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Implementing Universal Adult Depression Screening in a Rural Maine Free Medical Clinic

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Abstract

BACKGROUND: Depression in adults is a leading cause of disability, morbidity and mortality worldwide with an estimated prevalence of 20% in the US population. Despite estimates that one out of every five Americans suffers from depression, less than 50% of adult primary care patients with depression are identified, and less than 5% of all adult primary care patients are screened. To increase early detection and management of depression, the United States Protective Service Task Force (USPSTF) recommends routine depression screening for adults older than 18 years in primary care settings.

LOCAL PROBLEM: This project site was a rural, free, primary care clinic in New England serving uninsured and under-insured adults. Research indicates there is an increased incidence of depression in at risk populations, including this disadvantaged population. The clinic provides medical care delivered by licensed volunteer clinicians and limited counseling services through a community grant. However, there was no routine adult depression screening in place at the clinic.

METHODS: This quality improvement (QI) project implemented universal depression screening in a two-tiered approach using the validated PHQ2 and PHQ-9 depression screening tools. Quantitative methods were utilized to organize and describe the data. Qualitative methods including a post-implementation survey and interviews were used to evaluate the staffs' improvement in knowledge and satisfaction with the intervention.

RESULTS: Participants (n=119) comprised a group of adult primary care patients in rural Maine that reflected the regional demographics. A total of 101 participants were screened for a total of 85% over a 9-week period utilizing a universal depression screening tool administered by clinic staff. There was a positivity rate of 3% on the PHQ-2 and a completion rate of 100% on the PHQ-9. 100% of patients with a PHQ-9 positive score of 10 or greater were referred for follow-up mental health services.

CONCLUSIONS: This QI project demonstrated that it is possible to introduce universal adult depression screening in a "free" rural primary care medical clinic with existing resources that was not time prohibitive. The successful project implementation by staff during patient rooming while obtaining vital signs revealed it was both efficient and effective to provide routine screening. This intervention did not pose an extra burden to clinic staff and reinforced the importance of a more integrated clinical approach to mental health screening during primary care medical visits. Utilizing a depression screening protocol demonstrated an increase in depression screening documentation, staff satisfaction, and patient referrals to mental health specialists.

Keywords: depression, screening, adults, screening, effective strategies, guidelines

Introduction

Depression is a leading mental health problem worldwide affecting more than 300 million people, and is a major cause of disability, morbidity, and mortality (WHO, 2019). It affects one out of every five of the United States (US) population, making it the most frequent mental health disorder. It is found in all races, ethnicities, and socioeconomic levels (CDC, 2020). Depression poses as a severe global public health issue, contributing to an increased incidence of deaths worldwide when associated with complex acute and chronic health problems, (CDC, 2020; WHO, 2019).

Problem Description

Undetected depression results in chronic illness, reduced productivity, lost wages, and high health care costs (AHRQ, 2016). Depression accounts for approximately 10% of physician office visits (Maurer et al., 2018). Despite these facts, it is estimated that less than 5% of patients in primary care settings are screened for depression, and over 50% of primary care patients with depression are not identified resulting in missed opportunities for treatment (Maurer et al., 2018). The United States Prevention Screening Task Force (USPSTF) recommends routine depression screening utilizing validated screening tools in a two-step process in primary care settings, which have available support services for management (AHRQ, 2016). Other national bodies including the American Psychological Association (APA) and American Academy of Family Practice (AAFP) support this recommendation and endorse the use of the Patient Health Questionnaires 2-and-9 (PHQ-2 and PHQ-9) screening tools (Maurer et al., 2018). These tools are publicly available and can be found in different languages in the public domain. The tools are recommended for adults greater than 18 years of age in the primary care setting (USPSTF, 2016). Primary care is identified as the gateway to health care for most patients, and therefore is

an ideal setting to address mental and physical health care at the population health level (AHRQ, 2016). Fleishman and colleagues (2014) reported a PHQ-2 depression screening positivity prevalence of 16% was identified in prior primary care studies, resulting in further assessment with the PHQ-9 screen for severity of symptoms.

Local Problem

Ellsworth Free Medical Clinic, hereafter referred to as EFMC, is a small non-profit 501(c) medical clinic in rural Maine providing free primary care services to uninsured and underinsured adults. The clinic serves approximately 450 patients and is staffed by volunteer licensed clinicians (https://www.ellsworthfreeclinic.org). Additionally, there are five retired nurses who staff the clinic for patient visits, as well as part-time paid employees, including two nurse clinic coordinators, and a secretary. The EFMC clinicians and staff identified the need for mental health counseling services for their patients as a priority health problem for the clinic. Factors which contributed to this include the severe shortage of mental health counseling services in the community, as well as where mental health serves are available, they often do not accept the uninsured as clients. To help address these mental health service issues, EFMC obtained a small community grant to integrate a part-time weekly mental health counselor at the clinic. They were then able to contract this position through a local mental health service organization. A needs assessment during this process revealed that there was no standardized procedure for adult depression screening at EFMC. This presented the risk of under-recognition and under-treatment of patients with symptoms of clinical depression.

Available Knowledge

A systematic review of the literature utilizing the PRISMA guidelines was undertaken in November of 2020 to examine effective strategies to improve depression screening of adults in

the primary care setting. This review included the following databases CINAHL, Cochrane, EBSCO, MEDLINE, PubMed, and Psych Info. Key words were adult, depression, interventions, screening, and strategies. Inclusion criteria were peer-reviewed journals, English language, dating from 2010-2022. Sixteen studies described in the Evidence Summary Table (Appendix A) were conducted at varied primary care settings predominately in the United States (n=15), and one study in New Zealand. Four large medical center studies with multiple sites were included, as well as a variety of community primary care settings. Overall, the studies had large sample sizes, adequate representation of race, gender, age, education, and income with study samples representative of the proposed project site demographic characteristics.

All sixteen studies identified in this review utilized the PHQ-2 and PHQ-9 depression screening tools, or a similar validated version (Appendix A). The PHQ-2 and PHQ-9 tools were specifically used in a two-step process in varied computer application programs, as well as in a pre-visit telephonic screening program. All of these programs were found to be effective with high reliability and validity, however, it is notable that the programs with patient self-administered computer programs were reported to have the greatest satisfaction for both patients and staff. The preferred depression screening programs in five of the studies used handheld electronic computer devices, which were self-administered by patients in the primary care waiting rooms using wireless connectivity to the practice site electronic health record (EHR). Providers were able to review and assess the results in real time, prior to the patient visit, and determine whether further evaluation was indicated.

Four electronic device applications (eDA) were identified as commercial programs including: (a) the Screening Brief Intervention and Referral to Treatment (SBIRT) program (Dwinnells, 2015, Hargraves, et al., 2017), (b) the Computerized Adaptive Testing for Mental

Health CAT-MH) (Graham, et al., 2019), (c) the Vital Sign 6 (Vitalsign6) (Siniscalchi, et. al., 2020), and (d) the Electronic Chat (eChat) (Goodyear- Smith, et al., 2013). Another study by Rose, et al., (2015) utilized an automated telephonic depression screen program for pre-visit depression assessment three days prior to an appointment, coordinated by support staff. Finally, Dannenberg and colleagues (2019) developed an in-house hand-held computerized depression screening program that utilized a two-step depression screening method with the validated PHQ-2 and PHQ-9 tools integrated in their EHR. This study was unique as it used one of the individual primary care clinic sites as a comparison study site with continued use of the paper version of the tools. The Dannenberg, et al (2019) depression screening study program with the integrated EHR was found to be most effective and demonstrated high favorability and satisfaction with patients and staff, compared to the project site using the paper version of the PHQ-2 and PHQ-9 tools.

The predominant finding in all of these studies, as noted in the Evidence Summary Table (Appendix A), indicated patient participants preferred self-administered depression screening with use of a computer device over paper forms. Other significant outcomes included pre-visit depression screening added clinical value with increased identification and treatment of depression, increased shared decision-making, improved quality metrics, and increased documentation. According to Constantini and colleagues (2021) and Dannenberg and colleagues (2019), the PHQ-2 and PHQ-9 tools are the most common validated universal depression screening tools in primary care. This is attributed to their ease of use, low cost, and increased options to administer either by paper format, verbal exchange with staff or provider, computer systems, or individual electronic computer devices. Barriers and limitations identified in these studies included disruptions to office visit workflow, limited provider time, limited mental health

referral sources, poor patient compliance with follow-up, technology interoperability issues, and excessive costs to integrate commercial programs in computer systems.

PHQ-2 and PHQ-9 Screening Tools

Research indicates validated screening tools are essential to facilitate standardized identification of depressive symptoms (Connors, et al., 2016). Due to the proven efficiency and efficacy in practice (AHRQ, 2013), a two-step depression screening method using the PHQ-2 and PHQ-9 tools is highly recommended for use in the primary care setting by the USPSTF (2016), APA (2013) and leading primary care organizations (Constantini, et al. 2021). These validated tools are widely used in primary care and nonpsychiatric settings because they have a strong history of utilization, are readily available in the public domain, require no permission for use, are cost-free, and produced in multiple languages (Connors, et al. 2016). Additionally, the tools have high feasibility and reliability in multiracial and multiethnic populations (Siniscalchi, et al., 2018).

The PHQ-2 depression screening tool shows 97% sensitivity and 67% specificity for depression symptoms, while the PHQ-9 tool shows 61% sensitivity and 97% specificity for depression in adults (Kroenke, et al., 2002, APA, 2013). Questions used in both tools are based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria and include severity scores of mild, moderate, or severe. Both tools ask respondents to rate each symptom item for frequency of occurrence over the past two weeks using a 4-point Likert scale with a range of "not at all equals zero – to – nearly every day equals three." The PHQ-2 is a brief two-question tool recommended as the first step for depression screening in primary care. Of note, these two questions are also the first two questions on the PHQ-9 tool. The PHQ-2 has a score range from zero to six (0-6) points. A score of two or less (≤ 2) is

considered within normal range, with no further recommendation. However, with a score of three or greater (≥ 3), a second step with the PHQ-9 screening tool is recommended for further evaluation of severity of symptoms.

The PHQ-9 tool has nine-questions, indicating the presence and severity of depressive symptoms. The score range is between zero to twenty-seven (0-to-27) points, with increasing scores indicating greater severity of symptoms (APA, 2013). Scores are tallied by adding up each answer's points. The interpretation guide utilizes cut off points at scores of five, ten, and twenty (5, 10, 20) points to indicate various categories of symptom severity (Kroenke, et al., 2001). Scores above 10 are considered severe with a sensitivity of 88% and specificity of 88% (APA, 2013). Additionally, further provider assessment is needed for severe scores greater than ten (>10) for consideration of guideline recommendations for treatment, and/or referral to a mental health specialist.

In summary, review of the literature identifies the PHQ-2 and PHQ-9 depression screening tools as most relevant for screening adults in the primary care setting. Due to the lack of EMR at this project site, a one-page paper version of the combined PHQ-2 and PHQ-9 depression screening tools (Appendix I) was adapted by the staff and utilized for implementation in this quality improvement initiative. The widespread availability of the tools without cost, and in multi-language versions, made them an ideal fit for this project and clinic site.

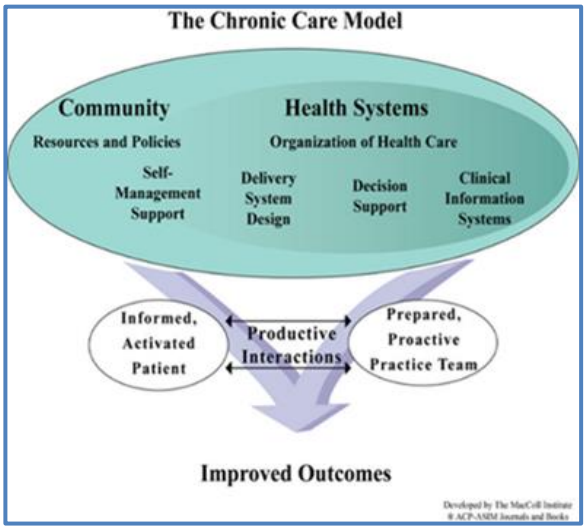
Rationale

No conceptual theory or framework was identified in the research studies reviewed. Therefore, two well-known health care theoretical frameworks were chosen to guide this quality improvement project, which included the Chronic Care Model (Figure 1) and Lippett's Change Theory Model (Figure 2). The Chronic Care Model is a highly regarded health care systems

framework, with a strong history of successful applications to chronic population health issues (Wagner, 1998, AHRQ, 2013). While Lippett's Change Theory Model (Figure 2) is a prominent quality improvement framework providing a step-by-step process for developing plans to affect change.

The Chronic Care Model (CCM) provides an organizational framework to optimize chronic disease management through delivery system design, clinical information systems, decision support and self-management support. The primary objective of this model is to provide quality chronic disease management to improve outcomes (Coleman, et al.2009). Another key objective is to promote clinical team-practice with well-prepared and proactive chronic disease management teams. The CCM is universally applicable to a variety of chronic illnesses, in a variety of health care settings, and is suitable for diverse target populations (AHRQ, 2013). It emphasizes the importance of initiating changes in health care organizations with a systems approach to evaluate and coordinate the interrelated parts of a health care organization, including the patient, provider, organization, and community. A primary aim is to coordinate all systems in a health care organization to inform and empower patients to participate in their health care and treatment.

Figure 1 Chronic Care Model



The CCM provided an ideal platform for the development of this quality improvement project, and facilitated the identification of context, as well as conceptual elements throughout the development and implementation. This understanding was crucial in advancing the

involvement of the organization's management, staff, and patients throughout the various stages of this project. Additionally, this conceptual model was beneficial in identifying the strengths and weaknesses in the various components of the organization during this initiative.

Lippitt's Change Theory Model (Appendix B) is a quality improvement (QI) framework used in healthcare with a seven-step process for implementing change initiatives. The model was developed in1958, as an extension of Lewin's Theory of Change (Mitchell, 2013). Lippitt's change model is frequently used in nursing due to its parallel to the five-step nursing intervention process including assessment, planning, implementation, and evaluation (Mitchell, 2013). This model emphasizes the importance of a systems' approach, including client feedback and continuous analysis. Additionally, it promotes the use of evidence-based practice to address clinical issues, which is necessary to develop credible and sustainable changes in health care systems. Lippitt's steps include: (1) diagnose the problem and develop the need for change; (2) assess the client relationship for motivation and capacity for change; (3) provide clarification by diagnosing the client system's problem and change capacity; (4) establish alternatives as needed; (5) transform objectives into actions for change; (6) stabilize change actions to sustain change; and (7) terminate the helping relationship and exit the quality improvement interaction (Lippitt, Watson, & Westley, 1958; Mitchell, 2013). Lippitt's model provided an ideal framework and steps for the implementation of this quality improvement initiative with collaboration between the project site team. Finally, Lippitt's model was beneficial in determining how to end this project with recommendations to promote sustainability, after the dissemination of the project evaluation.

In summary, the CCM and Lippitt's change model guided the development, implementation, and completion of this quality improvement project to address a clinical

problem at the EFMC primary care setting. The specific problem identified was the lack of an adult depression screening clinical procedure at EFMC, which resulted in inconsistent depression screening of their primary care patients. An evidenced-based adult depression screening protocol was developed and implemented in this project to address the EFMC problem. The CCM and Lippitt's model underpin the development of this quality improvement change at EFMC.

Aims and Objectives

The purpose of this quality improvement project was to increase the identification and treatment of adults with depression in one primary care practice. The overarching aim was to develop, implement and evaluate a universal depression screening protocol using the validated PHQ-2 and PHQ-9 tools recommended for primary care by the USPTF (2016) for adults greater than 18 years of age. The following objectives guided this project:

Objectives

1. 100% of patients at routine visits will complete the PHQ-2 brief depression screen.
2. 80% of patients with PHQ-2 scores of 3 or greater will complete the PHQ-9 severity screen.
3. 80% of patients with PHQ-9 scores 10-to-19 will receive a mental health referral.
4. 80% of patients with PHQ-9 scores of 20 or greater will receive an acute mental health referral.
5. 80% of patients with PHQ-2 and PHQ-9 screens will be documented in the chart.
6. 80% of staff will indicate increased knowledge, self-efficacy, and satisfaction for the screening protocol, as measured by the Likert post-implementation survey.

Methods

The project implementation process was guided by the Plan, Do, Study, Act (PDSA) Model for quality improvement. This model is associated with a long history in organizational management culture (Langley, et al., 2009). The model uses four stages to promote and adopt incremental changes. Stage one identifies a problem and develops a plan for change. Stage two executes the plan and observes the process as it unfolds. Stage three evaluates the results and determines the degree of success. Stage four implements, then adjusts, or discards the changes implemented. This model guides change throughout the process. Active participants move through rapid cycles of continuous learning phases based on the scientific principles of inquiry. The phases include: (a) testing changes by observing actions; (b) interpreting results; and (c) ongoing adaptation of the change for optimal outcomes based on accumulated information (Taylor et al., 2013).

Context

This project implementation occurred at EFMC (https://www.ellsworthfreeclinic.org). EFMC is a rural medical clinic providing primary care to uninsured and underinsured adults in the Downeast Maine region. EFMC was founded as a grassroots organization by volunteer community healthcare professionals over thirty years ago. The purpose was to address the health care needs of the uninsured and underinsured population in this region. A lack of health insurance increases multiple risks for this population, including the primary issue of reduced access to health care. The patient population (98% white) reflects the demographics of rural Maine, which is predominantly white. In 1992 the clinic was established as a Non-profit 501(c) Organization with a strategic mission to offer free, high quality acute and chronic primary care by volunteer healthcare professionals, and to assist patients in gaining access to affordable

healthcare at all needed levels with the support of area medical facilities and services, including access to affordable pharmaceuticals. EFMC is staffed by a Medical Director who specializes in Internal Medicine and Infectious Disease, an Osteopathic physician, a Physician's Assistant, and nurses, who are all volunteers. EFMC has three paid support employees who manage the day-to-day operations. The clinic has an annual budget of approximately $100,000 funded through contributions and community grants, without Federal or State Funding. In 2022 the clinic obtained a community grant to support the hiring of a part-time mental health clinician to provide patient counseling and provide referrals to other mental health services as needed. The addition of a mental health counselor has provided a much-needed service for EFMC patients, with social and mental health issues in need of access to mental health services. The lack of mental health providers and services in this rural area is one of the major health disparities for the disadvantaged uninsured and underinsured population this clinic serves. The CDC (2020) described health disparities as preventable risks of disease, injury, or violence experienced by socially disadvantaged populations, including a lack of opportunities (like health insurance) to achieve optimal health outcomes.

EFMC is located in a small rural town of approximately 8,500 people, which is located within a large county covering 2,300 square miles with a total estimate of 55,400 people (US Census, 2022). The following demographics are identified in the US Census (2022) including the fact that the county has the longest coastline of any Maine County. Commercial fishing and tourism are its most important industries. Approximately, 11% of the population falls below the poverty line; among those 17% are under age 18 and 7% are aged 65 or older. Per capita income for the county was $26,876 and the median combined household income was $55,500. Males had a median income of $41,046 versus $32,444 for females. The racial makeup of the county was

97% white, 1% Hispanic or Latino, 0.3% Asian, 0.4% American Indian, and 0.4% Black or African American. While less than 2% of the population is Hispanic or Latino, 50% of this group is below the poverty line. EFMC has a patient population of approximately 450 individuals, with an annual estimate of 1400 clinic visits.

An External Mapping tool (Appendix C) provided an outline of the EFMC clinic microsystem where this project was conducted. The map included a list of stakeholders and a needs assessment completed for this quality improvement initiative. The proposed project focused on the specific subpopulation of adults greater than 18 years of age. The external map identified key stakeholders associated with the development and implementation of this evidence-based depression screening protocol. Stakeholders included providers, nursing support staff, office staff, an internal MH specialist, and external mental health specialist referral resources.

Multiple factors were associated with the rates of underdiagnosis of depression at the EFMC project site. The Cause-and-Effect Fishbone Diagram (Appendix D) described the contributing factors that existed in the organizational structure. This included patients, staff, providers, processes, procedures, and the overall administrative construct. Identification of these elements provided useful contextual information and important knowledge, which aided in the development of this quality improvement project. The primary goal of the project was to specifically address and mitigate the pertinent contributing factors identified in the cause-and-effect fishbone diagram. Key patient factors included under-reported symptoms, lack of self-awareness, stigma associated with mental health issues, poor compliance with treatment plans, and poor follow-up with mental health referrals. The main contributing factor for the clinic system was the lack of a standardized depression screening procedure. Factors identified by the

staff included their lack of knowledge and their under-utilization in the clinical process for screening. The primary factors affecting providers was the lack of universal depression screening at the clinic and limited mental health community resources. Clinical process factors included the unavailability of paper PHQ screening tools, the absence of a depression screening procedure, and limited documentation of depression screening in the patient records. The key contributing factors were addressed and mitigated throughout the project design based on feedback and continuous review of data.

The Force Field Diagram found in Appendix E identified driving and restraining forces at the project site. These were evaluated during the development of this quality improvement initiative to inform the successful implementation process. The major depression driving forces identified include: (a) it is a widespread costly public health issue contributing to complex psychosocial and medical complications; (b) it is under-recognized in greater than 50% of primary care adult patients; and (c) national primary care organizations recommend routine depression screening in primary care settings that have mental health resources. The major restraining forces included the lack of a depression screening clinical procedure, lack of patient record documentation, and limited mental health referral options. The most important driving force applicable to this project was research indicating depression is under-diagnosed in over 50% of adult patients in primary care. The most challenging restraining force that this project addressed and mitigated was the lack of a standardized evidenced-based universal depression screening protocol.

Intervention

A universal adult depression screening protocol (Appendix H) was developed and implemented for this quality improvement project at one rural primary care setting. Its purpose

was to address the lack of routine adult depression screening and the absence of an associated clinical procedure. The intervention proceeded through three phases including planning, implementation, and evaluation as seen in the Implementation Plan Flow Chart (Appendix G). The Logic Model found in Appendix F identified resources and activities that guided the implementation and evaluation of the project. The essential resources highlighted included the practice site leadership, provider champion and staff members. Project activities focused on developing collaboration among team members, generating buy-in, and facilitating the co-creation of a standardized screening procedure that could be sustainable at this site.

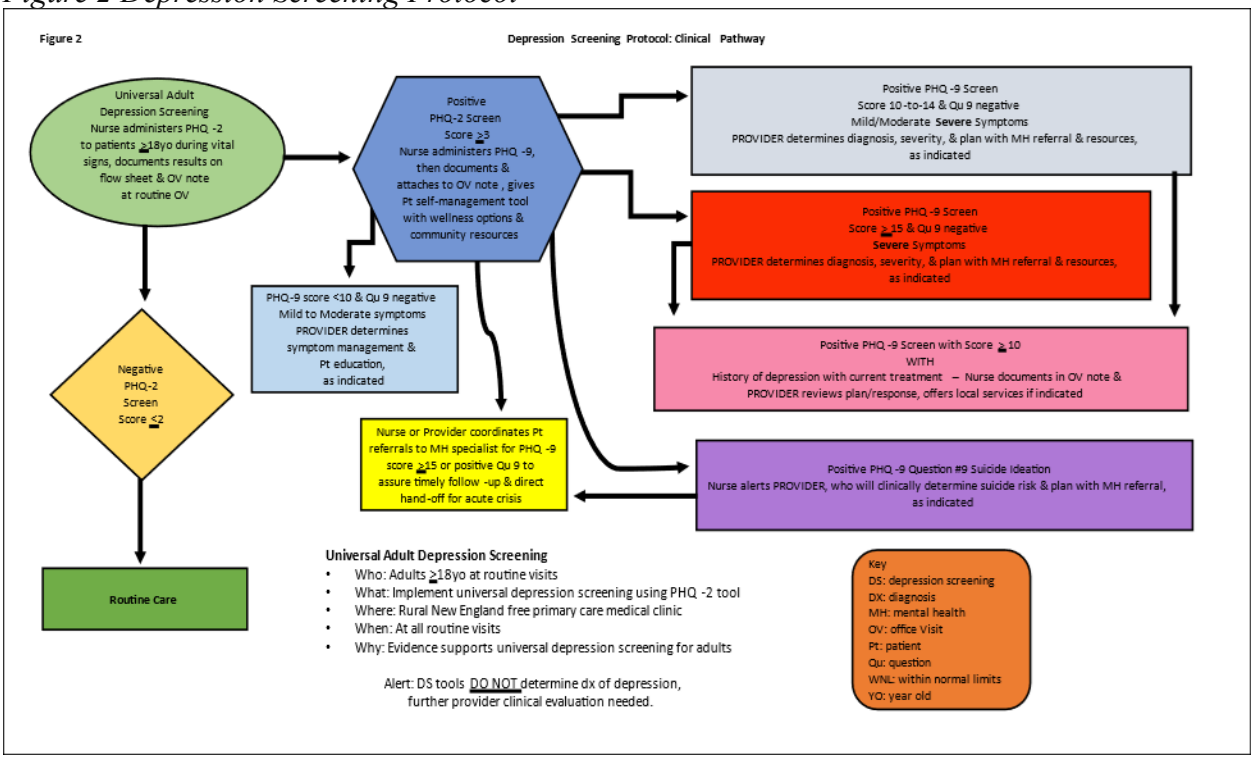
Intervention Description

As outlined in Figure 2, a depression screening protocol was developed for all adult patients, older than 18 years of age, presented to the clinic for a routine visit. A diagram illustrating the process for implementing the Depression Screening Protocol can be found in Appendix H, and the written Depression Screening Protocol is included in Appendix I. The PHQ tools were combined on one page to create the EFMC Depression Screening Form (Appendix J) for efficiency in administering the depression screening. The screening forms are easily accessible in the clinic and printed in both English and Spanish. Versions in other languages may be downloaded for free from many websites including the APA(https://www.apa.org/depression-guideline/assessment). The project site staff chose to have the nurse review the PHQ-2 screening questions orally with patients while obtaining vital signs. The PHQ-2 tool is brief and comprised of the first two questions of the PHQ-9 tool. Having staff ask these brief questions during routine vital signs aided in normalizing mental health assessments for both staff and patients. The staff redesigned their clinic vital sign flow sheet to include a 6^{th} vital sign category for mental health screening, requiring a simple check mark when done. This allowed for a quick review of whether

the screening was completed. Scores were not entered on the vital sign flow sheet to protect patients' privacy. Detailed mental health information was kept in a separate area of the patient medical chart for the provider to review. Associating mental health screening with vital sign screening was determined to be useful, as it emphasized the importance of mental health being part of routine health care.

The depression screening protocol process is outlined in Figure 2. The protocol became standard practice as part of the patient rooming process and pre-exam evaluation. The process took place when the nurses administered the PHQ-2 questions orally, while they assessed the

Figure 2 Depression Screening Protocol



patient's vital signs and updated medical information. The nurses scored the results and recorded them in the chart for the provider to address. Patients with a negative depression screen (PHQ2 <3) proceeded with the routine original purpose for the visit. Patients who reported depressive symptoms with a positive PHQ-2 screen (≥3) received follow-up screening for severity of

symptoms using the PHQ-9. This was done orally or in written form based on the patient's preference. The nurse scored the PHQ-9, as illustrated in Figure 3 and attached it to the patient's chart. Additionally, the nurse made note of positive PHQ-2 and PHQ-9 scores and entered them in the office visit record for the provider to review and discuss with the patient.

The PHQ-9 score indicated the severity of depressive symptoms as outlined by validated scoring measures found in Figure 3. If the PHQ-9 score was four or less (≤ 4), the results were considered within normal limits and the screening was complete, with the office visit proceeding for the originating purpose. All acute mental health assessment referrals with a PHQ-9 score of 15 or more (≥ 15), or a positive response to question nine (9) indicating suicidal ideation, were addressed by the provider directly with the patient. Referrals for follow-up assessment and treatment were prioritized and emergency services provided for those identified as being in crisis. Upon completion of an office visit with a positive PHQ-9 evaluation and plan by a provider, the patient was provided with written follow-up instructions, and scheduled for a follow-up visit to evaluate their response to the recommended treatment plan or referral to a mental health specialist.

Figure 3 PHQ-9 Tool

Over the last 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3
			PHQ-9 total score:	

For clinical context, the PHQ-9 tool is designed to assess the severity of patients' depressive symptoms based on validated metrics. It is not intended to define a diagnosis, which

requires a clinical evaluation by a licensed provider. The PHQ-9 Scoring Symptom Severity and Recommendations found in Figure 4 provides guidelines for providers to consider when evaluating patients for depressive symptoms. The scoring rates symptoms from mild-to-severe and provides recommendations as follows: (a) a score of four or less (≤ 4) is considered within normal limits or minimal symptoms with no specific recommendations; (b) a score of five to nine (5-9) is considered mild depressive symptoms with a recommendation for watchful waiting and to repeat the PHQ-9 at follow-up, as indicated by provider evaluation; (c) a score of ten to fourteen (10-14) is considered moderate symptoms with treatment, counselling and support recommended as indicated; (d) a score of fifteen to nineteen (15-19) is considered mild to moderate severe symptoms with the addition pharmacotherapy, as well as counselling and support recommended, as indicated; and (e) a score of twenty to twenty-seven (20-27) is considered severe symptoms and the initiation of acute pharmacotherapy is recommended. Additionally, if there is severe impairment or poor response to therapy, an expedited acute referral to a mental health specialist for psychotherapy and/or collaborative management

Figure 4 PHQ-9 Scoring Symptom Severity & Recommendations

PHQ-9 Score	**Symptom Severity**	**Recommendations**
0 – 4	None – minimal	• No specific recommendations
5 – 9	Mild	• Watchful waiting; repeat PHQ-9 at follow-up
10 – 19	Moderately Severe	• Treatment plan, consider counseling, follow-up and/orpharmacotherapy
20 – 27	Severe	• Immediate initiation of pharmacotherapy, and if severe impairment or poor response to therapy, expedited referral to a mental health specialist for psychotherapy and/or collaborative management.
From Kroenke K, Spitzer RL, (2002).		

is recommended. A positive response to question nine (9), requires close attention, as it suggests possible suicidal ideation and requires a suicide risk evaluation by the provider, and expedited referral to a suicidal mental health specialist or facility for further evaluation and treatment, as indicated.

Project Implementation Planning

As part of the planning process, a written project proposal was formally submitted to the EFMC clinic's board of directors requesting permission to implement this initiative at the site. Written confirmation was received from the EFMC board of directors prior to beginning the project. The project also received prior written approval from the project's academic advisor.

Phase I, depicted in Appendix G, launched the formal project planning with staff at the project site. It took place over an eight-week period from August 2022 to October 2022. This phase focused on developing the project site team, project review, and determining the specific processes and timeline for implementing universal depression screening with an evidenced-based protocol at this primary care clinic.

The following activities were essential in the planning phase. The primary first step was to obtain staff buy-in and support for this project. This was accomplished by developing collaborative relationships with the medical director of the clinic, as well as other pertinent leadership staff. Staff members were enlisted to serve on the project team. The project team consisted of the team lead, the provider mentor, one additional provider, four nurses and one office secretary. The team assisted in guiding the project through actions that met the specific needs of the clinic. The development and deployment of a written presentation of the proposed universal adult depression screening protocol was emailed to the project site team and staff at their request, as distance in the region precluded in-person meetings. The initial project goals for the staff focused on three main objectives.

1. Expanding the staff's knowledge about depression screening, specifically the administration of the PHQ-2 and PHQ-9 screening tools.
2. Training in the use of the PHQ-2 and PHQ-9 tools and finding agreement on a

standardized clinic protocol for screening all patients and recording results.

3. Approval for a process for continual feedback and project adaptation as needed.

Communication with individual staff members through one-on-one huddles with staff during their scheduled work hours provided opportunities to address questions and to solicit feedback. In addition regular emailed project updates were instrumental in keeping everyone informed and in keeping the project on course. Email was the agreed-upon mode of communication with staff, as they were all volunteers who lived at various distances from the clinic and did not come onsite except when scheduled.

The project leader consulted with relevant project team members for joint development of the project. The PDSA model was used to develop and adapt the implementation plan and timeline specifically for the project site. The project team collaborated by email weekly, as needed, to review the aims of the project, provide feedback, confirm timelines, and finalize processes for the project implementation. The project leader kept notes of interactions, and adapted the protocol implementation plan and timeline, as needed according to the project team input. A post-implementation staff survey was developed during Phase I to assess provider and staff satisfaction with the depression screening protocol, and whether they thought it brought added value for patient care, and if they expected long-term use of the protocol.

Project Implementation

In Phase II, the universal depression screening protocol was implemented at EFMC. Deployment of the universal depression screening protocol targeted adults 18 years of age or older for all routine visits. Refer to Appendix G for an illustration of the project phases. The intervention process for the depression screening protocol is outlined in the clinical management pathway (Figure 2). The project leader kept notes on the project implementation and

collaboration with staff members including practice site huddles, informal one-on-one communications, email communications, and the collection of project data via chart reviews using an Excel data tracking tool.

Project Implementation Evaluation

Phase III concluded the project implementation with evaluation of this clinical initiative and was guided by the aims and objectives for the project. The quality improvement PDSA model facilitated the project evaluation process through logical and sequential steps. Descriptive data analysis was completed for data obtained for this project on the Project Tracking Tool (Appendix L) from information provided in patient charts and on a clinic patient appointment ledger. Notes from weekly huddles with staff members and feedback from patients, as well as email communications, and chart reviews provided continuous feedback and analysis throughout the implementation period. These notes also provided qualitative insight into participants values and satisfaction with processes. Additionally, a post-implementation staff survey using a 5-point Likert scale (Appendix M) was developed to assess the staff's knowledge, self-efficacy and satisfaction with the improvement project. Satisfaction was defined as staff reporting positive views about the feasibility, value, and sustainability of the initiative.

Data variation was considered in the context of the unique project site environment of this small rural free primary care clinic providing services for the uninsured and underinsured. There were limited clinical staff. Most were volunteers and retired from routine employment endeavors. There were three licensed medical providers, as well as six licensed nursing staff. Another consideration was that members of the clinical staff practiced in isolation, on only one-of-two different days scheduled for primary care visits each week. There was no back-up coverage if providers had a day off. There was a paid secretary who generally worked four half

days each week, and additionally two paid part-time administrative nurse clinic coordinators who each worked two half days per week. This helped to bridge gaps in the continuity of clinical care for this primary care clinic's patients, as well as for communication with clinical staff, who had little interaction with each other. Daily and weekly data totals assisted in determining the project's implementation progress.

Measures and Analysis

The Measurement Framework (Figure 5) identified the objectives for this project and describes how they were operationalized. The Measures Table in Appendix K provides greater details. These objectives were used to evaluate processes, assess outcomes, and guided problem solving throughout the project. Quantitative and qualitative assessment tools were utilized to assess the process, measure project goals and inform quality practices for patient care. A Project Tracking Tool (Appendix L) was developed using an Excel spread sheet. The project leader used this for abstracting data from patient's paper medical charts. Descriptive statistics were used to

Figure 5 Measurement Framework

Measurement Framework	
Objectives	**Operationalize/Measure**
1. 100% of patients at routine visits will complete the PHQ-2 brief depression screen.	• Total number patients with PHQ-2 screens, compared to total number patients seen.
2. 80% of patients with PHQ-2 scores of 3 or greater will complete the PHQ-9 severity screen.	• Total number patients with PHQ-2 score ≥3, compared to total number patients with PHQ-9.
3. 80% of patients with PHQ-9 scores of 10-to-19 will have a mental heath referral.	• Total number PHQ-9 screens with scores ≥10-19 with referral to MH, compared to total number PHQ-9 screens with scores ≥10-19.
4. 80% of patients with PHQ-9 scores of 20 or greater will have an acute mental health referral.	• Total number PHQ-9 screens with scores ≥20 with acute referral, compared to total number PHQ-9 screens with scores ≥20.
5. 80% of patients with PHQ-2 and PHQ-9 screens will be documented in chart (check box on VS flow sheet &/or provider note).	• Total number patients with documented depression screen on VS flowsheet or provider note, compared to total number patients seen.
6. 80% of staff will indicate increased knowledge, self-efficacy & satisfaction for the depression screening protocol, as measured by the Likert post-implementation survey.	• Post-implementation Likert survey results will indicate 80% staff positivity, as measured by the survey.

analyze data from patients' medical records. Frequency and percentages were calculated for positive screening scores found on PHQ tools filed in patient charts. Additionally, documented mental health referrals were reviewed in provider's office visit notes found in patients' medical records. Qualitative notes were recorded from meetings, individual conversations, and email communication. Data was used in clarifying system issues, identifying trends, determining shared values, detecting problems, and discovering alternative options for continuous improvement analysis throughout the project process.

Objective one: During the project implementation period, 100% of patients who present for routine visits will complete the PHQ-2 brief depression screen. Evidence of completed depression screening was defined as the number of patients who completed PHQ-2 screens in relation to the total number of patients who were seen for routine visits. The project leader recorded pertinent data from patient's charts and the clinic patient appointment ledger using the project tracking tool (Appendix L). This tracking tool process identified the number of patients seen each day and the number of patients who completed PHQ-2s. The threshold set for universal screening was 100% of patients would complete the PHQ-2. Analysis included frequency, proportions (#PHQ2/#Pts seen), trends over time, change, and percent improvement. Data was evaluated at weekly intervals throughout the project period and accumulated data provided comparisons over time. There was no depression screening data collected prior to this project, therefore there was no pre-implementation data comparison.

Objective two: 80% of patients with a PHQ-2 score of 3 or greater will complete the PHQ-9 severity screen. Evidence of a PHQ-2 score ≥ 3 was drawn from patient's completed PHQ-2 screening tool found filed in their chart. The PHQ-9 and PHQ-2 screens are both on the Patient Depression Screen Form (Appendix I). Data was abstracted from patient's charts using

the project tracking tool (Appendix L) by the project leader. Data reflecting the proportion of patients completing the PHQ-9 relative to the number of patients scoring 3 or greater on the PHQ-2 was calculated and tracked. The threshold set was 80% of patients with PHQ-2 score of 3 or greater would complete a PHQ-9 screen. Analysis included frequency, proportions (#completed PHQ-9/#PHQ2), trends tracked over time, change, and percent improvement. Data was evaluated at weekly intervals throughout the project period and accumulated data provided comparisons over time.

Objective three: 80% of patients with a PHQ-9 score of between 10-19 will be offered routine mental health referrals. Patient's PHQ-9 scores of 10-19 were abstracted utilizing the project tracking tool (Appendix L) with review of the patient's medical record by the project leader. The threshold set was 80% of patients who have a PHQ-9 score between 10-19 would be offered routine mental health referrals. Analysis included frequency, proportions (# MH referrals/#PHQ9 score 10-19), trends over time, change, and percent improvement. Data was evaluated at weekly intervals throughout the project period and accumulated data provided comparisons over time.

Objective four: 80% of patients with a PHQ-9 score of 20 or greater will be offered an acute mental health referral. Patient's PHQ-9 scores of 20 or greater were tracked utilizing the project tracking tool (Appendix L) with review of the patient's chart by the project leader. The threshold set was 80% of patients who had a PHQ-9 score of 20 or greater would be offered an acute mental health referral. Analysis included frequency, proportions (# acute mental health referrals/# PHQ-9 $\geq$ 20), trends over time, change, and percent improvement. Data was evaluated at weekly intervals throughout the project period and accumulated data provided comparisons over time.

Objective five: 80% of patients who present for a routine visit will have documentation of depression screening using the PHQ-2. Documentation of depression screening for patients was tracked utilizing the project tracking tool (Appendix L) and review of the patient's medical record by the project leader. The onsite nurses amended their vital sign flow chart to include a check box for mental health screening during office visits. This provided a quick efficient system for documenting screening while updating other required medical information. Positive PHQ-2 and PHQ-9 scores were recorded in the patient's medical chart, specifically on the office visit note, for review by the provider. In addition, all completed depression screening forms were filed under the mental health category in patients' medical charts. The threshold set was 80% of patients will have medical record documentation of universal depression screening for all routine visits. Also, patients who declined to complete screening are documented on the PHQ screen and filed in the chart. Analysis included frequency, proportions (#pts doc of PHQ2/# pts seen), trends over time, change, and percentage improvement. Data was evaluated at weekly intervals throughout the project period and accumulated data provided comparisons over time.

Objective six: 80% of staff will indicate increased knowledge, self-efficacy & satisfaction in the implementation of the universal depression screening protocol. A post-implementation survey with a 5-point Likert scale was used to evaluate staff member's knowledge, self-efficacy and satisfaction with the adult depression screen protocol implementation. Knowledge and self-efficacy was evidenced by positivity to direct questions on the survey. Satisfaction was evidenced by positive responses to questions on the feasibility, value, and sustainability of the initiative. The survey was emailed to all staff who were participants in this project. This included two providers and six nurses. The Likert scale had a range of strongly agree to strongly disagree. Responses on the 5-point Likert scale were

dichotomized to positive responses (scores ≤4) and negative responses (scores ≥4) to evaluate the goal that 80% of staff were satisfied with the intervention. Results from the questions were tabulated to display frequency expressed as a proportion. The scores were utilized to assess attainment of the objective.

Ethical Considerations

Quality improvement projects conducted at EFMC needed no formal applications, reviews, or additional documentation. Project permission was obtained from the project site board of directors and medical director. The project leader completed certificate training on the Health Insurance Portability and Accountability Act (HIPAA). The Health Clinic is HIPAA compliant and all health information on patients is private and securely protected. Onsite team member feedback and concerns were strongly encouraged and willingness to participate was completely voluntary without any punitive consequence attached.

To assure further ethical integrity the University of Massachusetts Boston (UMB) Clinical Quality Improvement Checklist (Appendix O) was completed and demonstrates that this project meets all criteria as a quality improvement project and not human subject research. The University of Massachusetts Boston Internal Review Board (IRB) has determined that quality improvement projects do not need to be reviewed by the IRB. This quality improvement project received approval from the University of Massachusetts Boston Doctoral of Nursing program prior to implementation through review and approval of the Clinical Quality Improvement Checklist by the DNP implementation project advisor.

Results

Demographics

Over the course of the two-month implementation period from October 2022 through

December 2022, 127 patients were seen for routine office visits. Figure 6 illustrates the demographic characteristics of the project participants. The majority of participants were over 40 years of age, with slightly more male participants than female. Most participants reported white as their race (92%, n=117), which is representative of the demographics of this rural Maine region. The remaining participants self-reported their race as Hispanic/Latino (9%, n=11), with a majority of Hispanic/Latinos reporting their preferred language as Spanish.

Figure 6 Demographics

Demographic Characteristics of Participants (n=127)		
Characteristic	**n**	**%**
Sex		
Female	59	47%
Male	68	540%
Race		
White	117	92%
Hispanic/Latino	11	9%
Age	Range 40-69	n=92, 78.63%
20-29	4	
30-39	19	
40-41	32	
50-59	43	
60-69	28	

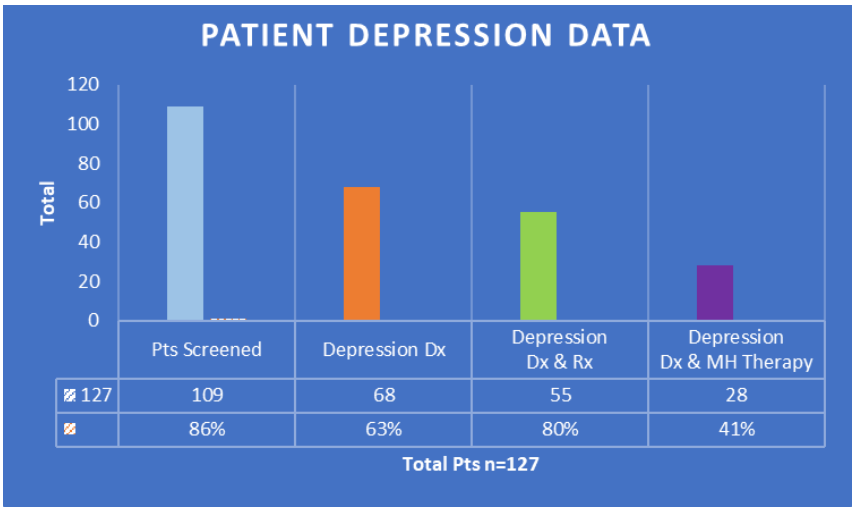
PHQ-2 and PHQ-9 Depression Screenings

There were 109 (86%) PHQ-2 screenings completed during the study period out of 127 patients who were seen for routine office visits. This met and exceeded the goal that 80% of patients seen for a routine office visit would be screened with the PHQ-2. No patient refused to complete the screening. Most missed PHQ-2 screenings occurred during the early phase of the project when staff forgot to implement the screening tool. Of the 109 patients who completed PHQ-2 screenings, three patients (3%) scored ≥ 3 and were immediately asked to complete the PHQ-9. Of those three patients, all three (100%) completed the PHQ-9. This met and exceeded the objective 2 goal that 80% of patients with a PHQ-2 score of 3 or greater would complete the PHQ-9 severity screen.

The PHQ-2 prevalence of 3% positive depression screens in this primary care project was low compared to rates of 16% previously reported in the literature review of other primary care studies (Fleishman, et. al. 2014). The small clinic patient population may have contributed to

this. Of the three positive PHQ-2 scores ≥ 3 (3%), one patient had an existing diagnosis of depression, and two patients had no history of an existing diagnosis of depression. Of the109 patients who completed the PHQ-2 tool, 37% (n=41) did not have documentation of an existing diagnosis of depression, while 63% (n=68) had documentation of an existing diagnosis of depression. Additionally, 80% (n=55) of the patients with an existing diagnosis of depression were documented as having treatment with depression prescriptions, and 41% (n=28) were documented as receiving mental health therapy. Overall, Table 2 demonstrates that a significant number of patients who receive care at EFMC have a diagnosis of depression (63%; n=68), and of those, 80 percent are treated with medication, or a combination of medication and mental health therapy.

Figure 7 Patient Depression Data

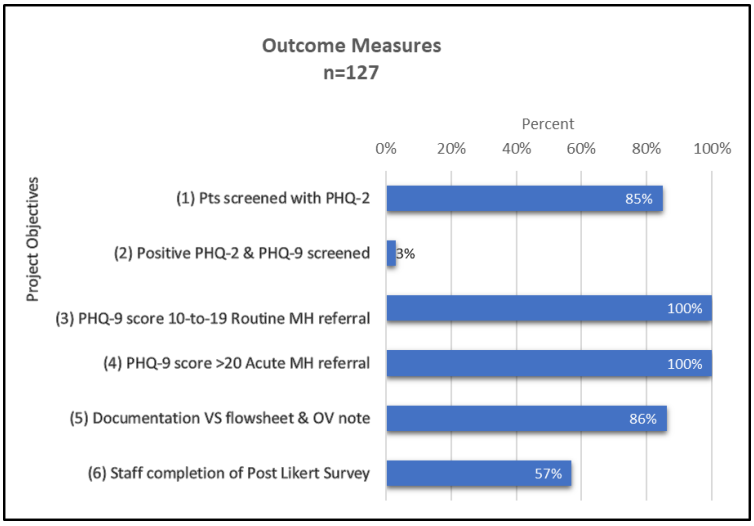


To better understand the low positivity rate on the PHQ2 among those who did not already have a diagnosis of depression (5%; n=2/41), compared to the national average of 16%), we looked at the number of individuals who had an existing diagnosis of depression to see if this impacted the number who scored high on the PHQ2. Of the group who scored ≥ 3 (n=3) on the PHQ2, only one had an existing diagnosis of depression. There were 55 participants with a prior diagnosis of depression with documented treatment with meds, and only one of this group who scored ≥3; (n=1) resulting in 2% positivity. It may be that the overall smaller positivity rate associated with this project implementation of universal PHQ-2 screening was evidence of

effective treatment outcomes for the majority of these patients who were receiving prescription medication and mental health therapy.

Of the 3 patients who completed the PHQ-9, 2 patients (67%) scored between 10-to-19 (moderate to severe symptoms) and 1 patient scored >19 (severe symptoms). Both patients (100%) with moderate to severe symptoms (PHQ-9 score between 10 and 19) were successfully set-up with onsite mental health referral appointments and follow-up. This met and exceeded the goal of objective three that 80% of patients with a PHQ-9 score between 10-to-19 will be offered routine mental health referrals. The one patient (100%) with severe symptoms (PHQ-9 score ≥20) was referred to acute mental health care coordinated by their provider. The nurse later followed-up to ensure that the patient obtained the mental health referral services recommended. This met and exceeded the goal of objective four that 80% of patients with a PHQ-9 score of 20 or greater will be offered an acute mental health referral.

Figure 8 Outcome Measures



To ensure patients had adequate support, all three patients who screened positive for depression were given handouts with information and phone numbers for local community mental health services. Interestingly, one patient who was seen during the project period recorded a score of 27 (severe symptoms) on a prior PHQ-9 screen at an office visit before the start of this project. Upon return four weeks later during the project period, the patient had a PHQ-9 score of 14 (mild symptoms). The follow-up screening score for this patient indicated

improvement in the severity of depression symptoms. Between appointments this patient started on prescribed medication, self-help instructions, and had acute mental health services. The provider reported it was useful to have the follow-up PHQ-9 score to assess the patient's progress. This demonstrated how establishing a standardized depression screening protocol can be helpful in identifying depressive symptoms, improving access to mental health care, and measuring progress toward treatment goals.

Documentation

Standardized procedures were put in place to document the administration of the PHQ-2 in the patient's medical charts during routine visits. Chart reviews revealed that for 87 patients, the administration and scoring of the PHQ-2 was noted in the patient's medical record. This represents a completion rate of 89% out of 109 administered. In addition, all PHQ-9 screens (n-3) were documented in the patients' medical record for a 100% completion rate. This met and exceeded the goal for objective five that 80% of patients will have documentation of depression screening using the PHQ-2 and PHQ-9 tools.

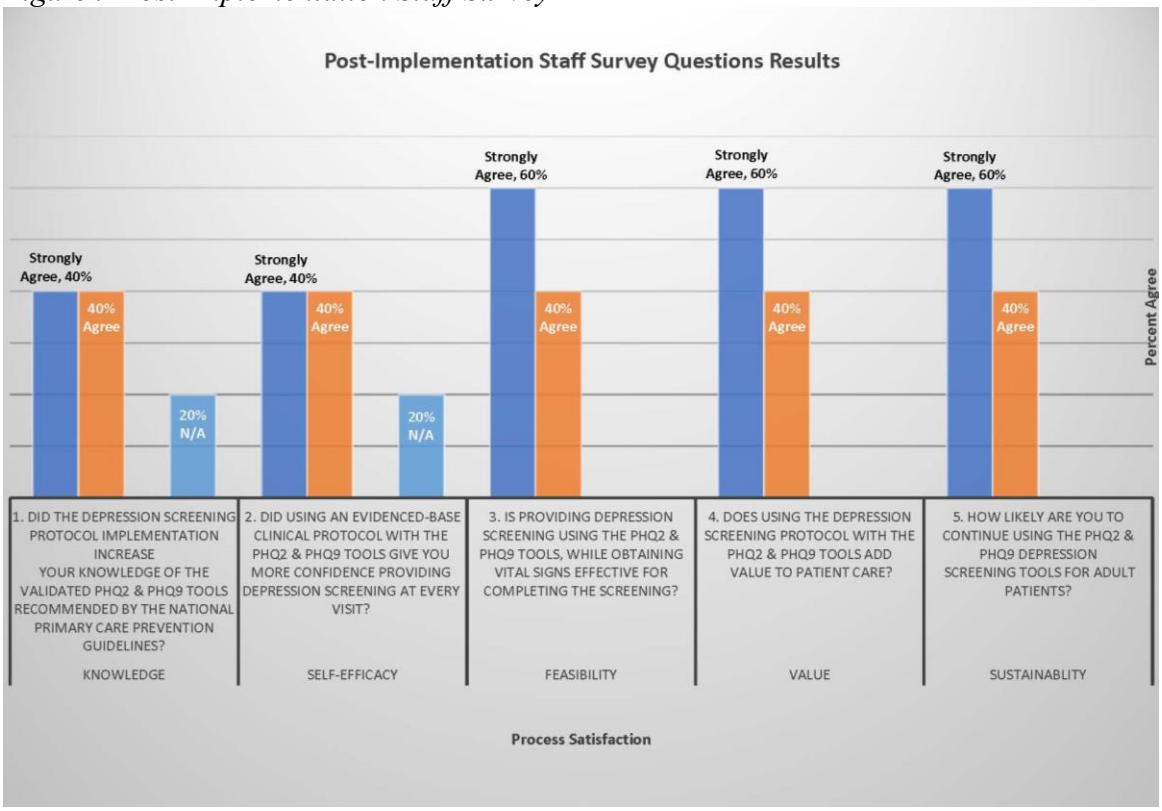
Staff Survey

A five question post-implementation survey was designed to assess improvement in staff knowledge and self-efficacy, as well as evaluate their perceived satisfaction after implementation of universal depression screening. Satisfaction was evidenced by positive staff perception of the feasibility, value added, and sustainability of the project. The survey was sent via email to all eight staff members (two providers and six nurses) who participated in the implementation of the universal depression screening and protocol. Five staff members responded for a response rate of 63%, including four nurses and one provider.

A bar graph (Figure 8) highlights the survey questions and results. The survey results

were generally positive for all questions from the five respondents. The respondents answered questions one and two with 80% agreement (agree or strongly agree) indicating that this quality improvement implementation project increased their knowledge and self-efficacy for implementing universal adult depression screening utilizing the PHQ tools. Questions three, four and five were designed to evaluate staff members' satisfaction with the depression screening protocol implementation, as evidenced by positive responses to questions regarding the project's feasibility, value and sustainability.

Figure 9 Post-Implementation Staff Survey



Of note, the staff universally agreed with the following questions about depression screening with the PHQ tools including: (a) it was feasible when administered during rooming while obtaining vital signs; (b) it added value to patient care; and (c) it is sustainable with the expectation to be continued after the project ends. These measures are important indicators for the success of the continued implementation of this quality improvement protocol. The survey

data of 80% to 100% agreement supports that the goals were met for objective six, which stated 80% of staff would indicate increased knowledge, self-efficacy and satisfaction for the implementation of the universal depression screening protocol.

Discussion

Summary

This quality improvement project was designed to implement a universal depression screening protocol at all routine office visits in one free primary care clinic in rural Maine. Deploying universal depression screening at all routine visits, as part of collecting the patient's vital signs, provided a standardized procedure that could be implemented consistently by all staff and ensured that all patients were screened for depression. Screening was administered and scores were recorded during patient rooming with information immediately available to the provider to assess and act upon as indicated. Universal depression screening in the primary care setting is recognized as an effective opportunity to improve early identification, treatment, and outcomes for patients with depression. This project demonstrated that universal depression screening is feasible and adds value to clinical practice with the validated two-step process using the PHQ-2 and PHQ-9 screening tools. Additionally, the implementation of this protocol encouraged patients to participate in the process and promoted their decision-making with regard to providing their mental health information by verbal or written response to the screening tool questions. Over time, continued utilization of universal depression screening for patients will produce trends, which can be used to assess patient's current depressive status, as well as to assess progress toward treatment goals.

Two well-known health care theoretical frameworks guided the development and implementation of this project including the Chronic Care Model and Lippitt's Change Theory.

Both models foster the promotion of informed patients who are active in shared decision-making and self-management. Providing universal depression screening at all routine visits promoted a more comprehensive team approach to prevention and early intervention by having nurses discuss and administer the PHQ screening tools with patients during patient rooming, along with having results available to the provider for follow-up assessment and planning during the medical office visit. The Chronic Care model was useful in promoting informed activated patients and providers for shared decision-making. Additionally, the model informed the development and implementation of this quality improvement project to embed an evidenced-based depression screening protocol into routine clinical care, with strategies including self-assessment tools for patients and decision aids for providers. Due to the lack of electronic medical records, a key mitigation strategy was developed by the project team to activate and support the clinic staff implementing this project. Specifically, a new paper depression screening form was created for the clinic combining the PHQ-2 and PHQ-9 tools on one page to increase efficiency for the nurses and providers, as well as to decrease paper costs for the clinic.

The key driving forces in the successful implementation of this project included the desire for standardized clinical guidelines for the clinic and compliance with national guidelines to provide depression screening for adults with evidenced-based standards and quality metrics. Additionally, restraining forces and barriers were identified and addressed in the execution of this project. These included the lack of a routine depression screening procedure, paper patient medical records, limited staff computer literacy, inconsistent depression screening documentation, and under-utilization of team-based medicine practice. The depression screening protocol implemented with this quality improvement project aids in providing specific steps and strategies to address these barriers and to promote sustainability of this quality improvement

initiative.

This project highlighted how the implementation of an evidenced-based clinical protocol facilitated best practice and promoted staff satisfaction. Further, it demonstrated that it is possible for nurses to integrate validated depression screening tools (PhQ-2 and PHQ-9) into routine primary care visits for adults with a two-tiered approach. Utilizing standardized universal depression screening tools provided clinicians with important clinical information relative to the presence and severity of depressive symptoms. This was useful for establishing a patient's depressive symptoms baseline, which aided in assessment of follow-up management and mental health referrals.

The implementation of this project demonstrated that adding screening did not overburden staff or providers, nor did it decrease productivity. This project indicated it was possible to efficiently introduce a brief paper-based screening to identify patients with depression symptoms during the routine office visit. Additionally, it revealed that patients welcomed discussing mental health as a routine screen when assessing vital signs. The project highlighted how integrating mental health screening as an additional vital sign screen promoted normalizing mental health as part of routine health care for both staff and patients.

Informal weekly conversations with clinic staff and regular email contact were important in evaluating successes and challenges throughout project. Individual and small group conversations provided opportunities for team collaboration and problem solving. One challenge of concern was whether demand for counseling services would exceed available resources. Strategies were explored to address this. A solution was to develop a community referral resource list for staff and patients. Another challenge was that the clinic did not have an electronic medical record system. All patient's medical records were recorded on paper and filed.

This required manual data entry and made data analysis and access problematic. The lack of electronic medical records prevented online medical record access including direct clinical communication, or access to testing, as well as health screenings like depression. As a small volunteer free medical clinic without state or federal funding, this obstacle will likely remain a barrier.

Conclusions

This quality improvement project was effective in implementing an integrated clinical approach for mental health screening during all routine visits at this rural free medical clinic. Utilizing the depression screening protocol resulted in an increase in the following: (a) the number of patients who received depression screening, (b) depression screening documentation,(c) the number of patient referrals to mental health specialists, and (d) staff knowledge, self-efficacy and satisfaction with the process. The project illustrated that the PHQ-9 screen aided in identifying severe depression symptoms, which facilitated referrals to mental health specialists.

The project clinic site provides medical services to patients with socioeconomic constraints and who typically lack access to care because they do not have health insurance or are underinsured. Research indicates people with lower SES are at increased risk of poor health outcomes, including depression, as well as extreme stress of economic, food, and employment insecurity (2020, McMaughan, et al.). The clinic staff are highly committed to the patients and attuned to the needs of the community. The staff have long been concerned by the high prevalence of depression in their patients (67%) and have worked tirelessly to bring mental health resources to the clinic despite a lack of qualified licensed candidates in the rural region. The medical director developed a collaborative relationship with a local retired psychiatrist, who

volunteers to see patients for mental health medication consultations monthly. Additionally, one of the part-time nurses, who was also the clinic development director obtained a local community grant two years ago to hire a part-time mental health counselor to see patients free of charge at the clinic. After the initial counselor left, the clinic medical director obtained a contract with a local mental health community clinic to provide a part-time mental health counselor. Recently, the project site was able to extend the community grant for this position for another year, as well as extend the contract with the local mental health clinic to provide an ongoing mental health counselor. Standardization of depression screening at the clinic complements the work that has been done to date by assuring that all patients are screened for depression symptoms, accelerating the identification of individuals with severe depressive symptoms and optimizing the treatment of whose with a depression diagnosis.

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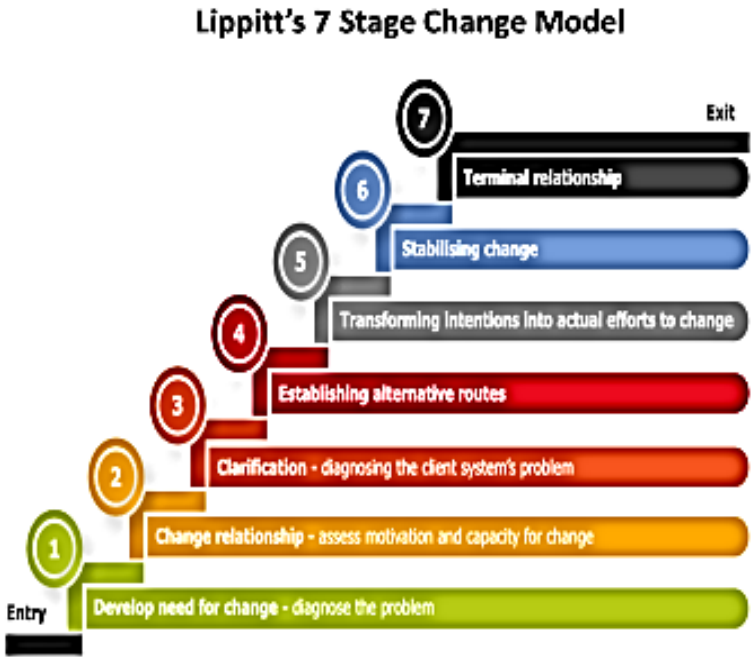
Appendix A

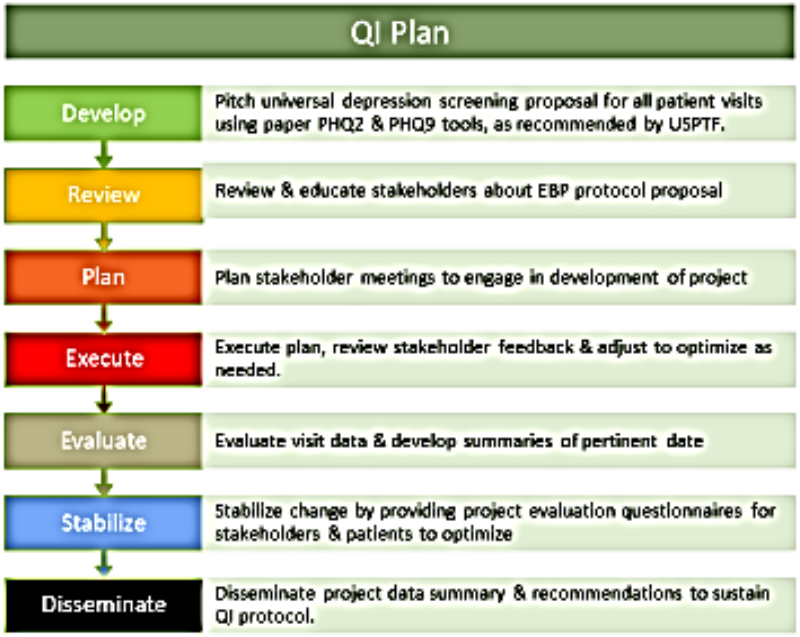
Evidence Summary Table

Interventions	Studies/Level & Grade	Significant Findings	Sample/Setting
Pre-visit x3 days before appt, 2-minute automated telephonic interactive voice response (IVR) program with x6 question screen of depression and risky behaviors (anxiety, alcohol, drugs, tobacco, weight)	Rose, 2015 Level/Grade 3A	• Results indicate pre-visit screening feasible w/majority(74%) of contacted pts responding. • 97% participants responded at least x1question. • Increased screenings consistent w/existing literature,although different screening methods, • Approx. 20% positive, higher than other studies, likely dueto simple & small number of questions. • More women positive than men, like other studies. • Use of 2nd screen tool used for +results to improve PCPs' ability to interpret & prioritize results. • Pre-screening allows informed shared decision-making w/provider. • IVR pre-screening recommend as routine practice to provide pre-screening options in addition to EMR, patientportal & waiting room electronic device. • IVR integrated into existing technology & recordsmanagement.	• 8 PC sites Burlington VT, 2012-2014 • (n=8,490) participants complete screen • Positive depression response 19.6%. • Female 57%, White 97%, Married 65% • Age >18 years; 75% >44 years mean • Some college or higher education 79% • Private Insurance 58%, Medicare 33%
Pre-visit self-administered Depression screening using Varied applications with different screening tools Including electronic digital device(s) (eDA), PHQ-2 & PHQ-9 paper/pen, and automated telephonic via the following programs: (a, b) SBIRT (c) CAT-MH) (d) Vitalsign6 (e) eChat (f) In-house developed program comparing one group with	(a) Dwinnells, 2015 Level/Grade 2A (b) Hargraves, 2017 Level/Grade 3A (c) Graham, 2019 Level/Grade 3A (d) Siniscalchi, 2020 Level/Grade 3A (e) Goodyear-Smith, 2013 Level/Grade 3B (f) Dannenberg, 2019 Qualitative Study	• Participants preferred eDA self-administered screeningon electronic devices to paper/pen • All screening tools = high level reliability, validity &efficiency • PHQ-2 & PHQ-9PHQ-9 most common universal validated depression screening tools in primary care due to low-cost ease of use & increased options to administer via verbal exchange, paper/pen, computer &/or eDA. • Pre-visit screening promotes shared decision making • Improved ID & treatment provides opportunities todecrease health risks • Added value with improved quality metrics & billingpotential • Improved documentation • High staff satisfaction. • High patient satisfaction.Barriers • No clinical pathway or protocol • Disruption to office visit workflow, limited time • Limited mental health referral sources • Poor patient compliance w/follow-up • Technology interoperability issues • Costs to integrate commercial programs	(a) 6 mo RCT study at FQHS NE Ohio. SIBIRT eDA effective >paper/interview. (n=2482) participants, >90% below 200% poverty, author didn't report other demographics. (b) 18mo eDA effective at 10 varied PC sites Cincinnati & North KY region assoc w/academic med school. 14,062 PHQ-2 pre-screen w/3,659 +PHQ-2, 3,706 PHQ-9 full screens w/2,294 +PHQ-9, 1050 (45.8%) Brief intervention 693 (66%) Referral to specialist. Eight best SBIRT practices described from qualitative themes€(c) eDA study effective at urban academic med ctr PC clinic in Chicagoarea. (n=271) participants, 71% Female, 65% Black, 94% Non-Hispanic 57 Age, mean, 47% Income >$50k50 % College or higher (d) 4 mo eDA effective at multi primary care sites- lg academic med ctrTX. (n-1200) participants, 55.5% Female, 46.7 Age mean, didn't report other demographics. (e) 2 wk eDA effective in 2 PC medical sites in Auckland NZ. (n-211). >90% response rate. Author didn't report other demographics. (f) 18mo qualitative study of eDA effective at PC clinic Lebanon NH. Used focus grp 15 participants & utilization grp 10 participants. Pre-post survey & interview of staff & providers.
Non-Research Studies			
Nationally recognized expert opinion of US Preventive Svs Task Force (USPSTF)	Siu, 2016 Level/Grade 4A	Nationally recognized expert opinion of US Preventive Services Task Force (USPSTF) with screening guidelines; Recommendation for Depression in Adults with PHQ-2 & PHQ-9 tools– updated 2009 guidelines for depression in adults >18yo, including pregnant & postpartum women; & should only be implemented with adequate systems in place to ensure accurate diagnosis, effective treatment, & appropriate follow-up.	
Systematic Review & Meta-Analysis of screening for depression in primary care.	Constantini, 2021 Level/Grade 5A	(n=42) Study sample, (n=40) 95% cross-sectional studies, PHQ-9 accuracy (n = 31) (74%) PHQ-2 & PHQ-9 most common universal validated depression screen tools with 2 step process in primary care – ease of use, multi options to administer paper/pen, verbally, computer &/or electronic device. Thirty-two (86%) studies were assigned a score equal or lower than 24/31 on the Downs & Black quality scale (Downs &Black, 1998). Meta-analysis not possible as data lacked homogeneity.	

Appendix B

Lippitt's Change Model





Appendix C

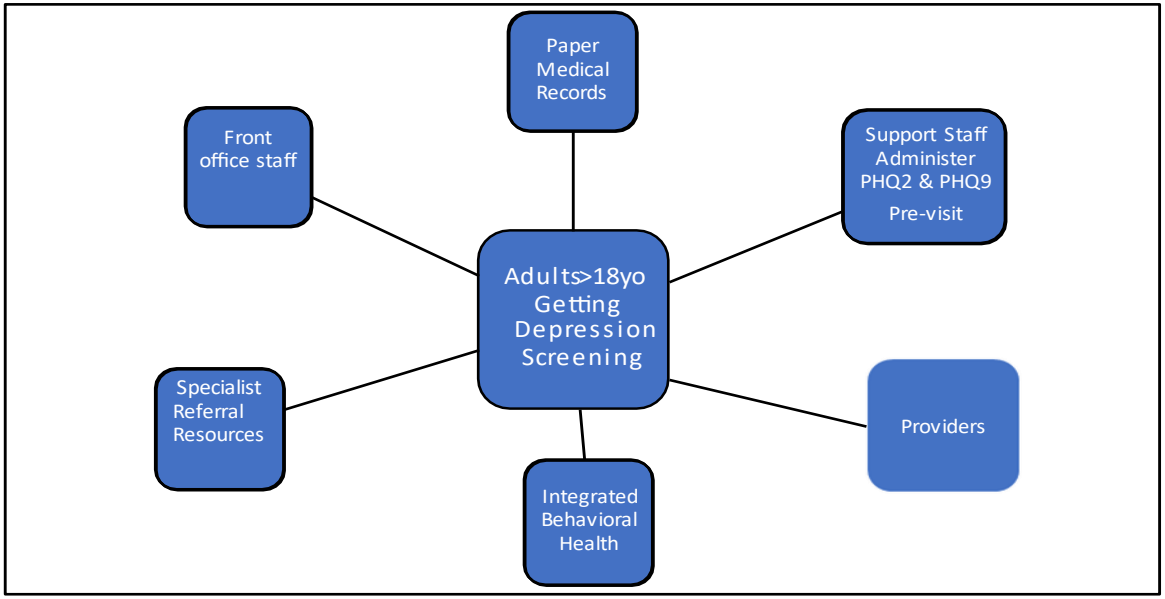
External Microsystem Map

External Mapping Tool:
Universal Adult Depression Screening Protocol

1. Clinical Microsystem: Free Primary Care Clinic for Uninsured & Underinsured in Downeast Maine
2. Subpopulation: Adults >18yo

3. Patient-specific health care needs:

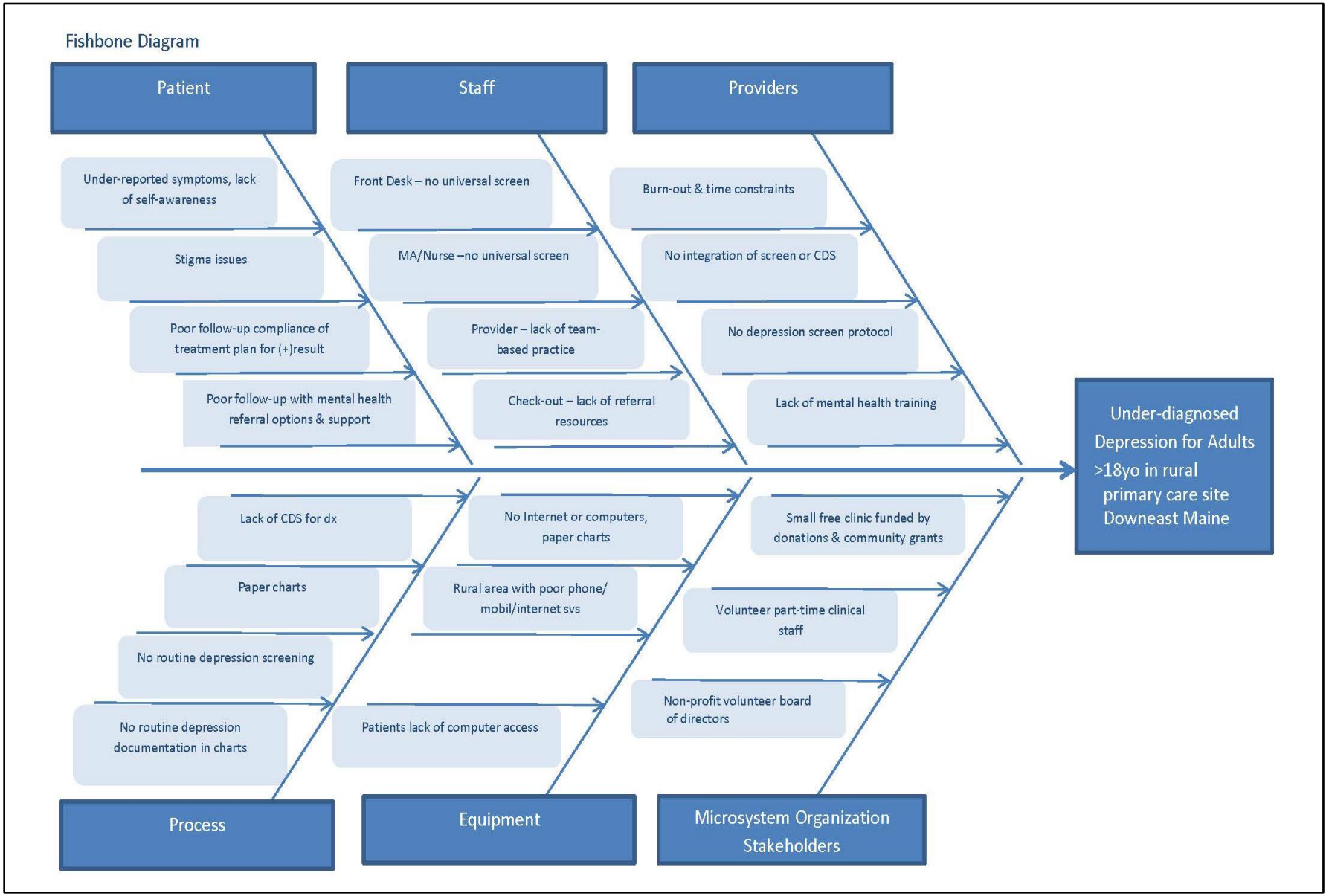
a. Pre-visit with provider, staff/nurse administers PHQ2 screening on arrival & during rooming.
b. PHQ2 screening results documented, attached to chart & alert provider.
c. PHQ2 score >2 – administer & score PHQ9 during rooming & alert provider.
d. Provider assess results to determine history, diagnosis, plan, follow-up & document in chart.
e. Referral to specialist as indicated; nurse or provider follow-up for referral.



Improvement Ideas: Develop EBP protocol to increase adult depression screening recommended by USPTF national guidelines, increase documentation of depression screening, increase identification-management-documentation of depression in patients, increase compliance with national preventive guideline screenings & increase referrals of patients with depression to integrated behavioral health counselor or specialist resources as indicated.

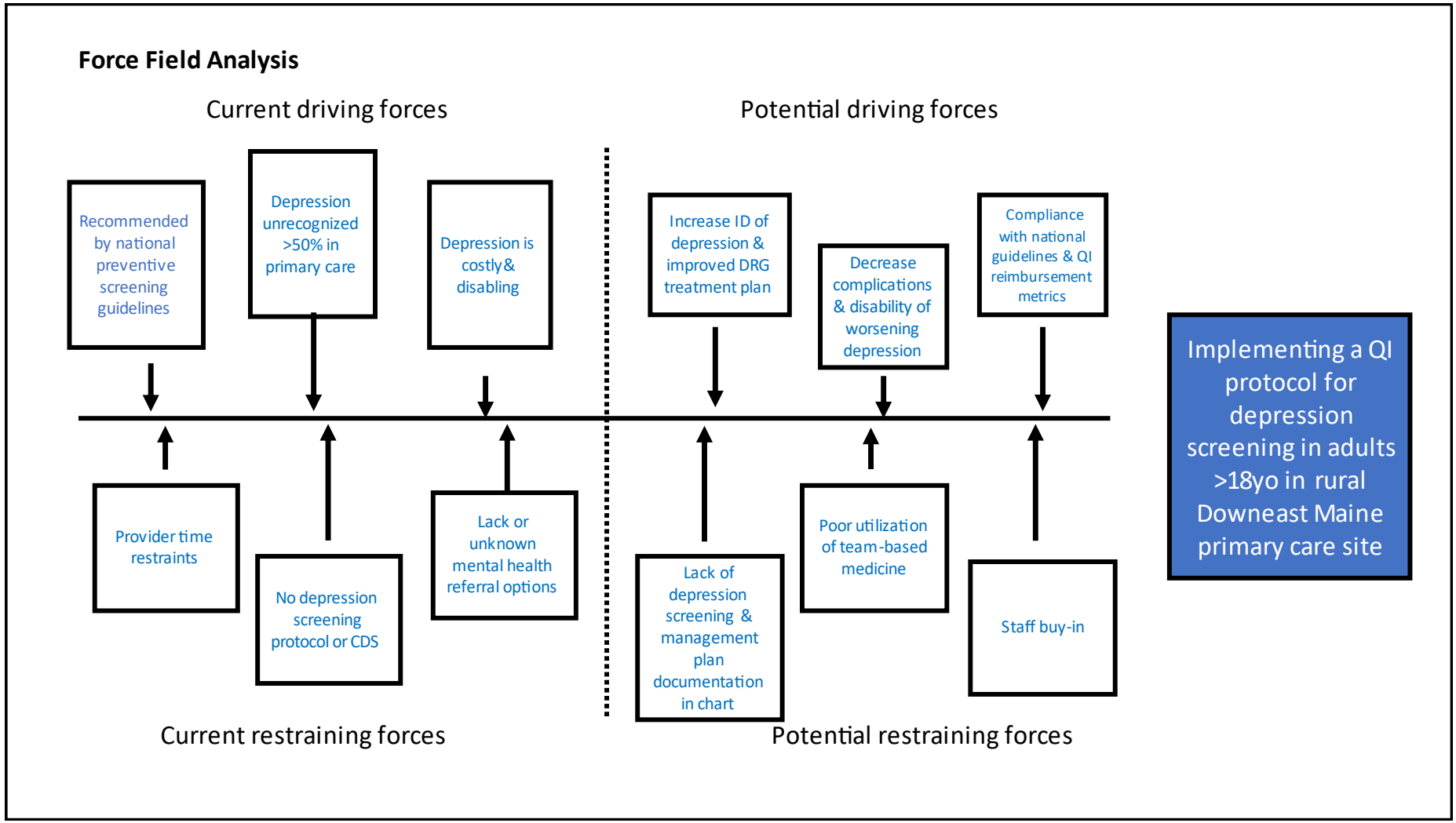
Appendix D

Fishbone Cause and Effect Diagram



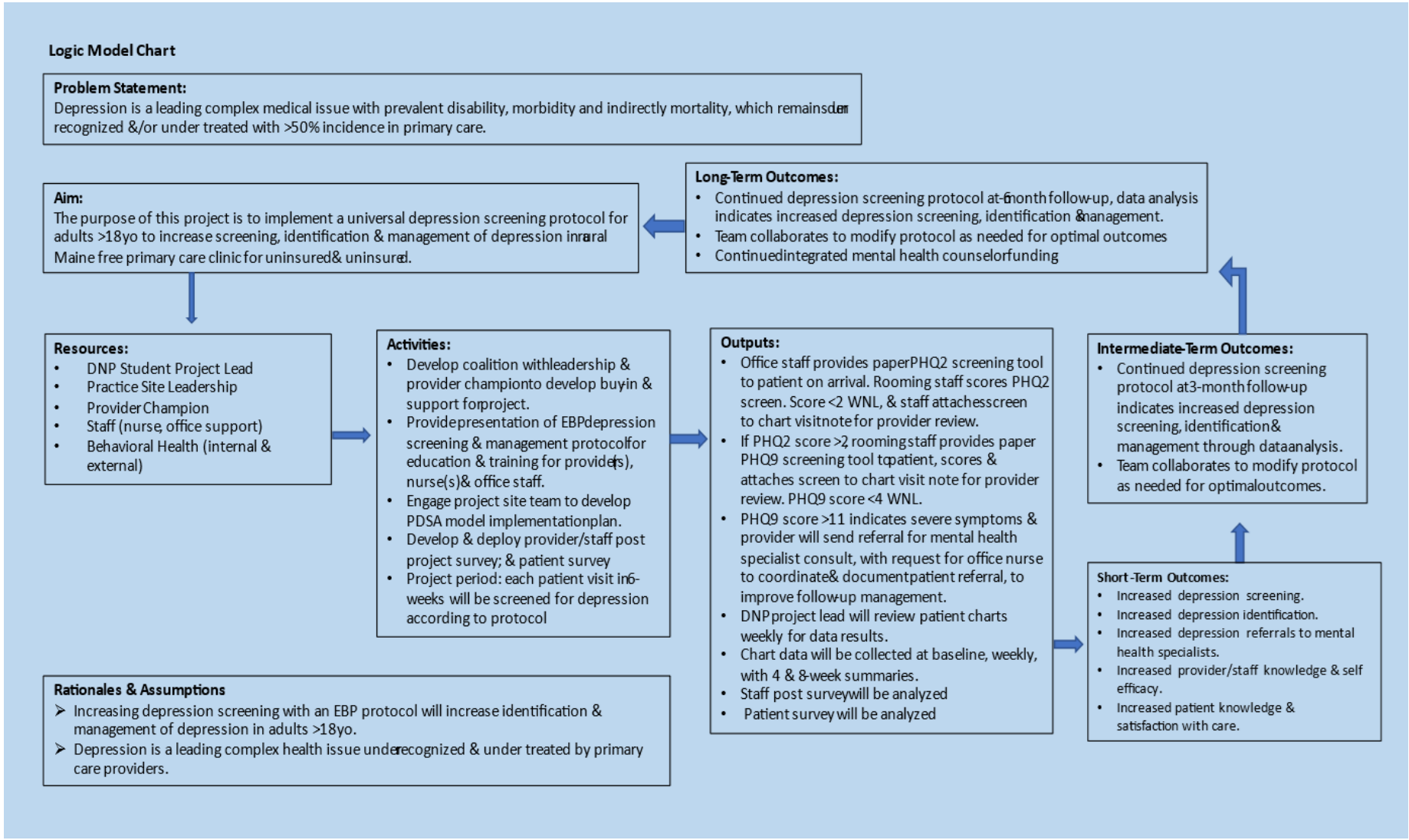
Appendix E

Force Field Analysis Diagram



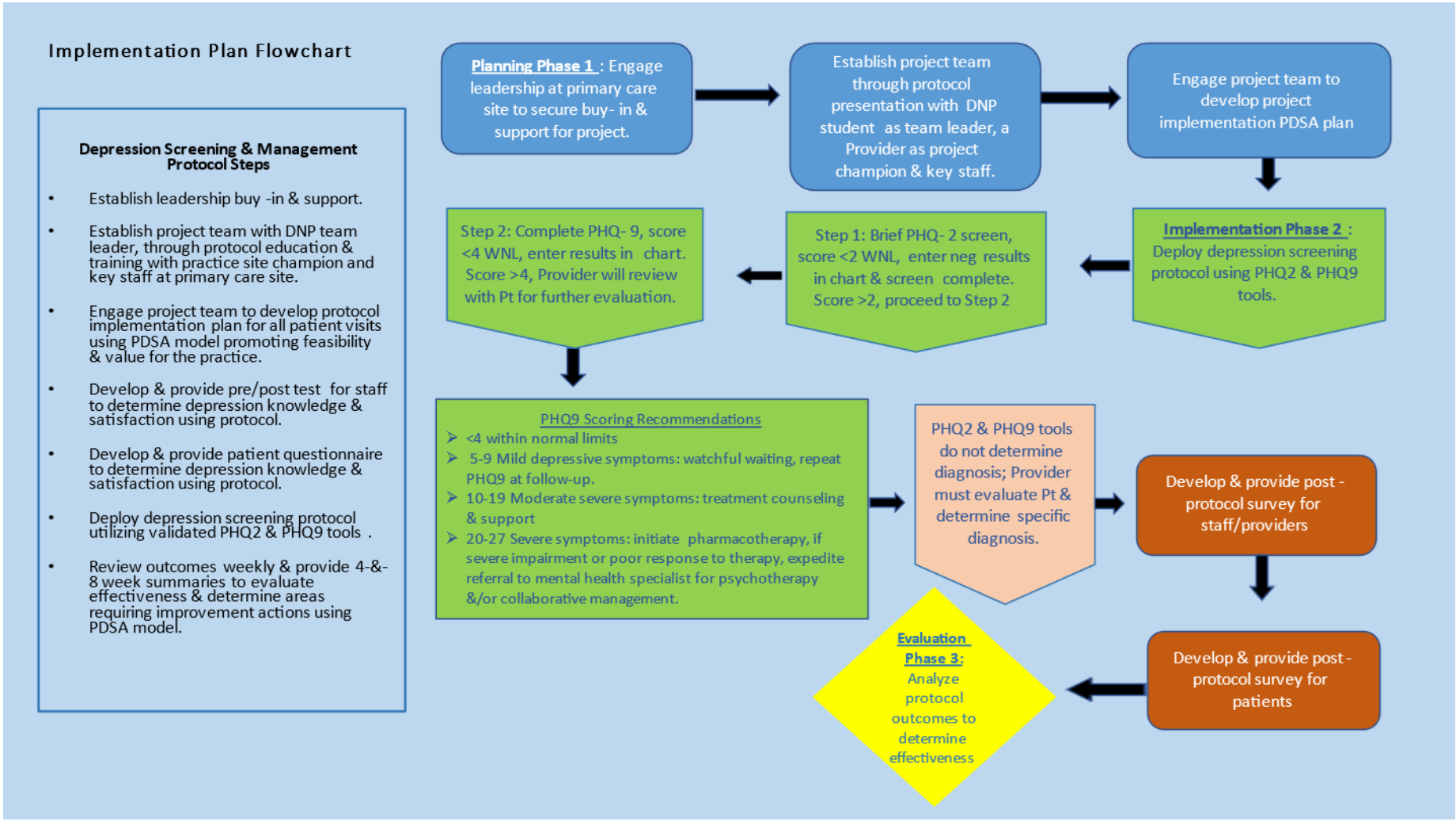
Appendix F

Logic Model Chart



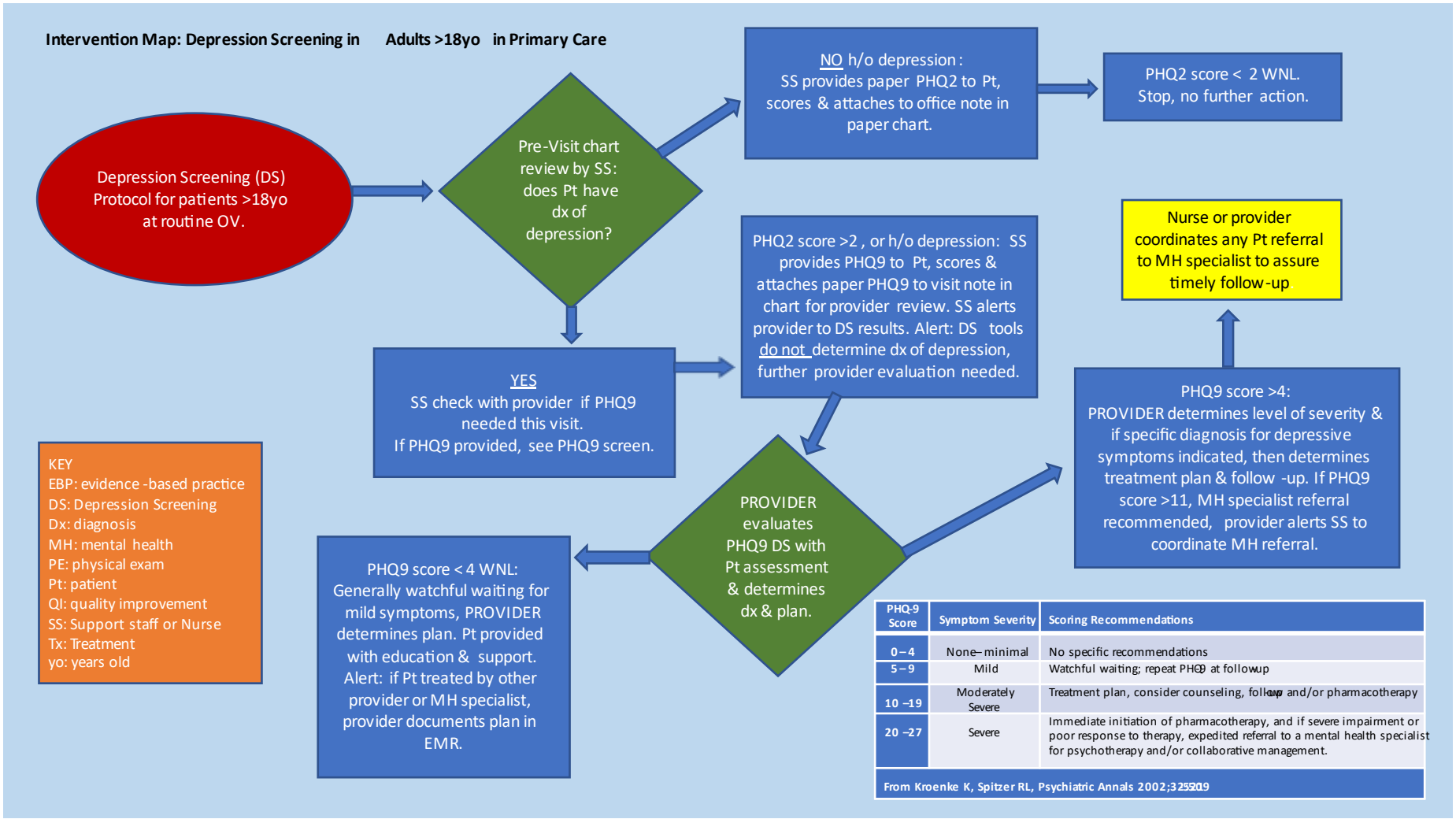
Appendix G

Implementation Plan Flow Chart



Appendix H

Protocol Intervention Map



Appendix I

EFMC Depression Screening Protocol

2/3

EFMC Primary Care Adult Depression Screening Protocol

Adult Depression Screening Protocol Steps:

1. Nurse pre-visit planning: reviews patient chart prior to visit for visit purpose, including h/o depression diagnosis & flags chart with depression diagnosis history.

2. Front desk: Patient presents for routine visit & registration.

3. Nurse obtains VS as follows:
   - 3A. While doing VS, Nurse verbally asks PHQ-2 questions and records answers on the PHQ-2 form & VS Depression Screen with pos, or neg and /score number.
     - Patient score <3, screen WNL with minimal to no symptoms (neg/<3); Nurse attaches PHQ-2 form to office visit note for provider review & screening complete.
   - 3B. PHQ-2 score ≥3 (pos/≥3, screen is a positive score & nurse uses following script to administer PHQ-9 form follow-up: "We are using a new screening tool for your mood & feelings to determine your health more completely. Would you mind answering several more questions about how you've felt over the last 2 weeks? You can fill out this questionnaire form or I can ask you the questions."
     - If Pt declines, Nurse stops depression screening & records on Pt chart VS Depression Screen Log & office note for provider review.
     - If Pt agrees, Nurse administers & records answers on PHQ-9 form and VS Depression Screen Log & office note for provider review (ex. Pos or Neg/score#).
   - 3C. For patients with positive h/o depression diagnosis: Nurse reviews depression diagnosis with patient, current treatment plan including any new meds, & MH counseling then makes note on chart office visit note.

4. Provider's visit with patient includes:
   Review of PHQ-2 & PHQ-9 results, clinical evaluation of patient to determine diagnosis if indicated, and documentation including severity/urgency with treatment plan and mental health (MH) referral as needed. Scoring recommendations associated with the validated PHQ-2 & PHQ-9 tools are as follows, however, always dependent on provider clinical assessment.
   - PHQ-9 score <3 is minimal to no symptoms, generally, providers recommend watchful waiting for mild symptoms.
   - PHQ-9 scores ≥3 or ≤9 are mild symptoms, provider evaluates & generally recommends watchful waiting & self-management interventions, however, plan determined based on provider clinical assessment.
   - PHQ-9 scores ≥10 are moderate to moderate severe symptoms, provider determines plan based on clinical evaluation, generally including MH referral for behavioral therapy. Provider alerts nurse to follow-up MH referrals with telephone call (TC) & documents to assess patient compliance & response to treatment plan.
   - PHQ-9 positive score on question nine may indicate suicide risk, provider evaluates with clinical evaluation, suicide risk analysis, & provides management plan & MH referral as indicated.

5. MH specialist referrals:
   - 5A. Non-urgent PHQ-9 scores 10-to-20 refer to onsite MH specialist.
     - Provider/nurse coordinates onsite MH specialist referral to assure timely follow-up.
     - Nurse provides post-visit patient TC to assess MH referral follow-up with chart note.

   - 5B. PHQ-9 scores >20 are severe symptoms: Provider determines severity/urgency & specific diagnosis. Provider/Nurse/MH-counselor makes TC to Acute Crisis Resources per office crisis procedure; Provider manages referral to external services & transfer, as indicated.

Appendix J

EFMC Depression Screening Form

Ellsworth Free Medical Clinic **Name:**_____

Today's Date: _____ **Birthdate:** _____ **Gender: Female ; Male**

Staff Sig: _____

Brief Depression & Anxiety Screen (PHQ-2)		
If you presented the PHQ-2 orally to patient, fill-in & file on chart. **If patient score >3, have them complete associated PHQ-9 Depression Questionnaire below.**	**Yes**	**No**

Depression Patient Health Questionnaire (PHQ-2)

Adapted with permission from copyrighted material from Pfizer, Inc. Copyright © 2005 Pfizer Inc.

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

SCORING FOR USE BY CLINIC STAFF ONLY

Score >3 = positive, have Pt complete PHQ-9

0 + _____ + _____ +

=Total Score:

Depression Patient Health Questionnaire (PHQ-9)

Adapted with permission from copyrighted material from Pfizer, Inc. Copyright © 2005 Pfizer Inc.

Over the last 2 weeks, how often have you been bothered by any of the following problems? (*Circle your answer*)	**Not at all**	**Several days**	**More than half the days**	**Nearly every day**
1. Little Interest or pleasure in doing things?	0	1	2	3
2. Feeling down, depressed, or hopeless?	0	1	2	3
3. Trouble falling asleep, or staying asleep, or sleeping too much?	0	1	2	3
4. Feeling tired or having little energy?	0	1	2	3
5. Poor appetite or over eating?	0	1	2	3
6. Feeling bad about yourself – or like a failure, or you let yourself or family down?	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching TV?	0	1	2	3
8. Moving or speaking so slowly that other people have noticed? Or the opposite being so fidgety or restless that you have been moving around more than usual?	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way?	0	1	2	3

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

Not Difficult ☐ Somewhat Difficult ☐ Very Difficult ☐ Extremely Difficult ☐

SCORING FOR USE BY CLINIC STAFF ONLY

0 + _____ + _____ + _____

=Total Score:_____

Appendix K

Measures Table

Measures Table: Adult Depression Screening Protocol					
Aims	**Outcomes**	**Measures**	**Info Sources**	**Compare**	**Analysis**
DNP student will engage macro stakeholders (Provider site champion & Medical Director) for approval to implement depression screening protocol	Macro stakeholders will have "buy in" for project & approve implementation	Written approval from project site for implementation of universal depression screening protocol	DNP student, DNP doctoral committee, provider site champion, Medical Director	No	N/A
DNP student, as team leader will introduce self & project to team 1st week Sept 2022; 30-minute presentation, Q/A 15min, wrap-up 5min. Review project aims, feasibility & value to implement protocol project using PDSA. DNP, as project lead, will mobilize implementation team at project site x2 wkly 30min mtngs starting 1st week Sept 2022 to review protocol plan, obtain feedback & input to finalize six-week project implementation plan starting 10/4/22.	Provider site champion & team including providers, nurses, & office assts will have "buy in" for project & participate to make it successful.	Team members pre/post planning survey – assess depression screening knowledge, perceptions, self-efficacy Likert survey responses	Providers, nurses, office asst(s),	Yes	Post Planning eval ofplan satisfaction, protocol knowledge, perception of value & self-efficacy for implementation
Provide x2 half hr trainings with providers/staff for depression screening implementation during 3rd & 4th week of Sept, prior to 10/01/2022, with targetproject implementation 10/4/22 to 11/12/22.	Promote provider/staff self-efficacy to implement depression screening protocol at all visits	Post-training survey results will indicate increased depression screening knowledge & self-efficacy for implementation.	Providers, staff (nurse & office assts)	No	N/A
Protocol implementation from 10/4/22 to 11/12/22 at project site. Adult patients >18yrs presenting for routine OV, PE, or Wellness visits will be screenedfor annual depression screening documentation & PHQ-2 or PHQ-9 administered <1yr, no further depression screening is needed at this time. if depressive screen noted <1 yr pre-visit, pt will be provided the validated PHQ-2tool by rooming staff & results entered into EPIC EMR, which already has tests loaded.	Increase the number of adults >18yo screened & increase timely identification of elevated depression risk.	Increase # of patients screen to 80% or more EMR/HEDIS from current screening less than 50%. -Total # of pts >18yo with depression screening <1 yrs. -Total # pts >18yo with no depression screening. -Total # pts >18yo PHQ-2 screened; Total # pts>18 positive PHQ-2.	Paper Med Record Data tracking reports	Yes	Descriptive, frequency, proportion
Patients with a yes answer on either PHQ-2 question, will be provided the PHQ-9 screen by rooming staff. Results will be entered in EMR. PHQ-9 less than 3 positive answers is not considered significant. For PHQ-9 questions with greater than 3 positive answers, an alert sent to provider to address & assess with patient with treatment plan as indicated. For any patient who appears distressed the rooming staffwill discuss with provider, who will follow-up as indicated.	Patients with report of depressive symptoms willbe provided further assessment & their provider alerted to addressdepression screening results with patient.	Increase # of pts with PHQ-9 positive screen to 80% or more of patients from <50% currently.	Paper Med Record Data tracking reports	Yes	Descriptive, frequency, proportion
Patients with positive PHQ-9 screen answers >3, will have provider address & evaluate with patient. Staff will also alert provider verbally of positive PHQ-9 >3.	Patients with positive PHQ-9 screen will have follow-up with provider for evaluation, treatment & follow-up plan, as indicated for increased identification & management of depression symptoms.	95% or greater of patents with positive PHQ-9 screen >3 will be provided follow-up evaluation for specific diagnosis & treatment as indicted from current <50% identified. Numerator # of patients with + PHQ-9 scores evaluated by provider. Denominator # of patients with + PHQ-9 score.	Paper Med Record Data tracking reports	Yes	Descriptive, frequency, proportion
Promote staff & provider knowledge, self-efficacy & satisfaction for depression screening with protocol implementation.	Staff & providers satisfaction with annual depression screening protocol.	Survey with 5-point Likert Scale	Staff/provider Survey	No	Survey results
Promote patient knowledge, self-efficacy & satisfaction for depression screening with implementation of protocol.	Patient satisfaction	Survey with 5-point Likert Scale	Patient Survey	No	Survey results

Appendix L

Project Tracking Tool

Note	Date	Pt ID	Age	Gender	Ethnicity S	Preferred L	Total # Pts	Frequency	Proporton	Frequency	Proporton	Frequency	Proporton	Frequency	Proporton	Frequency	Frequency	Frequency
Dr V: Mon	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0
0	44851	1JL	52	F	W	E	0	1	1	0	0	1	1	0	0	0	0	0
0	44851	2YB	63	F	L	S	0	1	1	0	0	1	1	0	0	0	0	0
0	44851	3BK	58	M	W	E	0	1	1	0	0	1	1	0	0	0	0	0
0	44851	4LM	54	M	W	E	0	1	1	0	0	1	1	0	0	0	„	0
0	44851	5PM	61	M	W	E	0	1	1	0	0	1	1	0	0	0	0	0
0	44851	6JC	48	F	W	E	0	1	1	0	0	1	1	0	0	0	0	0
0	44851	7MB	57	M	W	E	0	1	1	0	0	1	1	0	0	0	0	0
0	44851	8TD	44	M	W	E	0	1	1	1	0	1	1	1	1	1	1	1
0	44851	9JH	61	M	W	E	0	1	1	0	0	1	1	0	0	0	0	0
0	TOTALS	0	498	0	0	0	9	Yes=9	Yes 100%	1	Neg: n8=8	9	1	1	0	0	0	0
Dr H: Tues	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
0	44852	10	56	F	W	E	0	9	0	n/a	0	0	0	0	0	0	0	0
0	44852	11	47	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44852	12	52	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44852	13	57	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44852	14	61	M	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44852	15	39	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44852	16	48	M	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	TOTALS	0	360	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0
WK 1	TOTALS	0	341	0	0	0	22	15Y 7N	0	0	0	0	0	0	0	0	0	0
Dr V: Mon	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0
0	44865	23DH	53	F	W	E	8	0	0	0	0	0	0	0	0	0	0	0
0	44865	24JP	62	M	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44865	25NM	54	M	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44865	26DO	58	F	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44865	27LM	62	M	L	S	0	1	0	1	0	0	0	0	0	0	0	0
0	44865	28DD	52	M	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44865	29KL	61	F	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44865	30ZM	47	F	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	TOTALS	0	449	0	0	0	30	21Y 9N	0	0	0	0	0	0	0	0	0	0
Dr H:Tuesd	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0
0	44866	31JG	41	M	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44866	32JC	39	M	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44866	33KB	57	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44866	34KS	56	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44866	35MM	34	M	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44866	36AG	51	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44866	37CW	61	F	W	E	0	0	0	0	0	0	0	0	0	0	0	0
WK 2	TOTALS	0	339	0	0	0	37	21Y 16N	0	0	0	0	0	0	0	0	0	0
Dr V: Mon	0	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0
0	44872	38RO	62	M	W	E	0	0	0	0	0	0	0	0	0	0	0	0
0	44872	39YB	63	F	L	S	0	0	0	0	0	0	0	0	0	0	0	0
0	44872	40EC	34	F	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44872	41LO	68	F	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44872	42LM	51	M	L	S	0	1	0	1	0	0	0	0	0	0	0	0
0	44872	43LQ	69	M	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44872	44JB	43	M	L	S	0	1	0	1	0	0	0	0	0	0	0	0
0	44872	45HB	48	M	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44872	46DP	30	M	W	E	0	1	0	1	0	0	0	0	0	0	0	0
0	44872	47NP	34	M	W	E	0	1	0	1	0	0	0	0	0	0	0	0
WK 3	TOTALS	0	502	0	0	0	47	29Y 18N	0	8	0	0	0	0	0	0	0	0
Dr H: OFF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix M

Post-Implementation Staff Survey

STAFF SURVEY: POST-IMPLEMENTATION DEPRESSION SCREENING

Please answer each question in range from **Strongly Agree—TO—Strongly Disagree, #3 IS NEUTRAL**

1. Has the depression screening protocol implementation increased your knowledge for using the validated PHQ2 & PHQ9 tools, as recommended by the national preventive health guidelines?

	1	2	3	4	5	
Strongly Agree	○	○	○	○	○	**Strongly Disagree**

2. Does using the step-by-step evidence based clinical guidelines with the combined PHQ2 & PHQ9 form make you feel more confident providing depression screening at every visit?

	1	2	3	4	5	
Strongly Agree	○	○	○	○	○	**Strongly Disagree**

3. Do you feel providing depression screening using the PHQ2 & PHQ9 tools while obtaining vital signs is effective?

	1	2	3	4	5	
Strongly Agree	○	○	○	○	○	**Strongly Disagree**

4. Does using the depression screening protocol with the PHQ2 & PHQ9 tools add value to patient care?

	1	2	3	4	5	
Strongly Agree	○	○	○	○	○	**Strongly Disagree**

5. How likely are you to continue the use of the PHQ2 & PHQ9 depression screening tools for depression screening?

	1	2	3	4	5	
Strongly Agree	○	○	○	○	○	**Strongly Disagree**

Appendix N

Post-Implementation Staff Survey Results

Staff Satisfaction	**Staff Survey Question - 5 out out of eight respondents, Dr didn't feel 1st two questions were relevant to her, as she's used PHQ regularly.**	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**N/A**	**Strongly Disagree**	**Break**	**Provider**
Knowledge	1. Did the depression screening protocol implementation increase your knowledge of the validated PHQ2 & PHQ9 tools recommended by the national primary care prevention guidelines?	40% (2)	40% (2)			20% (1)			n/a
Self-efficacy	2. Did using an evidenced-base clinical protocol with the PHQ2 & PHQ9 tools give you more confidence providing depression screening at every visit?	40% (2)	40% (2)			20% (1)			n/a
Feasibility	3. Is providing depression screening using the PHQ2 & PHQ9 tools, while obtaining vital signs effective for completing the screening?	60% (3)	40% (2)						(agree)
Value	4. Does using the depression screening protocol with the PHQ2 & PHQ9 tools add value to patient care?	60% (3)	40% (2)						(strong agree)
Sustainability	5. How likely are you to continue using the PHQ2 & PHQ9 depression screening tools for adult patients?	60% (3)	40% (2)						(strong agree)

Appendix O

Clinical IRB Quality Improvement Checklist

CLINICAL QUALITY IMPROVEMENT CHECKLIST		
Date: 07/10/2022	**Project Leader: Karen Hussion**	
Project Title: Implementation of a Protocol for Adult Depression Screening		
Institution where the project will be conducted: A free primary care medical clinic in rural Maine		
Instructions: Answer YES or NO to each of the following statements about QI projects.	**YES**	**NO**
The specific aim is to improve the process or deliver of care with established/ accepted practice standards, or to implement change according to mandates of the health facilities' Quality Improvement programs. There is no intention of using the data for research purposes.	**X**	
The project is **NOT** designed to answer a research question or test a hypothesis and is **NOT** intended to develop or contribute to generalizable knowledge.	**X**	
The project does **NOT** follow a research design (e.g. hypothesis testing or group comparison [randomization, control groups, prospective comparison groups, cross-sectional, case control]). The project does **NOT** follow a protocol that over-rides clinical decision-making.	**X**	
The project involves implementation of established and tested practice standards (evidence-based practice) and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**X**	
The project involves implementation or care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**X**	
The project has been discussed with the QA/QI department where the project will be conducted and involves staff who are working at, or patients/clients/individuals who are seen at the facility where the project will be carried out.	**X**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research**.**	**X**	
The clinical practice unit (hospital, clinic, division, or care group) agrees that this is a QI project that will be implemented to improve the process or delivery of care.	**X**	
The project leader/DNP student has discussed and reviewed the checklist with the project Course Faculty. The project leader/DNP student will **NOT** refer to the project as research in any written or oral presentations or publications.	**X**	
ANSWER KEY: If the answer to **ALL** of these questions is **YES**, the activity can be considered a Clinical Quality Improvement activity that does not meet the definition of human research. **UMB IRB review is not required**. **Keep a dated copy of the checklist in your files.** If the answer to ANY of these questions is NO, the project must be submitted to the IRB for review.		