study does not meet the federal definition of research per 45 CFR 46.102(d).

An archived record of this determination form can be found in IRBManager from the Dashboard by clicking the "_ xForms" link under the "My Documents & Forms" menu.
If you have any questions, please contact the Office of Research Compliance and Integrity at (616) 331-3197 or rci@gvsu.edu. Please include your study title and study number in all correspondence with our office.

Sincerely,
Office of Research Compliance and Integrity

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

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

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

Office of Research Compliance and Integrity | 1 Campus Drive | 049 James H Zumberge Hall | Allendale, MI 49401
Ph 616.331.3197 | rci@gvsu.edu | www.gvsu.edu/rci

Appendix N

Clinic Project Approval

November 9, 2017

[redacted]

Grand Valley State University
Office of Research Compliance & Integrity
049 James H. Zumberge Hall
1 Campus Drive
Allendale, Michigan 49401-9403

To whom it may concern:

We would like to give permission to Laura for performing her Doctor of Nursing Practice (DNP) project at our clinic including organizational assessment, data collection, and project interventions. Project information is below. Thank you for your consideration.

Name of Student: Laura E. Hall DNP(c), RN

Name of project: Implementation of Evidence-based Culturally Adapted Interventions, Collaborative Care, and Change Management for Improved Mental Health Outcomes in a Community-based Safety-net Clinic

When Conducting: September 2017-April 2018

Mentor Name: Laura VanderMolen, DO

With Best Regards,

[redacted]

Appendix O

Survey Cover Letter

November 14, 2017

Dear Colleague:

My name is Laura Hall and I am a Doctor of Nursing practice student at Grand Valley State University. I am conducting a quality improvement project to improve the screening, assessment, and intervention processes for mental health at this clinic. This letter is an invitation to participate in the survey to assist me in this improvement process. As volunteers of this clinic, you are a crucial part of the quality of care we provide. Your participation will assist me in understanding the strengths and needs of the behavioral health process.

Your participation is voluntary and your responses will remain anonymous. Waiver of consent will be issued based on completion of the questionnaire prior to program interventions.

Direct benefits of participation include improvement of understanding of behavioral health services and improving collaboration for mental health needs. Additionally, I hope to utilize the information retrieved from the results to improve education and involvement of volunteers with future changes and needs at the clinic.

There are minimal risks associated with your participation. All information collected will be anonymous, and no information will be collected that would identify you as an individual. The results will only be reported as collective data in aggregate; individual information will not be identified in any report. The information collected will be used for the stated purposes of this project only and will not be provided to any other party for any other reason at any time.

If you have questions about this study, you may contact me at halllau@mail.gvsu.edu. I will also be present providing education and discussions in the clinic after questionnaires are completed.

Sincerely,

Laura Hall BSN, RN
Grand Valley State University
DNP Student
halllau@mail.gvsu.edu

Appendix P

Project Budget

Doctor of Nursing Practice Project Financial Operating Plan

Behavioral Health Change Management Project

Revenue	
Project Manager Time (in-kind donation)	9,625.00
Team Member Time:	
Medical Director (site mentor)	1,820.00
Nursing Director	480.00
Behavioral Health Director	1,015.00
Staff Practitioners (assistance with volunteer education)	1,092.00
Time Spent Completing Questionnaire	728.00
Consultations	
Other Staff (shadowing as needed)	176.00
IT staff	528.00
Statistician	300.00
Cost of space	800.00
Cost mitigation	
Decreased cost of treatment (6% per patient)	1,252.80
TOTAL INCOME	17,816.80
Expenses	
Project Manager Time (in-kind donation)	9,625.00
Team Member Time:	
Medical Director (site mentor)	1,820.00
Nursing Director	480.00
Behavioral Health Director	1,015.00
Staff Practitioners (assistance with volunteer education)	1,092.00
Time Spent Completing Questionnaire	728.00
Consultations	
Other Staff (shadowing as needed)	176.00
IT staff	528.00
Statistician	300.00
Cost of Space	800.00
Cost of printed education and toolkit material	40.00
Cost of small prizes for staff	20.00
TOTAL EXPENSES	16,604.00
Net Operating Plan for 3 months	1,212.80

Appendix Q

Behavioral Health Screening Guidelines

In our efforts to improve care for our patients and effectively utilize grant money for behavioral health services **we need everyone's help and collaboration.** Our goals include:

Practitioners:
Review screening results (PHQ-2/9, GAD-7, and UNCOPE) at **every visit for every patient** (paper or Athena). ACE screenings should be completed once for each patient and are usually provided at the initial visit.
Place reviewed tests in folder at desk for staff member to assist with entering results.
Remember to chart what you do! Provide appropriate diagnoses, chart provided interventions, chart patient refusal of interventions when appropriate, place behavioral health or other consults if appropriate (see guidelines for intervention below).
MAs/RNs/Scribes:
Confirm that screenings have been done, assist with entering results in Athena, and assist and remind practitioners to review results.

PHQ-2 (Depression Screening) – score of ≥ 3 is positive and indicates completion of PHQ-9

PHQ-9 (Depression Screening)

PHQ-9 Score	Depression Severity	Treatment Considerations
0-4	None/minimal	None
5-9	Mild	Watchful waiting; repeat PHQ-9 at follow-up
10-14	Moderate	Consider Behavioral Health referral, follow-up, and/or pharmacotherapy
15-19	Moderately Severe	Active treatment with Behavioral Health, follow-up and/or pharmacotherapy
20-27	Severe	Active treatment with Behavioral Health, pharmacotherapy, assess safety and need for urgent access to higher level of care

GAD-7 (Anxiety Screening)

GAD-7 Score	Anxiety Severity	Treatment Considerations
0-4	None/minimal	None
5-9	Mild	Watchful waiting; repeat GAD-7 at follow-up
10-14	Moderate	Consider Behavioral Health referral, follow-up and/or pharmacotherapy
15-21	Severe	Active treatment with Behavioral Health, pharmacotherapy, assess safety and need for urgent access to higher level of care

UNCOPE or CAGE-AID (Substance Use Screening)

UNCOPE Score	Substance Use Severity	Treatment Considerations
< 2	No problems indicated	No intervention likely needed
≥ 2	Possible Substance Misuse	Consider Behavioral Health consult for education and reinforcement
≥ 3 with 1 &3 positive	Possible Substance Abuse	Behavioral Health consult for further assessment
≥ 3 with 2 &4 positive	Possible Substance Dependence	Behavioral Health consult for further assessment
≥ 4	Strong Indication of Substance Dependence	Behavioral Health consult for further assessment – formal treatment likely needed

Consult Options:

- Behavioral Health – referral for collaboration with our case management team
- Counseling Referral – referral for external counseling resources
- Psychiatry Referral – referral for psychiatric assessment and assistance with medication management

Appendix R

Quick Education Poster

BEHAVIORAL HEALTH SCREENINGS

CLINIC NAME AND LOGO

WHAT ARE BEHAVIORAL HEALTH SCREENINGS?
Our screenings include PHQ-9 (depression), GAD-7 (anxiety), and UNCOPE (substance use) which should be provided to every patient at every encounter.

WHO DOES THIS APPLY TO?
All clinical staff and volunteers have a role in providing, charting, assessing, and/or intervening for behavioral health screenings.

WHAT IS OUR OBJECTIVE?
Improve charting, interventions, and referrals for behavioral health screenings

ANY QUESTIONS?
If you have any questions about these processes, talk to Samantha, Laura Hall (DNP student), or the Behavioral Health team.

There is also a packet of information regarding charting and interventions at the desk.

SITUATION

WHAT IS GOING ON?
Behavioral health screenings are not being completed, charted, and/or addressed as frequently as we would like. Collaboration of all members of the team (MAs, RNs, practitioners, and others) are needed to make this process smooth and effective.

BACKGROUND

WHY SCREEN FOR BEHAVIORAL HEALTH?
The population we serve at Exalta Health is at a high risk for mental health issues. Minority and low-socioeconomic populations are **2.5 times more likely to suffer** from mental health concerns but **receive diagnosis and treatment ¼ as often** compared to the higher-socioeconomic Caucasian population.

The World Health Organization stated that for every dollar spent on treatment for anxiety and depression, there is a **fourfold return in overall health and ability to work**.

Need for screening and interventions for behavioral health reflects the goal of Exalta Health to collaborate to provide needed services to the underserved community in order to improve their health and quality of life.

ASSESSMENT

WHAT ARE WE DOING RIGHT?
Screenings have been used for the past year to assess depression, anxiety, and substance use. Our rates of screening and charting have improved, referrals to our behavioral health team have also improved.

WHAT NEEDS IMPROVEMENT?
Though screening rates are improving, we are still charting PHQ-9 and GAD-7 scores for only about **30% of our encounters**. We are trying to improve UNCOPE screenings and those are being charted only about **10% of the time.**

RECOMMENDATION

WHAT CAN WE DO?
MAs/RNs: Make sure patients receive screenings during intake and enter results into the chart as soon as possible; communicate these results to the practitioner so they are aware of positive screenings before they see the patient.

Practitioners/Scribes: Try to assess screening results before you enter an exam room. Become familiar with suggestions for elevated screening scores. Become familiar with resources available at Exalta Health for positive screenings (Behavioral Health Services, Spiritual Counseling Referrals).

See other reference materials available at the desk including Behavioral Health Screening Guidelines; Procedures for Behavioral Health Screenings; and Tips for Effective Screening and Care for Minority Populations

Appendix S

Cheat Sheet for Behavioral Health Diagnosis and Interventions

If you note an elevated Behavioral Health screening score (PHQ-9, GAD-7, UNCOPE):

1. **Place the Screening Diagnosis**

- If any screening was done, the **diagnosis of "Screening for Disorder" (Z13.9) should be entered**. A note of screening scores can be entered here. Also, a note of discussion for intervention with patient or education provided and patient response is suggested.
- Results of discussion and plan with the patient could include: "patient refused to meet with BH counselor today" or "patient prefers to not take medication at this time" or "Patient seen by Behavioral Health counselor today" or "Patient seen by Ken Van Beek, LMSW today" or "patient seen by spiritual consult services today, refused further behavioral health treatment at this time."
- **This order also provides education material** if appropriate for the patient. Please offer handouts for Anxiety (GAD-7 >10), Depression (PHQ-9 >10) and substance use (UNCOPE >3) if suggested.
  Materials include: learning about depression, learning about anxiety disorders, aprenda sobre los trastornos de ansiedad - [learning about anxiety disorders], and aprenda acerca de la depresión - [learning about depression]
- There is also an order for "**behavioral health coaching referral**" if appropriate based on screening scores.

2. **Enter Diagnosis Based on Screening Results if Appropriate**

- Order sets are available under "Diagnoses and Orders" including "Anxiety (Outcomes)" and "Depression (Outcomes)" if these are appropriate for your patient
- If another specific diagnosis is more appropriate, use what is right for your patient.

3. **Add Interventions**

- Under the Diagnosis, add orders for appropriate medications, services, and referrals based on your clinical expertise.
- The Depression and Anxiety order sets include a **spiritual consult referral** and **counseling referral** and you can add medications or other orders as needed.
- The spiritual consult referral is a good start for many of our patients that do not want to initiate any interventions with behavioral health services or medication interventions.
- Another useful order for any positive mental health screenings is **"Behavioral Health"** which will alert our Behavioral Health team to acknowledge a positive screening, contact the patient for further assessment or intervention, and monitor scores during future encounters.

  Note:
  - Behavioral Health orders provide **internal** referrals to our team
  - Counseling referrals are suggested for **outgoing** therapy referrals
  - Psychiatry referrals are also for **outgoing** referrals for further assessment and medication management unless noted for our internal psychiatrist.

Appendix T

Behavioral Health Procedure Education Material

Behavioral Health Screening, Charting, and Interventions:

Procedure Education Material for MAs, RNs, Scribes, and Practitioners

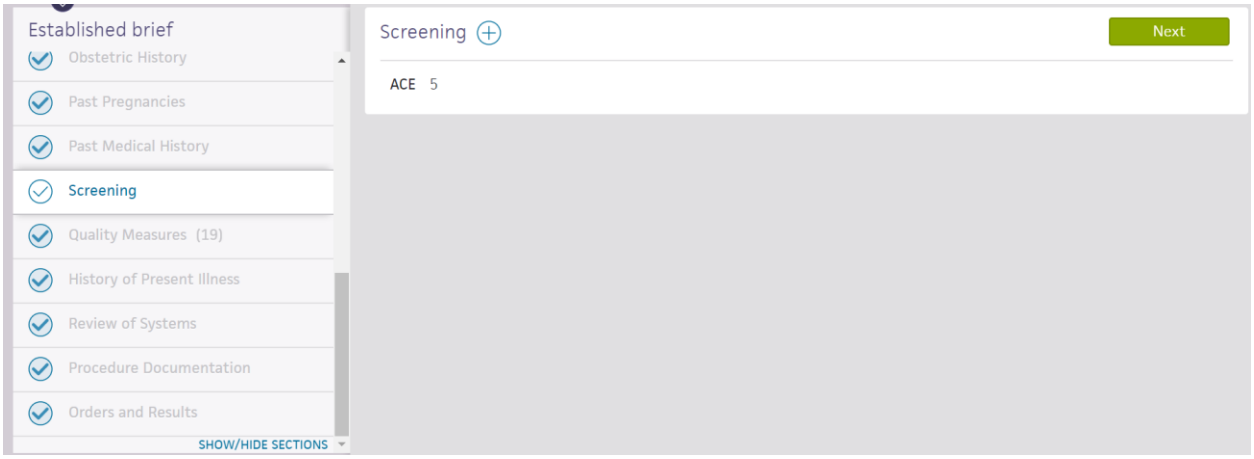
For MAs/RNs/Scribes

Entering screening results during intake:

PHQ-9, GAD-7, UNCOPE, and ACE scores can be entered under “Screening” and then seen by practitioners as needed.

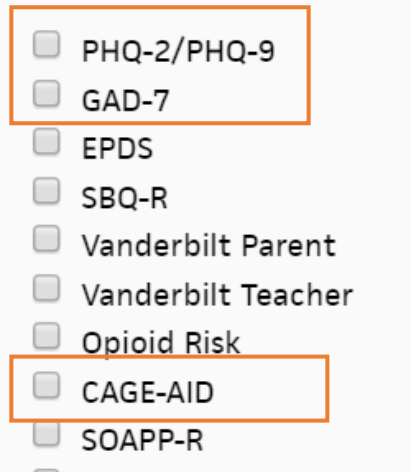
Note: PHQ-9, GAD-7, and UNCOPE screenings should be done at every visit for every patient to keep track of changing scores and assess high scores in a timely manner. ACE screenings are required only once, usually at the first patient visit.

To enter scores, click on the “Screening” tab under Intake. Then click the ⊕ symbol next to “Screening” on the right.



Next, click on the screening(s) you would like to enter and scroll down to fill in the results.

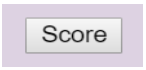
The UNCOPE screening is entered under “CAGE-AID” and requires only the final score.



The PHQ-2/PHQ-9 initially requires only the first 2 questions to be entered, if this short screening is positive (greater than 3), the other questions will come up to continue entering. When all questions are answered, a final score can be calculated.

The GAD-7 requires all answers to be entered and will calculate a final score.

The UNCOPE screening requires only the final score to be entered.

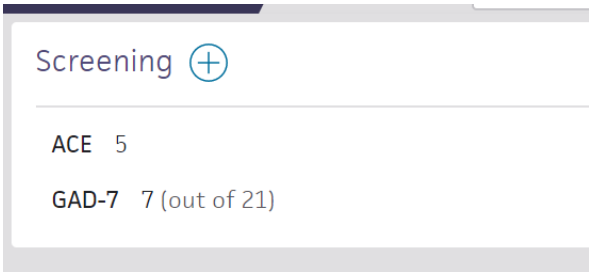
When all results have been entered, scroll down and click 

for screening totals to calculate.

Click the 

tab at the top right corner of the open box to save your results and click outside of the box to exit out of the screenings.

Your totals should be visible on the display under Screening:

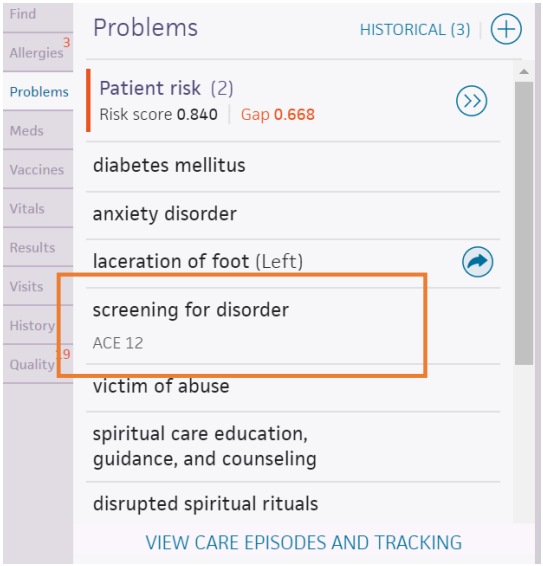


After all screenings have been entered, the paper form can be given to the practitioner to assess results for this exam.

For Practitioners

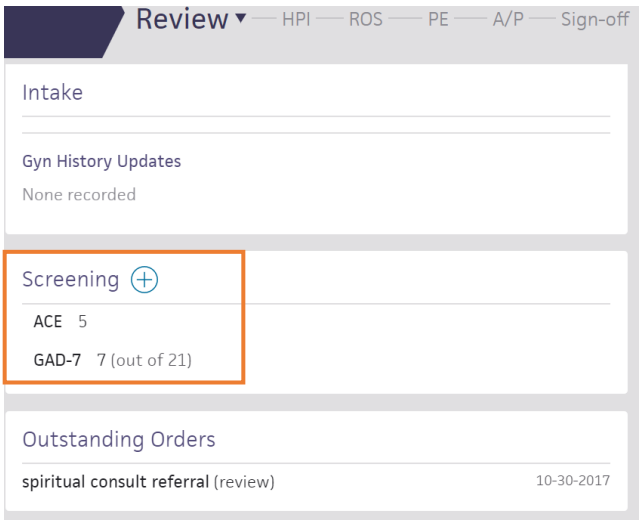
Assessment of current and previous depression, anxiety, and substance use scores is a critical part of providing appropriate care to every patient and a goal of Exalta Health and our Behavioral Health team.

During the Exam you should be able to see any previous screening scores under “Problems” in the diagnosis of “Screening for Disorder.” Entry of these scores is a current goal of the Behavioral Health team and is done by other staff/volunteers after the visits.



This is not the current screening score, but can be helpful for comparison with today’s numbers.

To view the most recent scores, scroll down under “Review” at the beginning of the exam to view “Screening” which should display the most recent scores entered.



If scores have not yet been entered, these may not be the most recent results. You may have to view the paper copy of screenings from this visit. This requires collaboration with practitioners, nursing staff, and scribes.

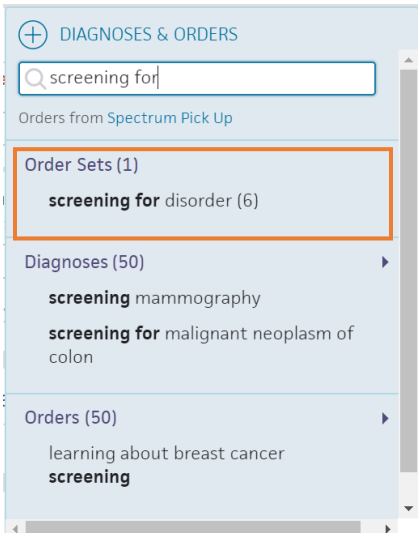
****You must look at these scores and acknowledge any positive results in your notes, diagnoses, and/or interventions. Even if the scores are not yet in the chart, they will be entered and you could be held accountable for positive screenings that are not addressed.****

Charting appropriate diagnoses for positive screenings can also help with reimbursement for our Medicaid clients.

What you need to chart for these screenings:

See the "Behavioral Health Screening Guidelines" posted at the charting desk, displayed on the screening results folders, and at the end of this document for intervention parameters.

4. If any screening was done, the **diagnosis of "Screening for Disorder" (Z13.9) should be entered**. A note of screening scores can be entered here. Also, a note of discussion for intervention with patient or education provided and patient response is suggested.

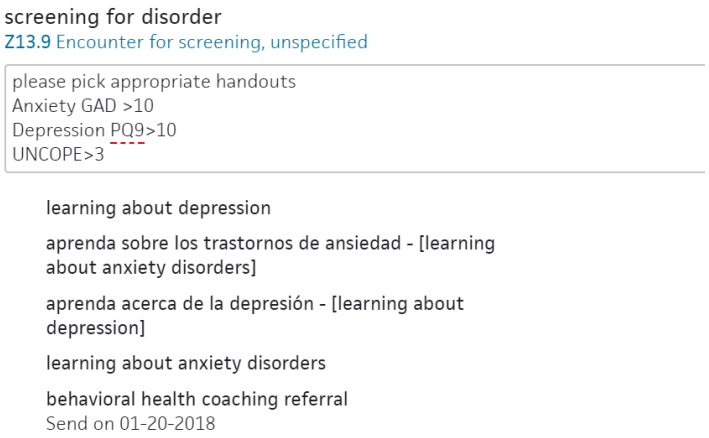


Results of discussion and plan with the patient could include: "patient refused to meet with BH counselor today" or "patient prefers to not take medication at this time" or "Patient seen by Behavioral Health counselor today" or "Patient seen by Ken Van Beek, LMSW today" or "patient seen by spiritual consult services today, refused further behavioral health treatment at this time."

This order also provides education material if appropriate for the patient. It has a prompt "Please pick appropriate handouts for Anxiety (GAD-7 >10), Depression (PHQ-9 >10) and substance use (UNCOPE >3)."

Materials include: learning about depression, learning about anxiety disorders, aprenda sobre los trastornos de ansiedad - [learning about anxiety disorders], and aprenda acerca de la depresión - [learning about depression]

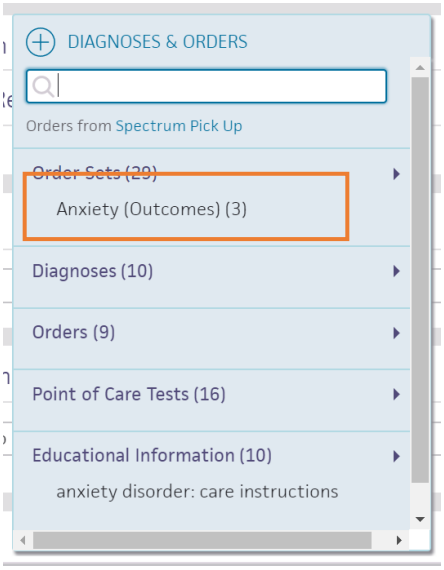
There is also an order for "behavioral health coaching referral" if appropriate based on screening scores.



5. If appropriate, **<u>place a medical diagnosis reflecting the results</u>**.

Order sets are available under "Diagnoses and Orders" including "Anxiety (Outcomes)" and "Depression (Outcomes)."

However, if another diagnosis is more appropriate, use what is right for your patient.



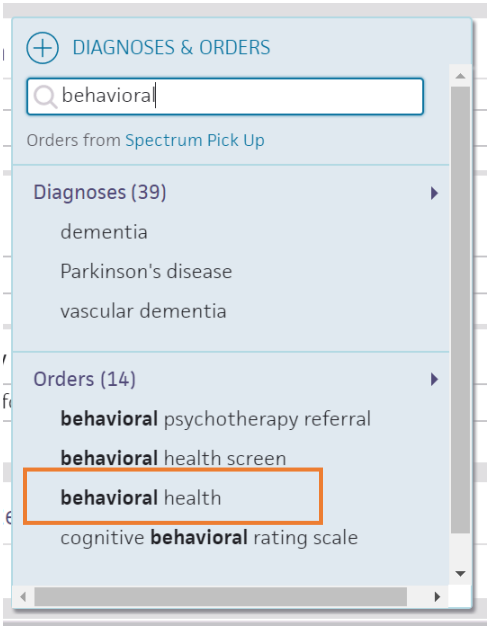
6. Under the Diagnosis **add orders for appropriate medications, services, and referrals** based on your clinical expertise.

   The depression and anxiety order sets include a spiritual consult referral and counseling referral and you can add medications or other orders as needed.

   The spiritual consult referral is a useful start for many of our patients that do not want to start with behavioral health or medication interventions.

   Another useful order for any positive mental health screenings is “Behavioral Health” which will alert our Behavioral Health team to acknowledge a positive screening, contact the patient for further assessment or intervention, and monitor scores during future encounters.

   Note:
   - Behavioral Health orders provide internal referrals to our team
   - Counseling referrals are suggested for outgoing therapy referrals
   - Psychiatry referrals are also for outgoing referrals for further assessment and medication management unless noted for our internal psychiatrist.



Thank you for your willingness to become more aware of our behavioral health process in order to provide effective collaborative care for our patients!

If you have any questions about guidelines or process, feel free to ask any staff members including our Behavioral Health team.

Behavioral Health Screening Guidelines

In our efforts to improve care for our patients and effectively utilize grant money for behavioral health services **we need everyone's help and collaboration.** Our goals include:

Practitioners:
Review screening results (PHQ-2/9, GAD-7, and UNCOPE) at **every visit for every patient** (paper or Athena). ACE screenings should be completed once for each patient and are usually provided at the initial visit.
Place reviewed tests in folder at desk for staff member to assist with entering results.
Remember to chart what you do! Provide appropriate diagnoses, chart provided interventions, chart patient refusal of interventions when appropriate, place behavioral health or other consults if appropriate (see guidelines for intervention below).
MAs/RNs/Scribes:
Confirm that screenings have been done, assist with entering results in Athena, and assist and remind practitioners to review results.

PHQ-2 (Depression Screening) – score of ≥ 3 is positive and indicates completion of PHQ-9

PHQ-9 (Depression Screening)

PHQ-9 Score	Depression Severity	Treatment Considerations
0-4	None/minimal	None
5-9	Mild	Watchful waiting; repeat PHQ-9 at follow-up
10-14	Moderate	Consider Behavioral Health referral, follow-up, and/or pharmacotherapy
15-19	Moderately Severe	Active treatment with Behavioral Health, follow-up and/or pharmacotherapy
20-27	Severe	Active treatment with Behavioral Health, pharmacotherapy, assess safety and need for urgent access to higher level of care

GAD-7 (Anxiety Screening)

GAD-7 Score	Anxiety Severity	Treatment Considerations
0-4	None/minimal	None
5-9	Mild	Watchful waiting; repeat GAD-7 at follow-up
10-14	Moderate	Consider Behavioral Health referral, follow-up and/or pharmacotherapy
15-21	Severe	Active treatment with Behavioral Health, pharmacotherapy, assess safety and need for urgent access to higher level of care

UNCOPE or CAGE-AID (Substance Use Screening)

UNCOPE Score	Substance Use Severity	Treatment Considerations
< 2	No problems indicated	No intervention likely needed
≥ 2	Possible Substance Misuse	Consider Behavioral Health consult for education and reinforcement
≥ 3 with 1 &3 positive	Possible Substance Abuse	Behavioral Health consult for further assessment
≥ 3 with 2 &4 positive	Possible Substance Dependence	Behavioral Health consult for further assessment
≥ 4	Strong Indication of Substance Dependence	Behavioral Health consult for further assessment – formal treatment likely needed

Consult Options:

- Behavioral Health – referral for collaboration with our case management team
- Counseling Referral – referral for external counseling resources
- Psychiatry Referral – referral for psychiatric assessment and assistance with medication management

Appendix U

Staff and Volunteer Email for Education

Hello to all,

I am Laura Hall, a DNP student from GVSU working with the team of this clinic to improve Behavioral Health screenings, diagnoses and interventions. About one year ago, we started screening all patients at every visit for depression, anxiety, and substance use (PHQ-9, GAD-7, and UNCOPE screenings, respectively). However, our rates of charting these screenings are not as high as we would like and we hope to improve these with further education for all volunteers.

Our goals are 1) to improve rates of charting screenings 2) start using the diagnosis "Screening for Disorder" (Z13.9) whenever these screenings are performed and 3) order appropriate Behavioral Health services and educational material based on screening scores.

There is info posted at the desk and hanging near the visitor check-in for you to read up on the situation and recommendations for practice improvement. There is information attached to this email including Behavioral Health Screening Guidelines, Cheat Sheet for Diagnosis and Interventions, and Screening Educational Material that describes the charting process in detail. There is also a folder at the desk with all of this information if you would like to read it during any down time while you are at the clinic.

I will try to be available at the clinic regularly to answer questions and go over the process throughout the next month. Feel free to ask me, any staff members, and the Behavioral Health team if you have any questions.

Thank you for your willingness to become more aware of our behavioral health process in order to provide effective collaborative care for our patients!

Laura

Appendix V

List and Description of Change Management Toolkit

Change Management Toolkit

In order to implement change more effectively at [redacted] a change management toolkit has been put together and tested with the recent Behavioral Health process changes. The provided tools can be modified and used to fit each change implementation and improve the education and enactment process for staff and volunteers.

The Change Management Toolkit Includes:

- The format for a "Quick Education Sheet" to help with dissemination of information for desired change in the clinic.
    - This sheet uses the SBAR format to convey Situation, Background, Assessment, and Recommendations for the change process.
    - It was placed above the charting desk and on the board above the volunteer sign-in sheet to ensure that it would be seen by all staff and volunteers.
- A worksheet in Excel and Word format for applying Kotter's 8-Step Change Model for implementing change. There are descriptions of each step, examples of interventions used in the Behavioral Health Project, and area to insert plans for a new change intervention.
- An Infographic displaying Kotter's 8-Step Change Model
- An Excel worksheet with dashboard and charts from the Behavioral Health Project for example
- Printed quality improvement education about using a Histogram, Run Chart, & Flow Chart for data display and assessment.

Appendix W

Kotter's 8-Step Change Management Project Planning Form

This form uses Kotter's 8-Step Change Model to assist in planning change implementation for any new change implementation performed at Exalta Health. There is a form with descriptions of Kotter's 8 steps for change management to insert plan and timeline for a change implementation plan There is a second table with examples of use of this format from the Behavioral Health Change Implementation Project.

This change implementation theory was useful in planning of the Behavioral Health Change Implementation Project and can be applied to any future change implementation for this Clinic.

Kotter's Change Model Planning Form

Kotter's 8 Steps	Step Description	Planned Action	Timeline
1. Create Urgency	Creating an awareness of ongoing concern or possible crisis to inspire an organization to think about, initiate, and maintain a change.		
2. Form a Powerful Coalition	Building a team to initiate and drive the change process. It is useful to have members from different areas of the organization to assist with process.		
3. Create a Vision for Change	Define a picture and logic for possible ways to improve the issue at hand.		
4. Communicate the Vision	Communicate the vision and strategy to all of the stakeholders in the change. It must be communicated effectively to promote engagement from all staff and volunteers involved.		
5. Remove Obstacles	Empowerment strategies for change include removing structural barriers that inhibit the vision of change and providing appropriate training to allow for successful implementation		

6. Create Short-Term Wins	Small, short-term wins can show staff that their efforts are worthwhile and that the long-term goal is attainable. These wins could include evidence of problem improvements and celebration with staff.		
7. Consolidate the Change	Change is a long and ongoing process, identified gains must be acknowledged and further improvement encouraged.		
8. Anchor the Changes	After a change is implemented, short-term results may be extremely positive. These improvements need to become part of the culture of the organization in order to be maintained long-term.		

Kotter's change Model Example

Kotter's 8 Steps	Step Description	Example from BH Project	Timeline
1. Create Urgency	Creating an awareness of ongoing concern or possible crisis to inspire an organization to think about, initiate, and maintain a change.	Discussed BH concerns with many areas of staff (nursing, spiritual care, behavioral health, medical director, volunteer coordinator) to gain insight for current process and create awareness of ongoing low rates of screening score charting and interventions.	By Jan 12
2. Form a Powerful Coalition	Building a team to initiate and drive the change process. It is useful to have members from different areas of the organization to assist with process.	Worked with medical director, behavioral health services, and nursing to discuss areas of concern, current practices, and suggestions for improvement.	By Jan 19
3. Create a Vision for Change	Define a picture and logic for possible ways to improve the issue at hand.	Provided quick education poster at volunteer and medical work area to define and display need for improvements of our behavioral health screening process.	By Jan 31

4. Communicate the Vision	Communicate the vision and strategy to all of the stakeholders in the change. It must be communicated effectively to promote engagement from all staff and volunteers involved.	Sent email to all staff and volunteers including quick education poster, screening process packet, and new guidelines for placing screening diagnoses and orders based on screening scores.	By Feb 28
5. Remove Obstacles	Empowerment strategies for change include removing structural barriers that inhibit the vision of change and providing appropriate training to allow for successful implementation	Provided direct education to each volunteer and staff member to make aware of available material, give quick lesson on why and how the BH process is changing, and allow for direct use of new system and asking questions in real time.	By Mar 9
6. Create Short-Term Wins	Small, short-term wins can show staff that their efforts are worthwhile and that the long-term goal is attainable. These wins could include evidence of problem improvements and celebration with staff.	Providing of dashboard information to show improvement of screening charting, interventions, and utilization of new order set for all screenings.	By Mar 9
7. Consolidate the Change	Change is a long and ongoing process, identified gains must be acknowledged and further improvement encouraged.	Providing the change toolkit to assist with continuing and further changes. Maintenance of strong core staff to continue improvement of process and education for all volunteers.	By Mar 30
8. Anchor the Changes	After a change is implemented, short-term results may be extremely positive. These improvements need to become part of the culture of the organization in order to be maintained long-term.	Maintenance of strong core staff to continue to maintain these changes and continue to educate new volunteers in the process. Behavioral health and medical staff have strong buy-in to this project and will continue to support its implementation.	By Mar 30

Appendix X

Kotter's 8-Step Change Model Infographic

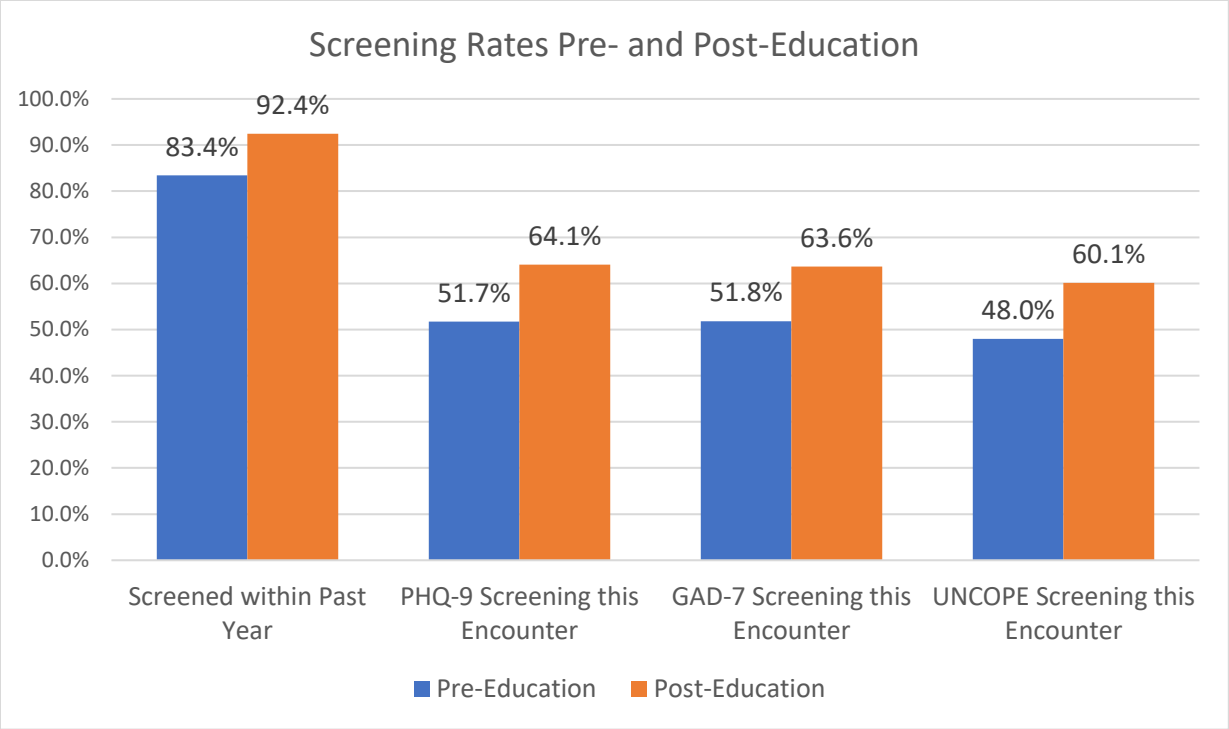
Mind Tools (2017). Kotter's 8-Step change model infographic. Used with permission from Mind Tools

Appendix Y

Behavioral Health Project Dashboard Materials

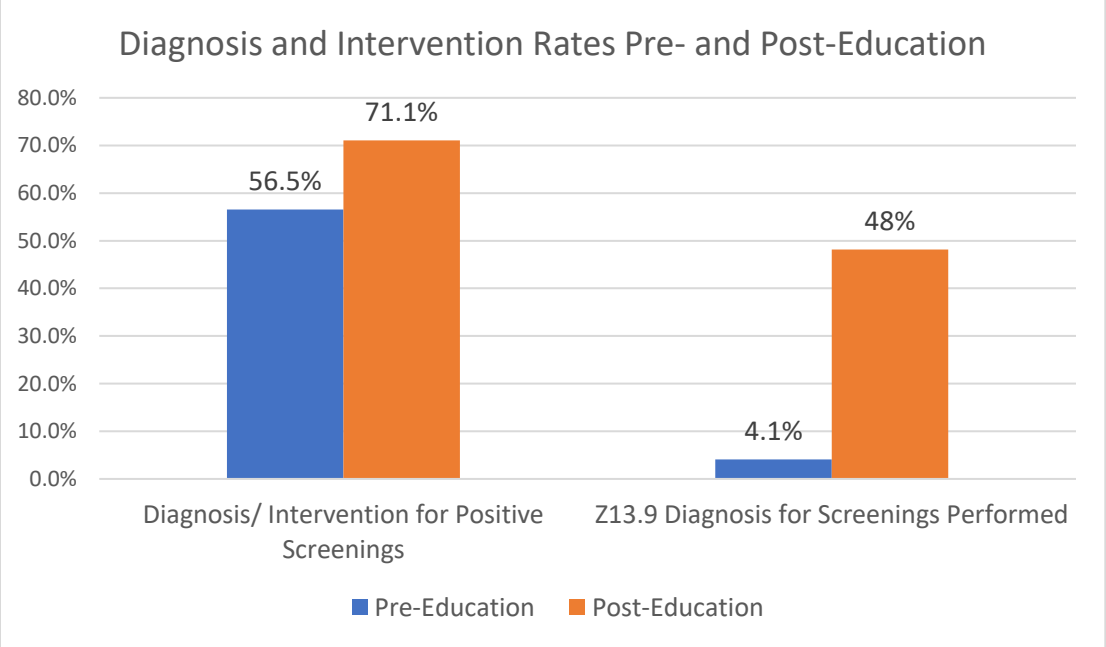
Pre-Intervention Screening Rates									
Date Range	Total encounters (n)	Screening within past year	% Screened within past year	PHQ-9 completed this encounter	% PHQ-9 this encounter	GAD-7 completed at this encounter	% GAD-7 this encounter	UNCOPE completed this encounter	% UNCOPE this Encounter
Dec 18-22 (wk 1)	45	40	88.9%	30	66.7%	31	68.9%	29	64.4%
Dec 25-29 (wk 2)	23	18	78.3%	8	34.8%	8	34.8%	7	30.4%
Jan 1-5 (wk 3)	20	17	85.0%	9	45.0%	9	45.0%	8	40.0%
Jan 8-12 (wk4)	55	45	81.8%	31	56.4%	30	54.5%	28	50.9%
Jan 15-19 (wk5)	59	49	83.1%	33	55.9%	33	55.9%	32	54.2%
Average	40.4	33.8	83.4%	22.2	51.7%	22.2	51.8%	20.8	47.9%

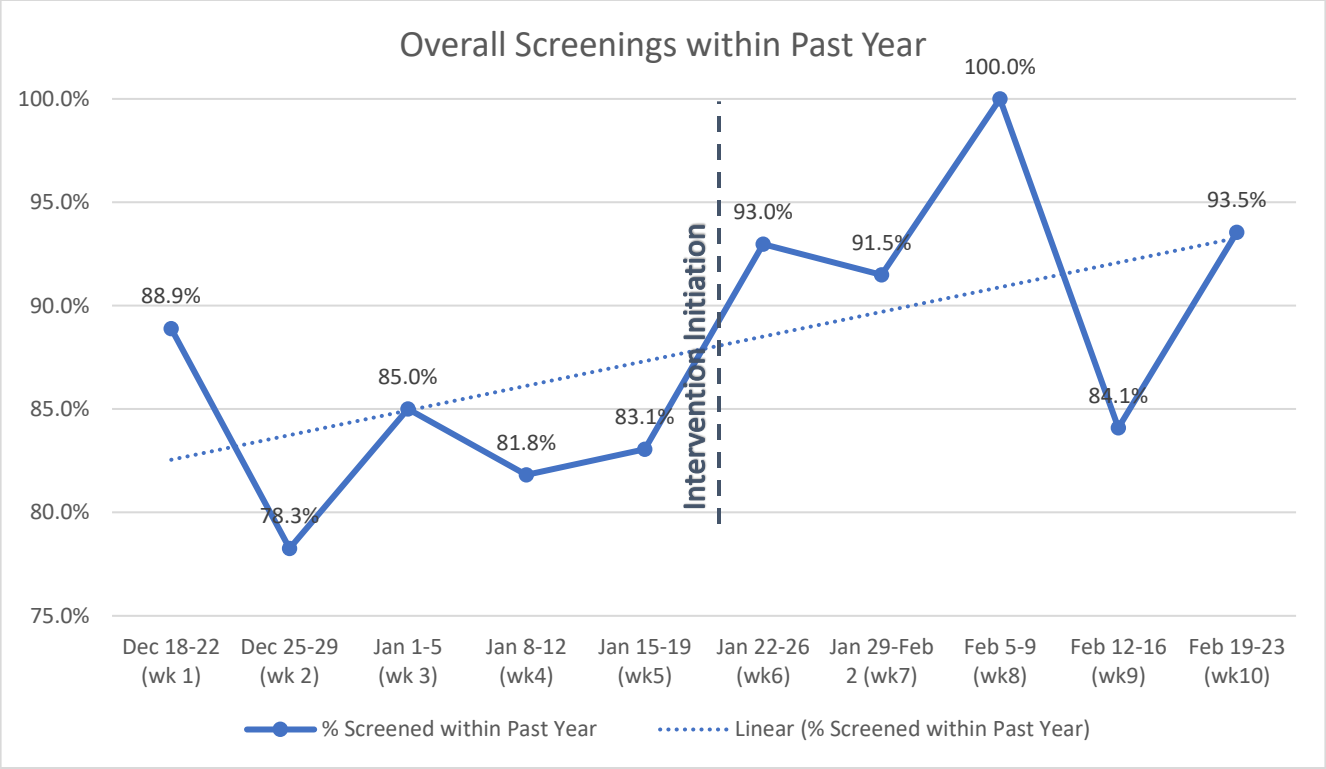
Post-Intervention Screening Rates									
Date Range	Total encounters (n)	Screening within past year	% screened within past year	PHQ-9 completed this encounter	% PHQ-9 this encounter	GAD-7 completed this encounter	% GAD-7 this encounter	UNCOPE completed this encounter	% UNCOPE this encounter
Jan 22-26 (wk6)	57	53	93.0%	37	64.9%	37	64.9%	35	61.4%
Jan 29-Feb 2 (wk7)	47	43	91.5%	32	68.1%	32	68.1%	30	63.8%
Feb 5-9 (wk8)	48	48	100%	35	72.9%	35	72.9%	34	70.8%
Feb 12-16 (wk9)	44	37	84.1%	22	50.0%	21	47.7%	19	43.2%
Feb 19-23 (wk10)	31	29	93.5%	20	64.5%	20	64.5%	19	61.3%
Average	45.4	42	92.4%	29.2	64.1%	29	63.6%	27.4	60.1%

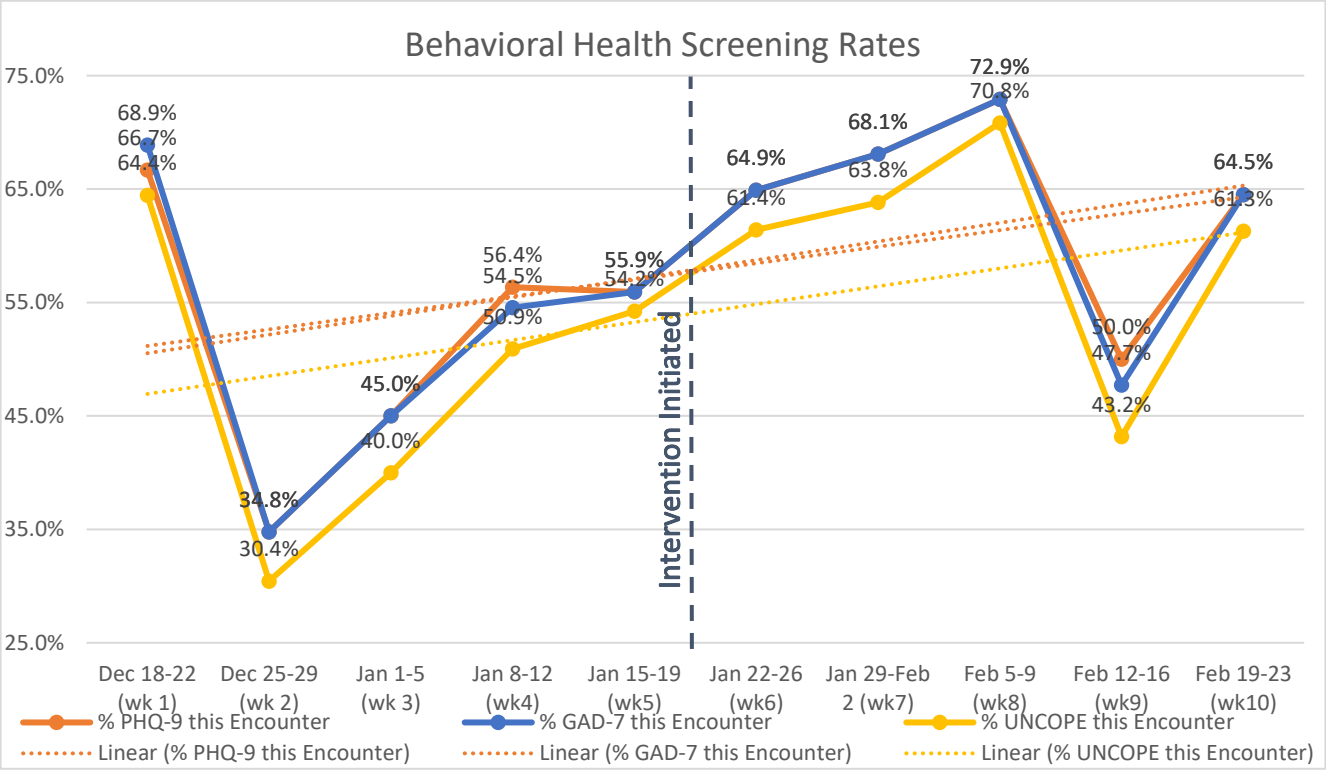


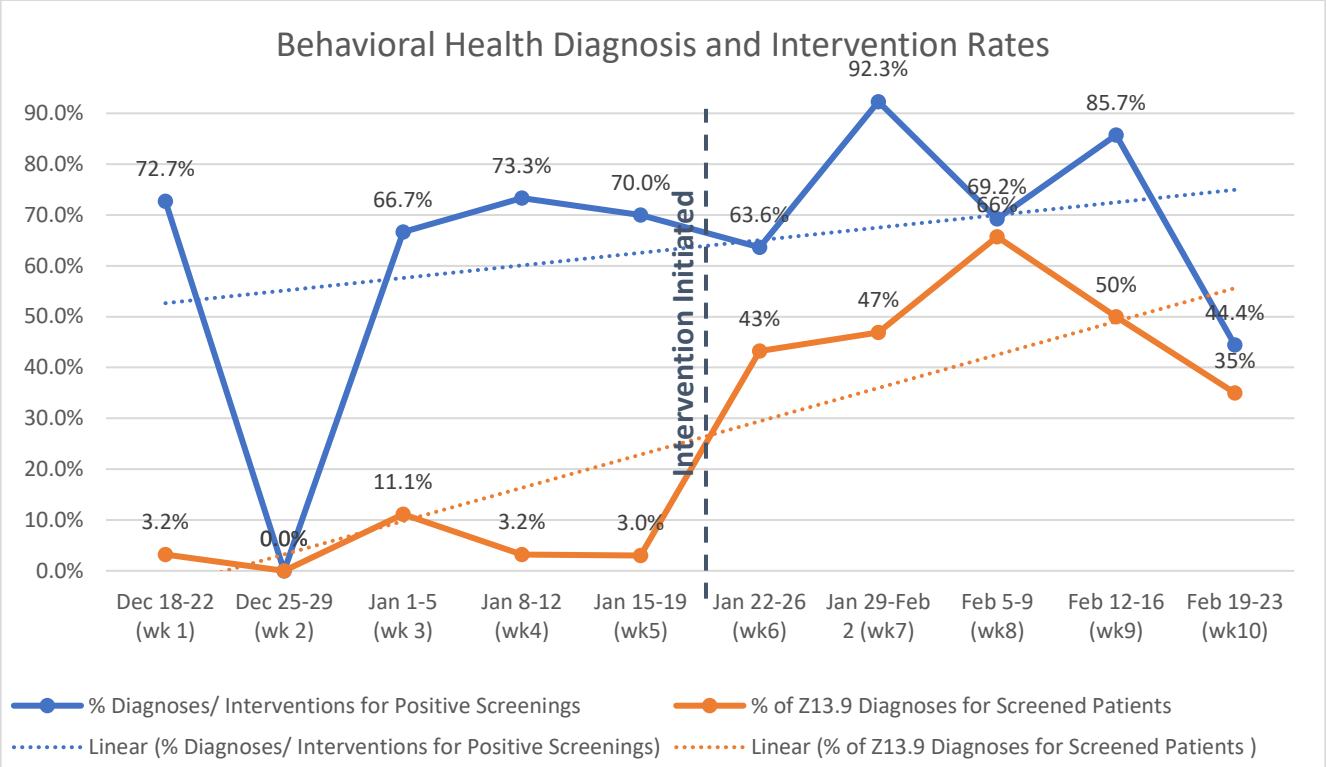
Pre-Intervention Diagnosis and Intervention Rates						
Date Range	Number of Patients Screened	Number of Patients with Positive Screenings	Diagnoses and Interventions for Positive Screenings	% Diagnoses and Interventions for Positive Screenings	Z13.9 Diagnoses Used for Screened Patients	% Z13.9 Diagnoses Used for Screened Patients
Dec 18-22 (wk 1)	31	11	8	72.7%	1	3.2%
Dec 25-29 (wk 2)	8	3	0	0.0%	0	0.0%
Jan 1-5 (wk 3)	9	6	4	66.7%	1	11.1%
Jan 8-12 (wk4)	30	15	11	73.3%	1	3.2%
Jan 15-19 (wk5)	33	10	7	70.0%	1	3.0%
Average	22.2	9	6	56.5%	0.8	4.1%

Post-Intervention Diagnosis and Intervention Rates						
Date Range	Number of Patients Screened	Number of Patients with Positive Screenings	Diagnoses and Interventions for Positive Screenings	% Diagnoses and Interventions for Positive Screenings	Z13.9 Diagnoses Used for Screened Patients	% Z13.9 Diagnoses Used for Screened Patients
Jan 22-26 (wk6)	37	11	7	63.6%	16	43%
Jan 29-Feb 2 (wk7)	32	13	12	92.3%	15	47%
Feb 5-9 (wk8)	35	13	9	69.2%	23	66%
Feb 12-16 (wk9)	22	7	6	85.7%	11	50%
Feb 19-23 (wk10)	20	9	4	44.4%	7	35%
Average	31.4	10.6	7.6	71.1%	14.4	48.2%









Appendix Z

Institute of Healthcare Improvement QI Essentials Toolkit

Histogram

Institute for Healthcare Improvement

QI Essentials Toolkit:

Histogram

Often, summary statistics alone do not give a complete and informative picture of the performance of a process. A histogram is a special type of bar chart used to display the variation in continuous data like time, weight, size, or temperature.

A histogram enables a team to recognize and analyze patterns in data that are not apparent simply by looking at a table of data, or by finding the average or median.

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- Cause and Effect Diagram
- Driver Diagram
- Failure Modes and Effects Analysis (FMEA)
- Flowchart
- **Histogram**
- Pareto Chart
- PDSA Worksheet
- Project Planning Form
- Run Chart & Control Chart
- Scatter Diagram

Instructions

1) Collect continuous data (time, weight, size, or temperature).
2) Sort and tally individual values in the data set and determine the high and low values (for example, 1 and 20 days, in the sample histogram on the next page).
3) Choose a cell width (for example, 2 days, in the sample histogram) that divides the range into 6 to 12 categories of equal width. Favor narrower cells, or choices that highlight gaps in the data.
4) Determine the cell boundaries.
    - Choose a convenient starting point at, or below, the lowest value.
    - Be consistent in handling values that fall on the boundaries (put all boundary values in next higher cell).
5) Tally number of observations in each cell.
    - Check total tally.
6) Draw and provide clear labels on axes.
    - The vertical axis is frequency; the horizontal axis is the variable being analyzed.
7) Draw bars to represent number of data values in cell. Adjacent bars should touch.
8) Title the chart, indicate total number of data values, and show any standards and limits.
9) Analyze and develop explanations for the pattern.

Example: Histogram

One team used histogram analysis to understand the patterns of variation in electrocardiogram (EKG) turnaround time. The team gathered data on EKG turnaround time in days, collecting 32 data points (see data table). The average turnaround time was 8.3 days, which revealed relatively little about the performance of the process. To get a better understanding of the data, the team then sorted the data, tallying the number of data points in each of 10 categories: 1-2 days, 3-4 days, and so on. The team then displayed the data in a histogram. The histogram provided the team valuable new information about the distribution of EKG turnaround times: the vast majority of turnaround times fall in the 1- to 2-day range, with a smaller clump in the 7- to 10-day range, and a third clump in the 13- to 20-day range.

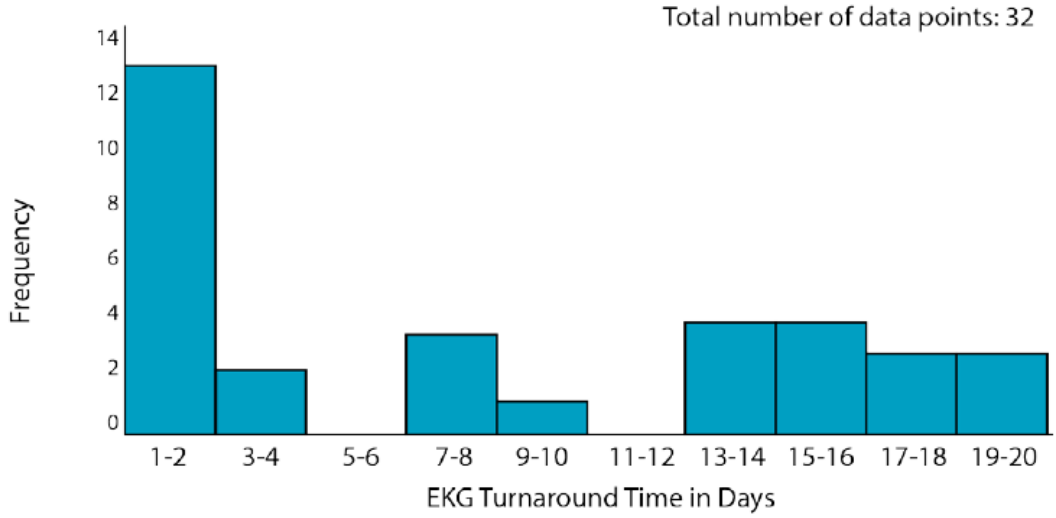
Sample Data Table: EKG Turnaround Time

EKG Turnaround Time in Days

9	16	1	4
15	8	13	1
13	16	14	17
7	2	20	2
2	2	18	3
1	1	2	7
1	2	15	2

Average = 8.3 Days

Sample Histogram: EKG Turnaround Time



QI ESSENTIALS TOOLKIT: Histogram

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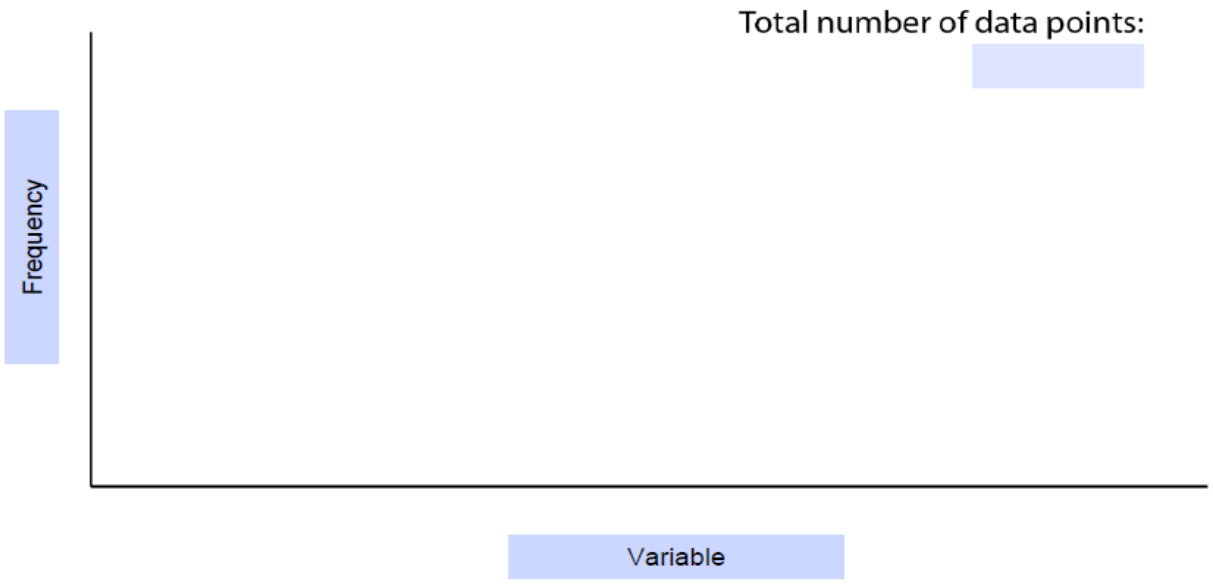
Template: Data Table & Histogram

Data Table

Histogram



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Run Chart & Flow Chart

Institute for Healthcare Improvement

QI Essentials Toolkit:

Run Chart & Control Chart

A **run chart** is a graph of data over time. It is a simple and effective tool to help you determine whether the changes you are making are leading to improvement.

Run charts help improvement teams formulate aims by depicting how well (or poorly) a process is performing, understand the value of a particular change, and begin to distinguish between common and special causes of variation.

Common-cause variation is the natural or expected variation inherent in a process. Special-cause variation arises because of specific circumstances that are not inherent in the process.

A **control chart**, which includes an upper control limit (UCL) and a lower control limit (LCL), goes further to help teams distinguish between common and special causes of variation within a process. Use a control chart when you have more than 15 data points and want more insight into your data.

Control charts help improvement teams identify special-cause variation in a process, identify early signs of success in an improvement project, and monitor a process to ensure it is holding the gains from a quality improvement effort.

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- Driver Diagram
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- Histogram
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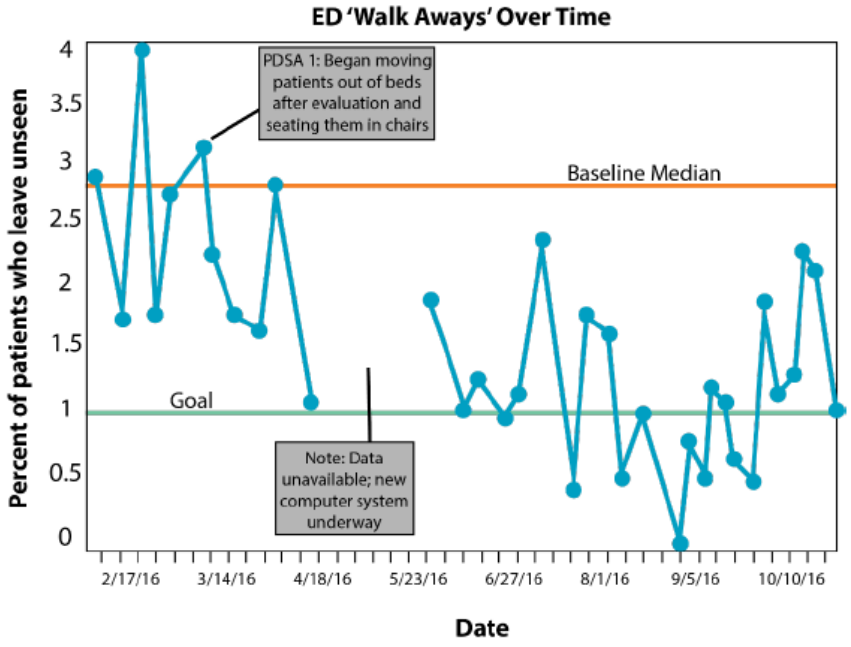
- PDSA Worksheet
- Project Planning Form
- **Run Chart & Control Chart**
- Scatter Diagram

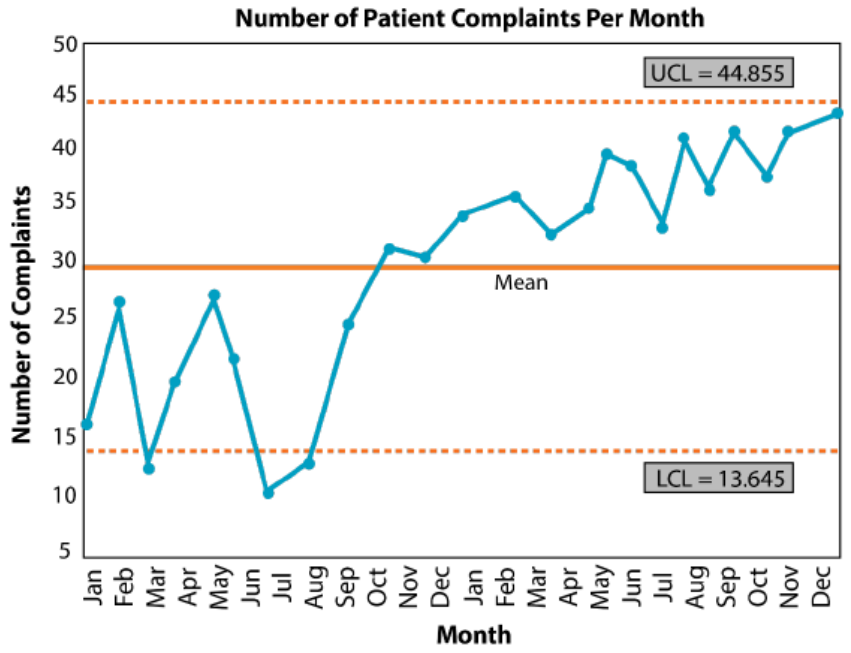
Instructions

1) Obtain a set of data points in their natural time sequence.
2) Draw the vertical and horizontal axes, leaving room on all sides to title and label the graph.
3) Label the vertical (Y) axis with the name of the value being measured (e.g., Percent of Births by C-section, Number of Days to Third Next Available Appointment, etc.).
4) Label the horizontal (X) axis with the unit of time or sequence in which the numbers were collected (e.g., April, May, June, etc., or Quarter 1, Quarter 2, etc.).
5) Determine the scale of the vertical axis. The scale should extend from a number 20 percent larger than the largest value to a number 20 percent smaller than the smallest value. Label the axis in equal intervals between these two numbers.
6) Plot the data values in the sequence in which they occurred.
7) Draw lines to connect the data points on the graph.
8) Calculate the median (the data point half way between the highest and the lowest data point) of the plotted numbers and draw the line on the graph.
    - Note: For a control chart, complete these two steps:
        a) Instead of calculating the median, calculate the mean or control limit (the average) of the plotted numbers and draw the line on the graph.
        b) Calculate and then draw upper and lower control limits that correspond to +/- 3 sigma limits from the mean. (We recommend doing this in Microsoft Excel or another software program.)
9) Title the chart, and note the goal line and the sample size.
10) Annotate the chart, indicating when tests of change were initiated, so that it is easy to see the effect of changes on the measure. Also indicate any external events that may have affected the performance of the process.

Example: Run Chart



Example: Control Chart



QI ESSENTIALS TOOLKIT: Run Chart & Control Chart

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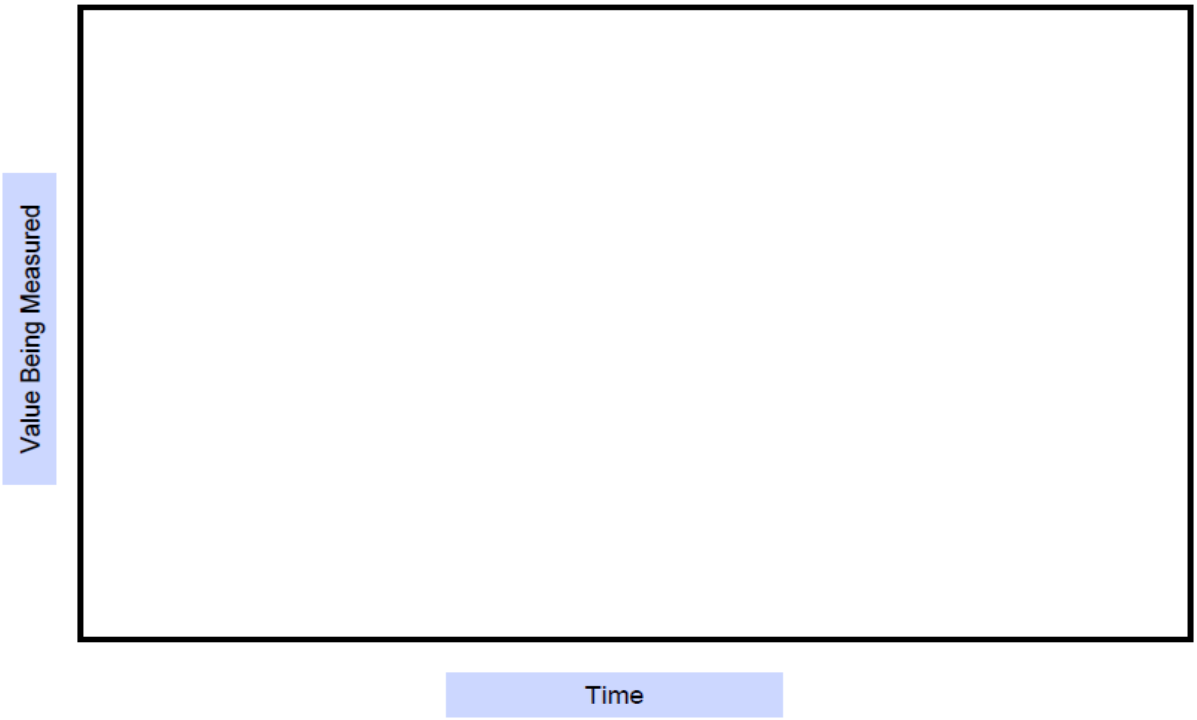
Template: Run Chart or Control Chart



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Appendix AA

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Permission to Use Hierarchy of Evidence Table

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Number of figures/tables/illustrations	1
Figures/tables/illustrations used	Hierarchy of Evidence for Intervention Studies
Author of this Wolters Kluwer article	No
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Expected completion date	Apr 2018
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