

Improving community mental health access through implementation of a universal depression screening in a Student-Run Free Clinic

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ABSTRACT

Introduction

Major depression is one of the most common, debilitating, and treatable psychiatric disorders in America, yet depression is significantly under-identified among low-income and uninsured populations. The USPSTF recommends routine depression screening in the setting of primary care when mental health support resources are available. The purpose of this project was to implement a universal depression screening in Student-Run Free Clinics (SRFCs) to improve identification and treatment of depression in patients receiving primary care.

Methods

Depression screening was implemented at two UCSD SRFCs, using the Patient Health Questionnaire (PHQ-2/9). Patients with positive screenings received appropriate mental health resources and treatment. Maintenance of the screening was assessed two years after introduction. Patient data over 21 months was analyzed to assess screening rate and positive screenings.

Results

Universal depression screening was successfully implemented and maintained over a two-year period of time. Over 21 months, the screening rate was 88% at primary care visits. Out of patients who were screened, 39% had positive scores.

Discussion

It is possible to implement and sustain an effective universal depression screening program, accompanied by a multi-disciplinary treatment approach, into SRFCs. Given the prevalence of untreated depression in underserved populations, other SRFCs and medical settings that treat underserved patients should consider integrating universal depression screening and mental health resources into the delivery of primary care.

1. Introduction

Research demonstrates a clear and present need for active identification and treatment of depressive disorders in low-income and uninsured individuals. Disparities in proper surveillance of and medical care for psychiatric conditions nonetheless remain significant¹. Major depression is one of the most common and treatable psychiatric disorders in the United States, constituting a leading cause of disability, death, and societal loss of productivity, yet depressive disorders are significantly under-identified and poorly treated among these populations². Not only are underserved individuals at increased risk for acute and chronic diseases because of their lack of access to care and adequate resources, the stress-diathesis model of depression predicts that the environmental stressors inherent to the lives of the underserved are more likely to precipitate the development of psychological disorders in individuals who

are vulnerable to such illnesses³. Indeed, prevalence rates of major depression are shown to increase from 2 to 5% in community settings and to 5-10% in primary care patients⁴.

The positive association between depressive disorders and chronic diseases is well established⁴ and especially pertinent to underserved individuals. A large study of community populations found that disorders of anxiety, affect, and substance abuse were more prevalent in patients who had chronic medical disorders, such as heart disease or COPD, compared to patients without^{5,6}. The presence of diabetes has been found to double the odds of co-morbid depression⁷. According to prior research, not only is depression more common among diabetics (observed in 10-15% of patients) than controls⁶, but patients with concomitant depressive disorder demonstrate poorer glycemic control and accelerated development of coronary artery disease⁸. In fact, data suggests that having a depressive disorder puts one at greater overall risk for developing heart disease and experiencing a fatal cardiovascular event⁶. Central to these assessments is the understanding that depression adversely impacts one's ability to self-manage one's chronic physical illness because depression impairs memory, energy, sense of self-efficacy, and adherence to medical regimens such as diet, exercise, and scheduled medications. In fact, meta-analyses have found that, compared to non-depressed patients, depressed patients were three times more likely to be non-adherent with medical treatment recommendations. Not surprisingly, the effect of these comorbidities is greater than the sum of their parts: having a depressive disorder alongside another physical illness can adversely impact the outcome of *both* illnesses⁶. If we wish to treat chronic physical illnesses effectively, we must address mental health.

Collaborative care that includes management of depression can improve chronic disease outcomes. Examples include better control of cholesterol in patients with cardiovascular diseases and lower glucose levels in patients with diabetes⁶. These findings are especially relevant in the context of health care for the underserved, as low-income populations have an especially high prevalence of chronic diseases. Type II diabetes disproportionately affects disadvantaged populations⁹ and mortality risk from cardiovascular disease increases in diabetic patients as socioeconomic status declines¹⁰. Thus, it is important to identify the need for mental health resources and deliver them to underserved individuals who are living with untreated depressive disorders, especially in the context of chronic disease.

Student-run free clinics (SRFCs), now present at most medical schools, provide a promising opportunity to identify underserved individuals who meet criteria for depressive disorder and to treat them within the setting of primary care. In a 2014 report on the presence and characteristics of SRFCs at 86 AAMC-accredited institutions, psychological and counseling services constituted 39% of the reported core services offered at the clinics¹¹, yet few studies conducted within or about SRFCs discuss mental health care-specific screening, treatment, and outcomes^{12,13}. Many, if not the majority, of the patients seen at the UCSD Student-Run Free Clinic Project (SRFCP) are followed for one or more chronic illnesses, such as diabetes and hypertension. Ostensibly, this is similar to the disease profile of other SRFC populations¹⁴. Patients seen at the UCSD SRFCP are predominantly Latino, uninsured, unable to qualify for health care at other providers, and cannot afford sliding scale fees that are offered at many federally-qualified health centers^{11,13,14}. This higher disability and frequency of medical illnesses places this population at greater risk for experiencing depression, and at a disposition for more debilitating outcomes in several domains of life if their psychological symptoms go untreated. Indeed, past research has found that uninsured patients have a high prevalence of mental health illnesses and are less likely than insured patients to acquire appropriate treatment after receiving a diagnosis¹⁵. Minority patients, when they wish to seek help for psychological problems, are more likely to report barriers to seeking that help, which include a perceived separation between mental health and general health, and a fear of stigma¹. Particularly relevant to the endeavors of the UCSD SRFCP is that Latinos are more likely than white patients to be underdiagnosed and undertreated in general, according to the Department of Health and Human Services¹⁶. For these reasons, it is important that practitioners identify depressive symptoms by a means that encourages self-disclosure and that SRFCs demonstrate to patients that mental health care is accessible within the context of their general medical visits.

In 2009, the United States Preventive Services Task Force reiterated an earlier recommendation that primary care physicians screen patients for depression within a context of integrated mental health

management, but revised this recommendation to apply only to contexts in which resources for managing depression are available. Depression screening, as it is defined, involves administering questionnaires that ask participants about symptoms of depression in order to identify patients who have not sought treatment for active depression, and patients whose depression has not been previously recognized¹⁷. A screening, however, is useful only insofar as it allows for identification of individuals who may benefit from medical attention specifically focused on mental health; the utility of this depends on whether a significant portion of a population has depression that would otherwise escape identification by practitioners. While studies have consistently demonstrated the prevalence of depressive disorders to be higher in underserved populations than in the general population¹⁸, a paucity of data exists on how many patients within underserved populations in a free clinic setting are identified, treated, and improved by the administration of a depression screening. A study by Soltani et al. found that 11.4% of patients screened at two SRFCs were newly diagnosed with depression as a result of a screening program; 84.2% accepted treatment options, and 15.8% refused treatment and were instead followed closely for changes in depressive symptoms¹³. For the screening to actually improve patient outcomes beyond those of standard care, positive screenings should be followed by further assessment, treatment if appropriate, and adequate, consistent follow-up. Prior research suggests that only 20-30% of patients who receive prescriptions for antidepressant medications as part of depression management within a primary care setting receive adequate follow-up; for this reason, many patients stop taking their medications¹⁷. When follow-up is consistent, however, benefits are significant. Soltani et al. found that, despite a small sample size, a majority of patients newly diagnosed with depression via a screening, and subsequently offered treatment, showed significant improvement in the severity of their depressive symptoms six months later¹³.

In 2015, the USPSTF released a new draft recommendation that expands on its recommendation from 2009, in which it recommended universal screening of all adults in primary care¹⁹. Per the report, “In recognition that [staff-assisted depression care] support is now much more widely available and accepted as part of mental health care, the current recommendation statement has omitted the recommendation regarding selective screening, as it is no longer representative of current clinical practice”¹⁹. While psychiatric and psychological services are available at Pacific Beach (PB), Downtown (DT), and Normal Heights (NH) clinic sites, the benefit of depression screening alone is significant. The UCSD SRFCP is a provider of high-quality primary care for populations in which the burden of disease, both psychological and physiological, is severe; thus, it offers a meaningful and relevant setting in which to implement universal depression screening.

The aim of the present project was to address mental health disparity among the underserved in San Diego by identifying individuals who report symptoms that meet criteria for major depressive disorder and offer those patients appropriate mental health care. Although a universal depression screening program was previously administered at the UCSD free clinic sites at Baker and Golden Avenue¹³, such a program had never before been implemented at the DT and PB sites. This project was conducted to implement universal screening for depression at the DT and PB sites of the UCSD SRFCP and to assess continuation of this program after 2 years.

2. Materials and Methods

2.1 Protocol

Building on the work completed previously by UCSD alumnus Maryam Soltani, the administration of a universal depression screenings was introduced at two UCSD SRFC sites that had not previously received this screening: DT and BP. The screening was implemented in October 2015. At the time of implementation, the DT site had a psychiatry clinic in place for patients referred by primary care; PB site had recently begun a psychiatry clinic and had a full-time psychologist who provided psychotherapy. Sustainability of the screening was assessed in December 2017.

The complete screening protocol is provided in Index I. Briefly, this document outlines the specific instructions for each of the following roles: General clinic managers, floor managers, interpreters,

student doctors in general primary care clinic, and attending physicians. A separate protocol was made for each of the two sites. Additionally, the directions for each type of staff were provided in the handbooks for each of those roles (e.g. General Clinic Manager Handbook). One-page laminated PHQ screening guideline cards were created for attending physicians, general managers, and volunteers to use at clinic (see Index 2).

When patients had positive depression screenings, the student doctor would be prompted to address, during the patient interview, the feelings and behaviors endorsed on the questionnaire. Special attention was to be given to endorsement of suicidal ideation. Appropriate treatment, whether medication and/or counseling, or close monitoring over time, was provided to the patient as determined appropriate. Referrals to the psychiatry specialty clinics, present at DT and PB, were made as deemed necessary by the student and attending physician. Patients who had positive PHQ-2 scores were to receive the PHQ-9 every four to six weeks until they yielded two consecutive PHQ-9 scores <5 .

2.2 Participants

Participants consisted of all patients seen at the DT and PB UCSD SRFCP sites for primary care visits from 10/2015 to 10/2017. All patients were adults and 98% identify as Latino²⁰.

2.3 Screening instrument

All screening instruments were self-report. Both Spanish and English versions of the surveys were made available. When patients had questions about the surveys, interpreters and floor managers fluent in English and Spanish were available to provide answers.

The PHQ-2 (Patient Health Questionnaire, Kroenke, Spitzer, & Williams, 2003) was administered universally to all patients every six months as a screening tool for depression. The PHQ-2 is a widely-used measure that has been shown to demonstrate strong criterion and construct validities²¹. It contains the first two items from the PHQ-9 form, with a score ranging from 0 to 3 on each question (see Figure 1); a score of >2 was used as the threshold for a positive result²¹. According to data collected from primary care populations, a threshold score of >2 on the PHQ-2 has a sensitivity between 0.62 and 0.83, a specificity between 0.90 and 0.92, Cronbach's α of 0.88 and test-retest reliability of 0.94²¹⁻²³.

Patients who screened positively on the PHQ-2 were asked to complete the PHQ-9 (Kroenke et al., 2001), which assesses depressive symptom severity². The PHQ-9 contains nine questions with the same 0-3 point scoring on each item and may yield a maximum score of 27 (see Figure II)²². Scores from 5-9 indicate minimal major depression, 10-14 mild major depression, 15-19 moderate-severe major depression, and 20-27 severe major depression². According to data collected from primary care settings, a threshold of ≥ 10 yields a sensitivity of 0.86 - 0.88 and specificity of 0.88 - 0.94 for severe major depressive disorder^{2,22}. In some primary care settings, a score of 15 is used to consider initiating antidepressant treatment²². Data from prior research suggests high internal reliability (Cronbach's α of 0.89) and high test-retest reliability (coefficient 0.84) of the PHQ-9 when used in primary care settings². Recent meta-analyses report that the PHQ-2 and -9 are the most widely evaluated depression measures used in primary care across several different countries²³.

Figure 1.

The Patient Health Questionnaire-2 (PHQ-2)

Patient Name: _____ Date of Visit: _____

Over the past 2 weeks, how often have you been bothered by any of the following problems?	Not at All	Several Days	More than Half the Days	Nearly Every Day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed or hopeless	0	1	2	3

Add Columns: + TOTAL Score:

If total score > 2 then administer PHQ-9

Figure II

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems?
(use "✓" to indicate 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 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

 Entered into EPICadd columns: + + Discussed with AttendingTOTAL:

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

Not difficult at all _____

Somewhat difficult _____

Very difficult _____

Extremely difficult _____

2.4 Evaluation

The success of the project was assessed via qualitative feedback from various Free Clinic staff and students in December 2017, and rates of screening were determined using compiled EMR data from October 2015 to July 2017 (21 months). To obtain qualitative information, General Managers were sent an email with the following questions in December 2017:

- Is the PHQ screening being administered regularly, as intended, at each primary care visit?
- What about the PHQ protocol have you found works well?
- What about the protocol have you found has not worked well? Are there specific things about it that have made it difficult, tedious, or logistically unreasonable to implement on a regular basis?
- In your experience, do you feel that the screening has helped to identify individuals who would benefit from mental health care (e.g. were subsequently referred to the Psych Clinic), who would have otherwise been overlooked? Please give examples if you have them!
- In your experience, do you feel that the screening is an important and worthwhile part of general medical care at Free Clinic?

Psychiatry Managers were sent an email with the same questions and one additional question:

- For patients who were referred to Psych Clinic based on their PHQ screening result, do you find that their referral led to a meaningful encounter? In other words, from a mental health provider perspective, do you feel that patients have benefitted from the screening?

The emailed surveys yielded few responses, so subsequent in-person non-structured interviews were conducted by this writer with individual GMs and Psych Managers at the clinics. The same questions stated in the emails were posed, but these conversations were informal. Additionally, some information obtained from psychiatry clinic staff was collected during discussions with the psychiatry team as a group. Information yielded from these key informants is provided below.

Two case reports were gathered and are presented in Results. These reports were chosen to demonstrate the impact the depression screening had on the subsequent diagnosis, treatment, and follow-up of depression in two individuals, one male and one female, who had no reported psychiatric history and had not reported psychiatric symptoms volitionally on initial encounters. They demonstrate the way in which mental health resources were efficiently organized to meet the psychiatric needs, both acute and longitudinal, of patients who screened positively for depression.

3. Results

3.1 Screening Rate

From October 2015 to July 2017, 570 patients were seen at SRFC PB, DT, and Baker for at least one primary care visit. Out of those, 504 were screened for depression at least once. This translates to a screening rate of 88%. Out of those who were screening, 39% (197/504) had positive results on the PHQ-2. Out of those with positive screenings, PHQ-9 data revealed that 28% had mild depression, 30% moderate depression, 26% moderate-severe depression, 13% severe depression, and 23% endorsed suicidal ideation.

3.2 Protocol Utilization

Feedback from two floor managers, four GMs, three student doctors, two psychiatry managers, one psychologist, one pharmacist, and three attending physicians was gathered in December 2017, 26 months after the screening was introduced. These reports are discussed in the following.

Reports from a floor manager who works at both sites indicated that the screening protocol at each site had been going well. In general, the process by which patients who require PHQ screenings are identified and communicated to the floor managers, who in turn provision the screenings at clinic check-in, had been running relatively seamlessly since inception. In advance of clinic, GMs note which patients require PHQ screenings at clinic, then this information is placed in "visit notes" in the EPIC electronic medical record, so that those who check patients into clinic are ready to hand those patients a PHQ paper survey during the check-in process. Some GMs at the DT site have preferred to distribute the paper screenings to patients themselves instead of delegating this job to floor managers, as was originally intended in the protocol. These GMs arrive at clinic in advance of check-in, establish which patients need PHQs, assemble the screenings themselves for the patients at that time, then have floor managers

distribute screenings during check-in. At both sites, the PHQs are always handed out to patients during check-in and the patients are instructed to keep the PHQ and give it to their student doctors. Per the floor managers, the flow of this process has been going well at both clinic sites and there were no reported issues or concerns.

Reports from general managers conflicted in regard to the ease and accessibility of the protocol. For example, one GM reported that the protocol had made complete sense to him since the time he had learned it and has found that the screening process runs very smoothly. He commented that he believed the PHQ screening had been going on for several years because of how seamlessly it fit into the overall flow of clinic. Importantly, he described that the original protocol, which instructed patients to give their completed PHQ sheets to the student doctor and had the student doctor responsible for entering scores into Epic, was problematic because students would sometimes forget to enter the score. This observation has also been observed in reviewing the medical records. About four months ago he implemented a change at the PB site, by which the GMs began to collect the completed PHQs from patients, entered the scores into Epic themselves, and then assigned student doctors to patients while being mindful of choosing students with interest or experience in mental health to see patients with higher scores. He reported that this has made the overall system more efficient and reliable.

Another GM reported that certain elements of the screening protocol were convoluted and tedious. Firstly, it was reported that the GMs did not receive the screening protocol until two months into their tenure. They “pieced something together” from what was told to them by the former GMs and from what they eventually pulled from a “text-heavy document shared with us,” which referred to the general screening protocol. Furthermore, it was reported that the screening protocol was “a visual burden” that was not well-suited to the hectic clinic environment.

Despite some individuals finding the written protocol inefficient, multiple GMs reported that the screening was being administered regularly as intended during each primary care visit, as determined appropriate by the screening protocol. Christina Cui, a GM who took a particular interest in improving the depression screening process, reported that the protocols had been working well throughout her tenure at clinic for several months in 2017 and did not report any issues with their implementation, efficiency, or efficacy. In pioneering her own project, she consolidated the PHQ protocol across clinics and implemented the depression screening at the NH site. In general, she and other GMs reported that the screening helped identify people who were in need of mental health care. One student reported that “we as GMs and even the medical students are thinking though a number of things while at Free Clinic. Screening measures help focus our attention.”

From the standpoint of the psychiatry clinic, which includes student managers, an attending physician, and a psychiatric pharmacist, it was reported that they rarely interact with the depression screening directly. It should be noted that referrals to psychiatry are encouraged to occur electronically, yet are often communicated verbally, at least initially, during clinic. Only occasionally do those referrals mention a PHQ score. One of the psychiatry managers reported that she usually finds out about a particular score during a patient’s initial psychiatry visit, but thinks it would be helpful for score to be communicated to Psychiatry ahead of time or to be told whether the score was a main impetus for the psychiatry referral.

The full-time psychologist at the PB site reported that the PHQs have helped facilitate the process by which primary care staff connect her with patients who would benefit from being seen by her at that time. Specifically, she is often told by student doctors that a patient scored a significant number on the PHQ, which informs her about that patient; then she is able to make sure she sees the patient during that evening. This allows her to introduce herself to the patient, establish a therapeutic relationship, and coordinate subsequent follow-up. She rarely receives referrals directly from the Psychiatry Specialty Clinic because by the time a patient is seen by psychiatry, the patient has already been seen by her. Prior to the screening implementation, the psychologist would generally see only patients who had explicitly expressed feelings related to mental health directly to a student doctor in primary care clinic. Importantly,

she reported that the screening has helped identify patients with mental health issues who may not have volunteered information about their mental health.

3.3 Case Studies

Case I

Ms. B was a 58-year-old Hispanic female with hypertension, diabetes mellitus type 2, and a documented history of depression, who started receiving care at FC in 2014. The patient was not receiving any psychiatric care at the time, and did not report symptoms of depression when asked at one of her first visits in 5/2014. Symptoms were not revisited on subsequent clinic appointments. In the month the PHQ screening was implemented, the patient scored a 14 on the PHQ-9. On interview, the patient endorsed symptoms consistent with major depressive disorder in the context of several psychosocial stressors. At that time, she reported low mood for several years, but did not recall being diagnosed with depression. Her mood was exacerbated by a growing reliance on her daughter and associated loss of independence. She was resistant to starting a medication because she already took several for other illnesses, but was interested in meeting with a psychologist. She spoke to the LCSW and was referred to the psychologist, who met her that evening to discuss her symptoms and a plan for follow-up. One month later, her PHQ-9 score was 4, demonstrating a clinically significant decrease in depression symptoms. She saw the social worker again and soon began participating in an eight-session CBT group therapy series at the clinic. She attended two group sessions, but expressed difficulty connecting in a group environment and wished to have individual therapy. Subsequently, she began regular individual therapy sessions with the psychologist. She soon reported significantly improved mood and follow-up PHQs-9s were “1” repeatedly. She continued to receive PHQ screenings at the appropriate intervals, which have remained non-significant.

Case II

Mr. D was a 38-year-old male with history of diabetes mellitus type 2 and hypertension who established care at FC in 11/2016. He was screened appropriately with a non-significant PHQ-2 result and continued to follow-up for management of his chronic diseases. Six months after his first PHQ screening, he came to clinic for a follow-up of Hgb-A1c; as it had been six months, he received another PHQ survey. At this time, he scored at 6 on the PHQ-9, including endorsement of the question assessing suicidal ideation. On further interview, he reported recent insomnia, anhedonia, guilt, loss of energy, low appetite, anorexia, thoughts of self-harm, and suicidal ideation with three concrete plans, all in the setting of significant chronic medical illness and a variety of social stressors. Given the severity of symptoms and risk of self-harm, emergency psychiatric evaluation was recommended, but the patient refused voluntary hospital admission. The patient was placed on a 5150 involuntary hold for danger to self and transported to County Mental Health by the San Diego Police Department. He was evaluated and discharged the following morning. At a follow-up visit the following week, he reported that he had reached out to his friends and family and denied having thoughts of self-harm, although other depressive symptoms were still present. He was started on sertraline. The following month, he reported improved mood, denied suicidal ideation, but still had trouble with sleep. At subsequent visits, he established care with the clinic psychologist. He continued to report improved mood and anxiety on sertraline in subsequent months, but sleep was difficult to improve despite trials of diphenhydramine and gabapentin. The most recent PHQ-9 score was 5 in 2/2018 and a consult to psychiatry clinic has been placed.

3.4 Program assessment

The reach, effectiveness, adoption, implementation, and maintenance of the depression screening were analyzed using the RE-AIM framework summarized in Table 1^{20,24}.

Table 1

Analysis of the depression screening at three sites of the University of California San Diego (UCSD) Student-Run Free Clinic Project (SRFCP) from October 2015 – July 2017 using the RE-AIM framework (Reach, Effectiveness, Adoption, Implementation, and Maintenance).

RE-AIM element	Outcome
<i>Reach</i>	
Inclusion criteria	Primary care visits
Exclusion criteria	Specialty clinic visits
Percent individuals who participated	88.4% (504/570 patients screened)
<i>Effectiveness</i>	
Measure of primary outcome: depression	39% (197/504 of patients screened) had positive PHQ-2 depression screenings
Measure of secondary outcome: degree of depression	28% (56/197 of patients with positive PHQ-2) had no depression, 30% (60/197) moderate, 25.8% (51/197) moderate-severe, 13% (26/197) severe, and 23% (46/197) had suicidal ideation.
Utilization of referral to mental health resources	Generally, patients with positive screenings were connected with psychologist and social worker, and often referred to psychiatry clinic
<i>Adoption</i>	
Setting Exclusions	None
Percent of settings approached that participated	100% (3/3)
Characteristics of settings participating	Three Student-Run Free Clinics in San Diego, CA serving a low-income, uninsured, predominantly Latino patient population
<i>Implementation</i>	
Percent of perfect delivery	The intervention was delivered as intended at a rate 88%. Few adaptations were made to screening delivery.
Cost of intervention	There were no costs to screening as volunteer staff performed screening, referrals, follow-up, and tracking. No known inconsistencies, but this was not an area of deliberate investigation.
Consistency of implementation across staff, settings subgroups	
<i>Maintenance</i>	
Long term attrition	Volunteers are conducting screenings on established schedule at 2/3 sites reported in this data, and at all currently operating sites.
If program is still ongoing at least 6 months post study	Ongoing depression screening and mental health referrals are being provided over at least six months after study completion.
If and how program was adapted long term	The program has been integrated into the routine primary care visit.
Alignment of organization mission or sustainability	Pre-existing mission statements of UCSD Student-Run Free Clinic Project are well-aligned with addressing disparities in access to mental health care; the organization is committed to the sustainability of depression screening.

4. Discussion

4.1 Implications

Universal depression screening was successfully implemented and maintained over a two-year period of time. Along with prior assessments, this indicates that universal depression screening and treatment programs are now in place at all UCSD SRFCP sites. Qualitative reports and cursory examination of electronic medical records suggest that, by and large, the PHQ depression screening was implemented successfully as intended at the two clinic sites, with a screening rate of nearly 90%. It has remained well-integrated into the primary care visit.

The success of universal depression screening at UCSD SRFCP is paralleled by similar successes seen nationally in the integration of depression screening into primary care visits. It is well-documented that depression screening is increasingly included as a standard-of-care measure in emerging models of primary care²⁵. Part of this may be due to policy and system-level changes that have helped mitigate the issue of how to integrate screening into billing and reimbursement regulations, which historically created a major barrier to the adoption of universal depression screenings in many systems of care²⁵. Because SRFCs are not constrained by similar billing practices, they continue to provide an optimal setting for new interventions. In fact, they likely provide important data on screening efficacies that can inform larger systems of medical care delivery.

While the impact of routine depression screening on care outcomes remains unclear in existing literature, the U.S. Preventive Services Task Force reaffirmed its recommendation for routine depression screening in primary care in 2016, on the principle that compelling evidence supports the benefits of this practice²⁵⁻²⁷. According to a recent review, more than seventy randomized trials have demonstrated the effectiveness of collaborative care models that combine depression screening with a care manager who provides psychoeducation, depression monitoring, and tailoring of treatment under the supervision of a mental health specialist²⁸. This model is closely approximated at the UCSD SRFCP by means of medical students, psychologists, and psychiatrists. Given the surprising ease and sustainability of the universal screening in the extremely busy and dynamic setting of SRFC, such screenings should be successful in other contexts of underserved medicine and primary care.

4.2 Limitations

Although the PHQ is a widely-used measure for depression, it has certain shortcomings. Firstly, there is no best PHQ-2 threshold score for a positive screening. Published data on the PHQ-2's validity has demonstrated that when a threshold of 3 or more points is used, the sensitivity for diagnosing any depressive disorder may be as low as 0.61. This mediocre sensitivity likely prevents some patients with legitimate depressive symptoms from receiving further screening by PHQ-9. In comparison, the lowest reported sensitivities for thresholds of ≥ 1 and ≥ 2 are 0.83 and 0.77, respectively²³. Because the SRFCP uses the PHQ-2 as a screening tool and the PHQ-9 to stratify symptom severity, future clinic staff should consider using a lower threshold score on the PHQ-2 in order to increase its sensitivity.

Our data reveal that about 12% of patients did not receive appropriate screenings during the 21-month period examined. Reasons for this may include the busy clinic environment, an arguably complex and wordy written protocol, and regular intervals of staff turnover. For instance, feedback from clinic staff revealed that the screening protocol was unnecessarily lengthy and complicated. For this reason, staff transition periods were particularly vulnerable times for the screening protocol to be used incompletely. Given that such transitions are inherent in the structure of SRFCP, the screening protocol should be improved to facilitate better use. Another reason for 12% not screened may be explained by there being several patients with low literacy who were, appropriately, not screened because the PHQ-2/9 is only validated as a self-administered measure.

4.3 Future Directions

In order to ensure that individuals with low literacy are screened for depression, a separate verbal screening should be used for this subset of patients. The PHQ-2/9 has not been validated as a verbally-administered survey; however, oral administrations of the Beck Depression Inventory (BDI, Beck et al., 1996) I and II have been validated²⁹⁻³¹. The BDI-II is a paper-and-pencil-completed questionnaire containing 21 items of similar type to the PHQ, and administration is usually completed in 5-10 minutes³². The BDI Fast Screen for Medical Patients (BDI-FS; Beck et al., 2000), formerly known as the Beck Depression Inventory for Primary Care (BDI-PC; Beck et al., 1997), is composed of seven psychological symptoms of depression drawn from the 21-item BDI-II^{33,34}. Given its length and validity for oral administration, this measure should be considered an option for screening low-literacy patients at SRFCs³⁵.

An improved written protocol should involve a concise and clear chart indicating the most fundamental screening information, such as who needs a screening and who does not. More detailed information could be provided in a separate reference document. When the screening was implemented initially, a white coat pocket-sized laminated card was created for just this purpose (see Index 2). This card included the most important points about PHQ screening and was intended for GMs and other volunteers to use regularly at clinic. Perhaps these cards were poorly advertised or were easily misplaced. Reproduction of this reference card would be worthwhile going forward. The primary protocol document should also be re-edited for brevity.

While the current process by which patients are assigned PHQs has been successful, ideally the screening will eventually become integrated into EPIC as an alert when a patient encounter is opened. For example, if a patient was supposed to receive a screening, the alert would pop up in EPIC and instruct the reader. An endeavor such as this could be a meaningful goal of a future quality improvement project.

Feedback from psychiatry clinic staff suggests that clinical efficiency would be increased if referrals to psychiatry clinic explicitly stated the patient's PHQ score. It was reported by the same managers, however, that the actual referral process, as informal as it is, had been the most reliable process they had achieved thus far. Until recently, psychiatry records at free clinic were not part of the electronic medical record, but rather kept separately in paper charts. This likely contributed to the sustained use of a predominantly non-electronic referral process. The PHQ scores, however, were always a part of the primary care progress note template. While it would be helpful for primary care student doctors to communicate a patient's PHQ score when placing a psychiatry referral, the psychiatry student's role could be emphasized to include, as a part of chart review, examining PHQ data before seeing a new consult. Now that psychiatry clinic notes are documented electronically in Epic, a more formal electronic referral process should be pursued.

The present study did not investigate the rate at which patients with positive screenings received immediate attention regarding symptoms during the clinic visit, or the rate at which they received subsequent psychiatric or psychological treatment. This would be an interesting area of inquiry, as the screening is theoretically only meaningful if it facilitates significantly greater access to mental health care. Additionally, this study did not investigate whether individuals with positive screenings who received follow-up mental health care went on to have lower screenings after receiving care. Using the PHQ to track treatment responses might be a worthwhile means of investigating the efficacy of mental health treatment at SRFCP, and could be the focus of a future study.

Conclusion

The UCSD Student-Run Free Clinic Project has demonstrated the ability to implement and sustain an effective universal depression screening program accompanied by a multi-disciplinary approach to treatment on-site. The students and faculty have shown an ongoing commitment to addressing mental health within the context of primary care, truly providing a biopsychosocial model of behavioral health. This depression screening project has reaffirmed the importance of recognizing and identifying mental health needs in individuals who might otherwise not seek help, and has helped to

improve access to mental health resources for individuals who might otherwise never receive proper psychiatric and psychological attention. The success and impact of this project in facilitating greater access to mental health care should encourage SRFCs at similar medical school programs to integrate depression screenings into routine primary care visits.

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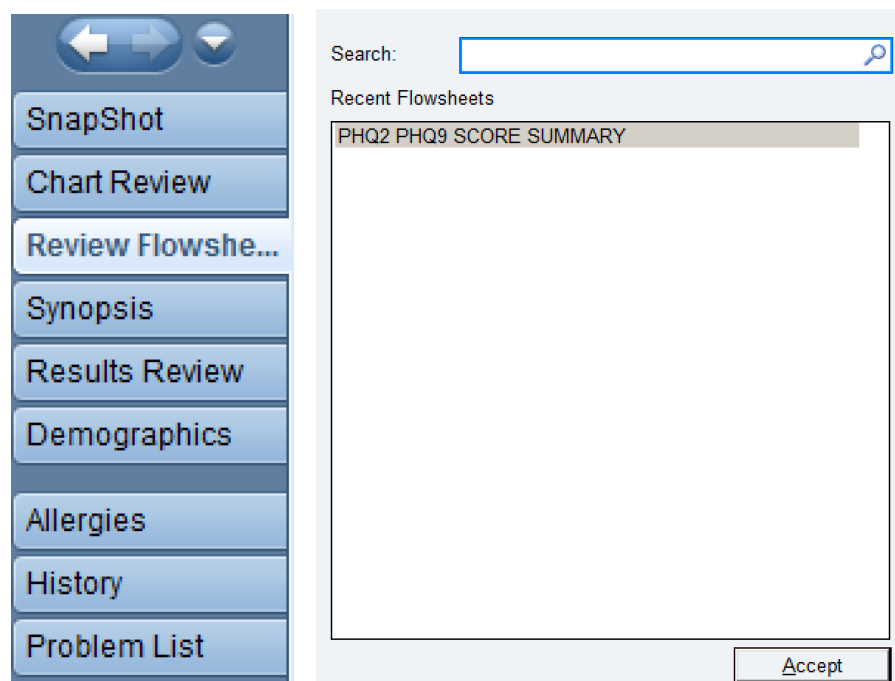
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INDEX 1. Protocol for PHQ Screening at PB Free Clinic: 9/1/2015

A. One week before the clinic date:

GENERAL MANAGER/PHQ Point person: *Check next week's schedule to determine which patients will require PHQ-2 or PHQ-9*

1. Log in to Epic
2. Open the schedule for the following week's clinic
3. For each patient coming to GENERAL (not specialty clinic)
 1. Click on "Review" at the top—> click on "Review Flowsheet" on the far left hand side of the page
 2. Type "PHQ" into the search bar at the top of the page (see figure below)
 3. Click on PHQ-2 PHQ-9 score summary, and then click "Accept." This will open the PHQ data flowsheet.



4. Use the data in the flowsheet to determine whether each patient should receive a PHQ-2 or PHQ-9, or neither, at his or her visit the following week. *Use the following rules:*
 1. PHQ-2
 1. In general, **all patients receive a PHQ-2 depression screen every 6 months**. If a patient's next appointment is near the 6 month point, for example at 5 months, and the patient will not be coming in again in 1 month, then go ahead and give that patient a PHQ-2 at the 5 month point. Use your best judgement so that we are screening people as close to 6 months as possible, within the limits of their scheduled appointment times.
 2. If it has been 6 months since the patient's last PHQ-2 administration, the patient should receive a PHQ-2 the following week.
 3. If a patient has never done a PHQ-2 and has NO history of depression in problem list or medical history, give them a PHQ-2.
 4. If a patient has never done a PHQ-2, but *has depression in problem list or medical history*, skip the PHQ-2 and give a PHQ-9.

5. If a patient has depression listed in problem list or medical history, BUT has scored <5 on the last 2 consecutive PHQ-9 administrations, give a PHQ-2 if it has been 4-6 weeks since the last score.
2. PHQ-9:
 1. **Certain patients need to receive the PHQ-9 every 4-6 weeks:**
 1. *Patients who have a history of depression listed in their problem list or medical history AND who have NOT had two consecutive PHQ-9 scores <5 . If it has been 4-6 weeks since last PHQ administration, give PHQ-9.*
 2. *Patients who have previously scored ≥ 10 on the PHQ-9 AND have not had two consecutive PHQ-9 scores <5 .*
 1. Patients who were administered the PHQ-9 at their last visit and scored ≥ 9 need to receive the PHQ-9 at their next visits, ideally every 4-6 weeks, until they have 2 consecutive PHQ-9 scores < 5 .
 2. Some patients who were administered the PHQ-2 at their last visit will have scored ≥ 3 , and would have subsequently completed a PHQ-9 at the same visit. If this is the case and the patient scored < 10 on that PHQ-9, they *do not need to receive a PHQ-9* at their next visit. Give the PHQ-2 at the next visit and subsequently at 6 month intervals.
 3. If a patient has PHQ-9 scores of <5 for the *last two consecutive visits*, then resume bi-annual PHQ-2 screenings starting 6 months after the second consecutive PHQ-9 score of < 5 .
5. Send a secure Epic note to **Esmeralda** 1 week before clinic, stating which patients on the schedule will need PHQ-2 and which will need PHQ-9. She will put this into the “notes” section of the clinic schedule for that day. *After you send her the secure note, send her a text message to let her know you sent it to her.*

B. During med check-in:

General manager/ PHQ point person:

1. Set up your station in the med-check in room, using the podium. The supplies you need:
 1. Bag of pens
 2. Clipboards
 3. Copies of PHQ2 and PHQ9 in Spanish and English versions.
 4. List of patients who are indicated for each PHQ.
2. Patients who require medication refills and patients who are indicated for PHQ will come upstairs to the med check-in room. After patients finish med-check in, ask their name and if they are on your list, give them the appropriate questionnaire on a clipboard and pen and ask them to fill it out right there and return it to you. Make sure the patient’s name and date are written at the top. There are chairs in the room they where they can sit comfortably.
3. As soon as the patient brings the PHQ-2 back to you, score it immediately by adding up the response numbers. If the total sum is >2 , give them a PHQ-9 and ask them to fill it out and return it to you. If the PHQ-2 score is less than or equal to 2, they do not need a PHQ-9; enter their PHQ-2 score into EPIC “PHQ” section of the visit navigator. Make sure the patient’s name and date are written at the top.
4. Patients who are waiting for med check-in will be in the hallway; you can ask these patients to fill out PHQ while they wait.
5. Some patients will not require med check-ins, but will require PHQ, and will come upstairs solely for that purpose. These patients may be in the hallway or may try to find you in the med check-in room; you will have to check the hallway periodically to make sure you are attending to every patient on the list. Often, they will be hanging out in the hallway until you speak to them. Assemble PHQ-2 and PHQ-9 on clipboards, ready to give to the appropriate patients (indicated the prior week by general manager) as they check-in.

6. Some patients are unable to read and will require an interpreter to read the PHQ to them. And some patients will have questions or concerns about what the survey is for. In both situations, acquire an interpreter as soon as one becomes available (*Marisol and Esteban are often available at this time*).
 1. **Interpreters:**
 1. When reading the PHQ to patients who are unable to read, make sure to read the questions exactly as they are stated. Do not reword the questions, as the PHQ is only valid for the phrases as they are written. Please read each question and answer choices aloud to the patient and ask the patient to pick an answer choice as honestly as they can. If they ask for clarification on any of the questions, first try repeating the question.
 2. You may be asked to answer questions that patients may have about why they are being asked to fill out a survey, and what it is for. They may have concerns, especially if they are undocumented. Simply explain that the questions are just to see how a patient's mood has been for the last 2 weeks.
7. **When a patient returns a PHQ-9 to you, score it immediately by adding all of the sums of the numbers chosen in each column to one total sum.**
 1. Count each item in the column labeled "Several Days" and multiply by one. Enter that number below the column.
 2. Count each item in the column labeled "More than half the days" and multiply by two. Enter the number below the column.
 3. Count each item in the column labeled "Nearly every day" and multiply by three. Enter the number below the column.
 4. Add the totals for each of the three columns.
 5. Add the totals for each of the three columns together. Enter the total. This is the total score. **The total score corresponds to a depression severity level** (see figure below).
 6. **Pay attention to whether the patient answered anything other than "0" to question #9.**
8. Enter the PHQ-9 responses into Epic "PHQ" section of visit navigator.
 1. If the PHQ-9 total score is ≥ 5 , give the hard copy of the PHQ to the student who is assigned to that patient and explain what the score suggests. Pay special attention to question #9, which asks about suicidal thoughts. If the patient answered *anything other than "0"* to this question, bring this to the student's attention and ask that they address it with the patient and attending. Tell them to ask the patient if they are interested in counseling services and to ask the attending if a referral to psych clinic is warranted.
 1. When the patient is assigned an attending, debrief the attending on the PHQ-9 score and its meaning. Remind the attending that counseling services and psychiatry specialty clinic are available resources.
9. Once the attending(s) have decided which walk-in patients will be seen, check their charts to see if they need a PHQ-2 or PHQ-9. Page these patients, meet them outside, and give them the appropriate surveys. Wait for them to fill it out and collect it. Follow the same protocol as described above.
10. Ask the head attending (usually Dr. Rodriguez) if they decided to take any new patients today. If so, administer PHQ-2.
11. At the end of clinic, make sure you have retrieved all the PHQ-9 papers you had given to the student doctors. Make sure all PHQ-2 and PHQ-9 scores have been entered into EPIC. Place the hard copies in the paper charts.

C. During clinic:

General manager not administering PHQ: Give students copies of the PHQ-guides. To the same for attendings as they arrive and remind them that we are administering the PHQ today. Remind them that

they may be seeing patients who have screened positively for depression, and who may have scored significantly on the subsequent PHQ-9. Tell the attending that the guide card has all of the important numbers regarding the PHQ, and what different scores indicate in terms of depression severity. Remind them that question #9 on PHQ-9 asks about suicidal thoughts, and should be given special attention.

Patient Name: _____ **Date of Visit:** _____

Over the past 2 weeks, how often have you been bothered by any of the following problems?	Not at All	Several Days	More than Half the Days	Nearly Every Day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed or hopeless	0	1	2	3

Add Columns:

TOTAL Score:

STUDENTS SEEING PATIENTS:

1. If your patient scored significantly on the PHQ, a general manager will inform you of this and will give you the hard copy of the patient’s PHQ-9. The total score (at the bottom) indicates depression severity.
 1. Ranges of scores and corresponding severity of depression
 1. 1-4 = Minimal depression
 2. 5-9 = Mild depression
 3. 10-14 = Moderate depression
 4. 15-19 = Moderately severe depression
 5. 20-27 = Severe depression.
 2. A laminated chart with these numbers can be referenced; it is on the front whiteboard.
 3. Pay special attention to question #9, which asks about suicidal thoughts. If the patient answered this question with anything other than “0,” this must be addressed.
2. **Discuss the PHQ-9 results and their significance with your attending** (score, severity, change over time, suicidal ideation). If the patient answered anything other than “0” on questions #9, make sure to address this. Make a plan to discuss these things with the patient during the interview in order to verify the patient’s responses, and to clarify their thoughts and feelings. Remember that we have counseling services and psychiatry specialty clinic available.

1. For additional information on how to evaluate a patient’s risk for self-harm, please see the document “Managing High Risk and Crisis Patients,” which can be found in the Depression Screening binder.
2. If you and your attending decide, after speaking with the patient, that the patient is at immediate risk of self-harm, you may choose to ask Dr. Hopper (PB Clinic Psychologist) to speak with the patient before they leave clinic. Dr. Hopper can perform crisis counseling and therapy. If further attention is warranted immediately (e.g. hospitalization), refer to the Depression Screening binder for instructions.
3. **In your SOAP note, within the section for Health Maintenance, document which questionnaire the patient received today and state the total score(s) in your note. Do this by using “smart phrase” .PHQ.** This will input a table in your note with the responses and scores from recent prior

Scoring the PHQ-9

Begin here for DIAGNOSIS SCORE:

Step 1: For any depression diagnosis # 1 (little interest) or # 2 (feeling down) needs to receive a score in the gray highlighted section (i.e., “2” or “3”).

If # 1 or # 2 does not receive a score in the gray highlighted box go to step 4.

Step 2: Consider a diagnosis of Major Depressive Disorder if:

- ≥ 5 items are checked off in the gray highlighted section (this includes items #1 &/or #2). Note: #9 addresses suicidality a very serious matter and therefore should be included if it receives a score of “1”, “2” or “3”.
- Item #10, which addresses functional impairment, is checked as “Somewhat difficult” or greater.
- Begin severity scoring.
- If < 5 items are marked go to step 3.

Step 3: Consider a diagnosis of Other Depressive Disorder (e.g., minor depression, dysthymia) if:

- 2 to 4 items are checked off in the gray highlighted boxes. Note: #9 addresses suicidality a very serious matter and therefore should be included if it receives a score of “1”, “2” or “3”.
- Item #10, which addresses functional impairment, is checked as “Somewhat difficult” or greater.
- Begin severity scoring.

Step 4: Review your patient’s responses. Discuss the results with your attending and your patient.

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME: _____ DATE: _____

Over the last 2 weeks, how often have you been bothered by any of the following problems? (use “/” to indicate 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 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

add columns: _____

TOTAL: _____

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

Not difficult at all _____

Somewhat difficult _____

Very difficult _____

Extremely difficult _____

Begin here for SEVERITY SCORE:

Step 1: Count each item in the column labeled “Several Days” and multiply by one. Enter that number below the column.

Step 2: Count each item in the column labeled “More than half the days” and multiply by two. Enter the number below the column.

Step 3: Count each item in the column labeled “Nearly every day” and multiply by three. Enter the number below the column.

Step 4: Add the totals for each of the three columns. This is the SEVERITY SCORE (see below).

Step 4: Add the totals for each of the three columns together. Enter the TOTAL. This is the SEVERITY SCORE. Look at the table below to determine depression severity.

Total Score	Depression Severity
1 – 4	Minimal Depression
5 – 9	Mild Depression
10 – 14	Moderate depression
15 – 19	Moderately severe depression
20 – 27	Severe depression

PHQ-9 is adapted from PHQ-9 MD TODAY, developed by Drs Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues, with an educational grant from Pfizer Inc. For research information, contact Dr Spitzer at rls1@mc.columbia.edu. Use of the PHQ-9 may only be made in accordance with the Terms of Use available at <http://www.pfizer.com>. Copyright ©1999 Pfizer Inc. All rights reserved. PHQ-9 MD TODAY is a trademark of Pfizer Inc.

screenings.

GENERAL MANAGERS: Detailed instructions on entering PHQ-2 and PHQ-9 responses and scores into EPIC:

1. You will need to enter PHQ-2 data and PHQ-9 data if students forget to do so.
2. Enter the new PHQ-2 and PHQ-9 data into Epic.
 1. Within the patient’s open chart, click on the “PHQ-2” tab on the left.
 2. If the patient filled out a PHQ-2 today, enter the data here.
 1. If the score ≥ 3, a section for PHQ-9 data entry will appear.

3. If your patient filled out a PHQ-2 today, scored ≥ 3 , AND THEN filled out a PHQ-9, enter the PHQ-9 data in the appropriate section.
4. If your patient received only a PHQ-9 today (because he or she had not scored <5 on his/her last two consecutive PHQ-9 screenings), **you will first have to enter data for the PHQ-2 in order for the PHQ-9 data entry section to appear in Epic.** This is simple because the first 2 questions on the PHQ-9 are identical to the 2 questions on the PHQ-2. Thus, enter the patient's responses for the 1st 2 questions on the PHQ-9 as answers to the PHQ-2. This entry will trigger Epic to give you a PHQ-9 data entry section. Enter the PHQ-9 data accordingly.
 1. ***CAVEAT: If your patient filled out only a PHQ-9 today, but answered "0" to the first 2 questions, you will have to enter imaginary data for the PHQ-2 temporarily in order for the PHQ-9 data section to appear.*** Do the following:
 1. Enter "3" as the answer to PHQ-2 question 1
 2. Enter "0" as the answer to PHQ-2 question 2.
 3. Enter the real, correct data into the PHQ-9 data entry section.
 4. Delete the PHQ-2 data that you had entered previously.

INDEX 2. Attending Physician PHQ Guide

PHQ-2 Screening schedule:

- All primary care patients should be given the PHQ-2 screening every 6 months.
- For patients who score >2 on the PHQ-2, administer the PHQ-9.

PHQ-9 Screening Schedule:

- Patients with depression in problem list or medical history should be given PHQ-9 initially.
- Patients who score >9 on PHQ-9:
 - Should receive direct physician intervention with primary care provider during the patient encounter.
 - Are given follow-up PHQ-9 during subsequent visits (4-6 week intervals) until PHQ-9 score is <5 for two consecutive visits; at this point resume bi-annual PHQ-2.
 - If at subsequent visits, follow-up PHQ-9 score is not ≤ 9 , or has not decreased by 5 points, then re-evaluate the treatment plan.
- *Exception:* For patients with persistent chronic depression or dysthymia, a PHQ-9 score ≤ 9 for 2 consecutive visits allows for resuming bi-annual PHQ-2 screening.

PHQ-2 Total Score: Determines if the screening is +/-

- > 2 = positive depression screening → Give PHQ-9
- ≤ 2 = negative depression screening → no further action

PHQ-9 Total Score: >9 is the cutoff for what we consider significant depression

- 1 – 9: Mild/less significant
- >9 : Significant depression, with the following categories of severity:
 - 10 - 14: Moderate depression
 - 15 - 19: Moderately severe depression
 - 20 - 27: Severe depression

****Make sure to review question #9 on PHQ-9, which concerns suicidal thoughts:****

0 = not at all 2 = more than half the days

1 = several days 3 = nearly every day

Depression management resources:

- A PHQ-9 score >9 should be treated/addressed initially with primary care provider.
- Counseling is available (consult Jim/Margaret at DT; consult Dr. Deb Hopper at PB)
- Pharmacotherapy (e.g. SSRIs) options available at clinic:
 - On formulary: Fluoxetine, (will ask pharmacy for list)
 - Potentially available: Abilify (will ask pharmacy/ PAP for list*)
- Referral to psychiatry specialty clinic (sites at DT and PB) – done in Epic
- Immediate crisis counseling (Jim/Margaret at DT; Dr. Hopper at PB)
- The San Diego Access & Crisis Line should be given to the patient: (888) 724-7240 (available 24/7).