

Implementation of Depression Screening in a Primary Care Practice

by

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A DNP Project Manuscript
Submitted in Partial Fulfillment of the Requirements for the
Doctor of Nursing Practice Degree

School of Nursing, University of Maryland at Shady Grove
May 2021

Abstract

Problem & Purpose: Depression is a common mood disorder that affects over 19.4 million adults annually in the United States. Depression is a leading cause of disability, absenteeism, and suicide. Primary care providers can diagnose and treat depression; yet, 50% of all depression diagnoses are missed in the absence of effective screening. Clinical practice guidelines support routine use of the Patient Health Questionnaire-9 depression screening tool among primary care patients. The purpose of this quality improvement project was to implement and evaluate the effectiveness of depression screening using the Patient Health Questionnaire-9 among adult patients at a suburban primary care clinic.

Methods: The project was implemented by a team of primary care providers and nurse practitioner students during a 12-week period beginning in September of 2020. Staff and students received education on the importance of depression screening and intervention prior to implementation. Participants included primary care patients ages 18 or older who could speak and understand English, presenting for sick- or well-visits, either in-person or through telehealth. Participants were asked to complete the Patient Health Questionnaire-9 prior to their visit. Each patient's sum score was calculated to determine presence of depression, severity, and assign corresponding interventions: watchful waiting, counseling referral and/or pharmacotherapy referral. Screening rates, specific scores, intervention rates, and specific interventions were collected weekly through chart audit and review of Patient Health Questionnaires.

Results: Clinic personnel screened 61.3% (n=233) of eligible patients and 18.5% of these patients (n=43) had scores ≥ 5 requiring intervention. All patients identified with depression were offered an intervention, of which 86% (n=37) accepted intervention and 14% (n=6) refused.

Conclusions: The implementation of Patient Health Questionnaire-9 screening may increase

rates of depression identification and facilitate treatment. Routine depression screening in primary care settings may guide patient management, staging of depression, and corresponding treatment plans.

Implementation of Depression Screening in a Primary Care Practice

Introduction

Depression is a prevalent mood disorder and a substantial cause of disability worldwide (World Health Organization, 2017). In the United States, depression affects 19.4 million adults each year (Substance Abuse and Mental Health Services Administration [SAMHSA], 2020). Furthermore, depression is a major risk factor for suicide, leading to over 1.4 million suicide attempts nationally each year (SAMHSA, 2020). In Maryland, the estimated lifetime prevalence of depression is 16.3%, and at least one death by suicide occurs every 13 hours (Maryland Behavioral Risk Factor Surveillance System, 2017; Centers for Disease Control and Prevention, 2020). Additionally, mental health care disparities exist, as black Americans have higher rates of depression chronicity compared to white Americans (Williams et al., 2007). Despite high prevalence of depression, primary care providers may miss half of all depression diagnoses without effective screening (Mitchell et al., 2009). The United States Preventive Services Taskforce (USPSTF; Siu et al., 2016) recommends depression screening among adult primary care patients using validated tools, such as the Patient Health Questionnaire-9 (PHQ-9).

Inconsistent depression screening was noted to be occurring at a primary care practice in suburban Maryland. The practice owner acknowledged that clinic systems, processes and staffing dynamics led to inconsistent screening. A random audit of 20 patient charts revealed that 75% of charts were missing documented screenings. Five charts (25%) included copies of completed PHQ-9 forms; however, only two charts had documented follow-up for positive scores. A practice change was then recommended to implement regular PHQ-9 screening, along with interventions for depression. The purpose of this project was to implement and evaluate the effectiveness of PHQ-9 screening among adult primary care patients, with anticipated outcomes

of improved rates of depression identification and appropriate interventions.

Literature Review

An evidence review was conducted regarding PHQ-9 screening among primary care patients. Several themes were identified within six peer-reviewed studies of PHQ-9 use, including: high diagnostic validity, consistent scoring interpretation, most effective screening setting, and best administration practices (Horton & Perry, 2016; Manea et al., 2012; Mitchell et al., 2016; Mulvaney-Day et al., 2018; Van der Zwaan et al., 2015). First, researchers found that the PHQ-9 had excellent diagnostic validity, with meta-analysis revealing $\geq 81\%$ sensitivity and $\geq 82\%$ specificity for correctly identifying major depressive disorder (Levis et al., 2019; Manea et al., 2012; Mitchell et al., 2016; Mulvaney-Day et al., 2018; & Van der Zwaan et al., 2015). Additionally, scoring interpretations were consistent across all studies, with severe depression linked to PHQ-9 cut-off scores ≥ 8 . Furthermore, all of the studies mentioned or verified that PHQ-9 administration is most effective within primary care settings, (Horton & Perry, 2016; Levis et al., 2019; Manea et al., 2012; Mitchell et al., 2016; Mulvaney-Day et al., 2018; & Van der Zwaan et al., 2015). In addition, all of the studies concluded that the PHQ-9 is most appropriate as an initial screening tool which should be combined with patient interview, clinical judgement, and evidence-based treatment as indicated.

The studies differed in a few ways. First, the sequencing recommendations of screening tools varied. Three of the studies recommended using the PHQ-9 as a first-line tool in primary care; however, two studies specified that the PHQ-2 could be completed first, and if positive, the PHQ-9 could be performed (Mitchell et al., 2016; Mulvaney-Day et al., 2018). Secondly, all studies focused on primary care patients; however, Van der Zwaan et al. (2015) and Levis et al. (2019) included additional subgroups within their studies. Van der Zwaan et al. (2015) analyzed

a subset of patients with diabetes and/or coronary heart disease (CHD) and found that the PHQ-9 can differentiate depression from the fatigue symptoms of diabetes or CHD; however, higher cutoff scores may be considered for these patients. Notably, Levis et al. (2019) included a diverse sample (inpatient, specialty, and non-medical participants) and confirmed the PHQ-9 is most accurate among primary care patients. Overall, the studies established that the PHQ-9 is a valid, reliable, and effective depression screening tool in primary care. Therefore, a practice change is recommended at the suburban Maryland clinic to implement consistent PHQ-9 use and evaluation, combined with treatment and referral.

The research studies were rated as high-quality evidence using the Melnyk and Fineout-Overholt (2019) leveling criteria and Newhouse (2006) quality scale. Four studies were ranked as Level I evidence found through expert-led systematic review and/or meta-analysis (Levis et al., 2019; Manea et al., 2012; Mitchell et al., 2016; & Mulvaney-Day et al., 2018). One of the systematic reviews earned an A quality rating (Levis et al., 2019) for large sample size and high-quality evaluation techniques. Three systematic reviews earned a B quality rating, with sufficient meta-analysis and fairly definitive conclusions (Manea et al., 2012; Mitchell et al., 2016; & Mulvaney-Day et al., 2018). Two studies were ranked as Level IV, B quality evidence found through well-designed, cross-sectional research (Horton & Perry, 2016; Van der Zwaan et al., 2015). The research studies provided consistent evidence for the reliability and validity of the PHQ-9, despite some sampling limitations. See Appendix A for evidence review and Appendix B for evidence synthesis.

Theoretical Framework

The clinical practice problem was addressed using Icek Ajzen's Theory of Planned Behavior (TPB). The TPB was designed to explain or predict an individual's behavior, based on

their beliefs, attitudes, social norms, or intentions (Ajzen, 2005). Furthermore, the TPB has successfully been used among medical providers to study their knowledge and attitudes towards depression screening, and their perceived ability to treat depression (Sanders, 2010). Based on the theory's principles, ineffective depression screening may have developed from flawed beliefs and approaches.

The TPB steered implementation of depression screening. First, an assessment was conducted of the medical provider's intention to perform (or not perform) depression screening. To promote the practice change, staff received training on recognition of depression. Staff education also helped improve knowledge of interventions, reorient values towards psychosocial concerns, and reshape behavioral beliefs. Also, by including all clinic staff in the training, normative beliefs were adjusted, as a new social norm was established. Additionally, self-efficacy to perform the screening was enhanced by ensuring that staff members had the necessary skills and resources to perform the screenings.

Methods

The project was implemented at a primary care clinic in suburban Maryland. Participants included patients aged 18 and older, who could speak and understand English, with ability to consent to screening, and who presented for sick- or well-visits. Patients were seen in-person or through telehealth. Patients could choose to opt-out of screening for any reason. No vulnerable populations were excluded from the quality improvement project.

The implementation team included five primary care providers (PCPs) and three nurse practitioner (NP) students. Patients who presented in-person received a PHQ-9 form while in the waiting room (Appendix C). Telehealth patients were sent a secure link to an online PHQ-9 form (Appendix D). Through a series of nine questions, participants rated their frequency of

depression symptoms within the last two weeks using a 4-point Likert-scale: *not at all (0)*, *several days (1)*, *more than half the days (2)*, and *(3) nearly every day*. Providers or students then used the sum score to categorize depression severity using an evidence-based scoring chart (Appendix E). Interventions were provided per clinical judgement and chart recommendations. The interventions were documented in the electronic health record (EHR).

Structural changes included the creation of a policy for PHQ-9 screening and implementation of staff education and training on project purpose and screening process (Appendix F). Process measures included: rates of PHQ-9 depression screening and treatment initiation through referral to counseling and/or pharmacotherapy. The outcome measure was the total number of patients identified with depression.

To implement the structure measures, formal commitment was obtained from key stakeholders beginning in Fall of 2019. Early adopters and change champions were identified in Spring of 2020, which spearheaded development of the screening policy and staff education plan. To facilitate implementation of process measures, meetings were held in the Summer of 2020 to introduce the project to the broader implementation team, followed by a formal training session in Fall of 2020. Weekly check-ins, supervision, and implementation aids (Appendix G, Appendix H, Appendix I) were used to boost awareness and compliance. Staff interview and observation were used to understand fluctuations in screening compliance and make needed adjustments. In response to ineffective screening with telehealth patients, a fillable electronic PHQ-9 form was launched at the end of week three. Weekly data reports and run charts were provided to staff to track progress and boost accountability.

Data were collected weekly during the implementation period through retrieval of completed forms and manual chart audit. An audit log was created using a Microsoft Excel

spreadsheet to track PHQ-9 screening completion rates, PHQ-9 scores, intervention rates, and intervention types (Appendix J). All patient identifiers were removed prior to data collection and replaced with unique codes using a Microsoft Excel formula (Appendix K). Run charts were created to understand data trends and variations.

To protect human subjects, the project proposal was submitted to the Institutional Review Board (IRB) which determined the project was Non-Human Subjects Research (NHSR). To protect patient privacy and confidentiality, visits were conducted in private patient rooms and telehealth channels and de-identified data was analyzed on secure, password protected computers.

Results

The implementation phase began with the creation of a PHQ-9 screening policy and implementation of staff education. A PHQ-9 screening policy was developed in conjunction with the managing physician, and distributed to all participating clinic personnel. Staff education occurred during the first week of September 2020 through a short lecture, group discussion, and a question-and-answer session. Learning was assessed via a short survey completed by clinic personnel after the education session (Appendix L).

After completion of staff training, the PHQ-9 was administered to eligible patients over an 11-week period. During the project implementation period, 380 eligible patients were seen, of which 233 patients (61.3%) received PHQ-9 screening. Each PHQ-9 score was classified based on clinical judgement and the Kroenke et al. (2002) scoring algorithm. A total of 43 out of 233 patients (18.5%) had PHQ-9 scores ≥ 5 indicating depression symptoms (Figure 1). Patients were further categorized as having no depression, mild depression, moderate depression, or severe depression and assigned a corresponding intervention. A total of 37 out of 43 patients (86%)

accepted an intervention for depression and six patients (14%) refused an intervention (Figure 2). Of these 37 patients, 14 were assigned to watchful waiting, 12 were referred to counseling and pharmacotherapy, 7 were referred to pharmacotherapy only, and 4 patients were referred to counseling only (Figure 3).

Weekly screening compliance ranged from 26.8% to 82.1% during the project implementation phase (Figure 4). Increased screening was noted during periods when more NP students were assigned to support PCPs. During the first two weeks of the implementation phase, screening rates were 38.7% and 39.5%. During the third week of the project, there were staffing fluctuations and screening compliance decreased to 26.8%. In week four, a trend began as screening compliance rose to 60.5% and continued increasing for the next five consecutive weeks. This trend was associated with the launch of an electronic PHQ-9 form for telehealth patients. Starting at week six, there was a shift above the median line, which may indicate non-random variation (Perla et al., 2011). During this shift, patients were more likely to complete the PHQ-9 when it was offered electronically. Providers and students were also more likely to provide the electronic form rather than the paper form. Through staff interviews, it was determined that clinic personnel found the electronic form easier to deliver and receive.

The coronavirus disease 2019 (COVID-19) pandemic led to unintended consequences. The pandemic created unanticipated barriers to the project, including: reduced staffing, reduced appointment availability, and resistance among some providers due to increased workload. Screening patients in-person became challenging due to inconsistent intake processes with limited staffing. One unintended consequence is the association between use of the electronic form and increased rates of depression identification. The electronic form and telehealth patient messaging functionality were facilitators of this project, as 42.5% of all PHQ-9 forms collected

were completed electronically. The NP students were also project facilitators as they assisted staff members with the project and technological aspects as needed. The project achieved 61.3% compliance and 100% of patients with confirmed depression symptoms were offered an intervention. The associated costs of the project included a subscription for the electronic screening form website at \$39.00 monthly, along with minor costs of ink and paper.

Discussion

Results suggest the intervention was successful. Patients with depression were identified and connected with appropriate evidence-based treatment. Depression was identified in patients with no known history of depression, and in patients who presented for unrelated chief complaints. At baseline, <20% of patients seen weekly received PHQ-9 screening, compared to 76.5% of patients during the final week of the project. Additionally, 18.5% of all patients screened had PHQ-9 scores ≥ 5 requiring intervention. Of these patients, 86% received an intervention and 14% refused treatment. Reasons for refusal of treatment included: deferral of treatment due to patient assumption that symptoms were related to current COVID-19 diagnosis (n=5) and the desire for immediate benzodiazepine treatment rather than referral to psychiatrist or counselor (n=1).

Compared to the national average of 10% for annual depression prevalence, the rate of depression identification was notably higher among the quality improvement project population at 18.5% (Williams & Nieuwsma, 2020). The depression identification rate may be skewed due to weekly fluctuations in screening compliance. Another possibility is that COVID-19 may have impacted mental health and led to higher rates of depression symptoms.

There are limitations to the generalizability of the project findings. The global pandemic altered typical clinic processes and staff roles. Some providers did not offer the PHQ-9

consistently due to increased workload, while one provider only offered the screening to patients who verbalized that they were depressed. Further staff education was conducted to minimize these problems. The project was also limited by a small sample size of patients screened (n=233) and patients seen overall (n=380), due to pandemic-related appointment reductions.

Conclusion

The implementation of routine PHQ-9 screening may improve rates of depression identification and facilitate treatment. Prior to project implementation, providers did not consistently screen patients for depression or have a standardized process for treatment initiation. Following project implementation, an increase was seen in the number of patients with newly documented depression diagnoses and interventions. Identification of depression may lead to earlier treatment and remission of depression, which may improve patient outcomes and psychosocial wellbeing. Further quality improvement projects may track long-term patient outcomes after treatment initiation. Electronic PHQ-9 screening may be a viable option for reaching telehealth patients during COVID-19 and beyond. Project sustainability will be supported by ongoing use of the electronic PHQ-9 form, which has been adopted as a routine process. Sustainability will be further enhanced by a new PHQ-9 training protocol for all new hires during orientation, and continued insurance reimbursement from PHQ-9 screening.

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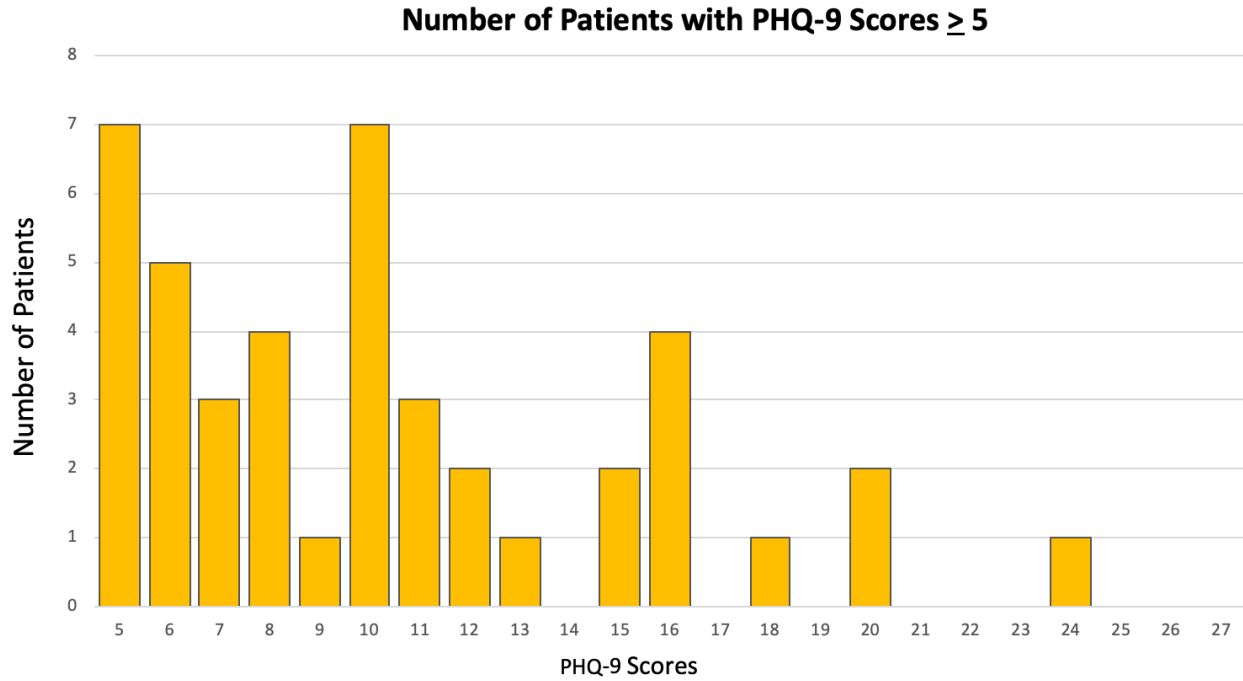
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Figure 1

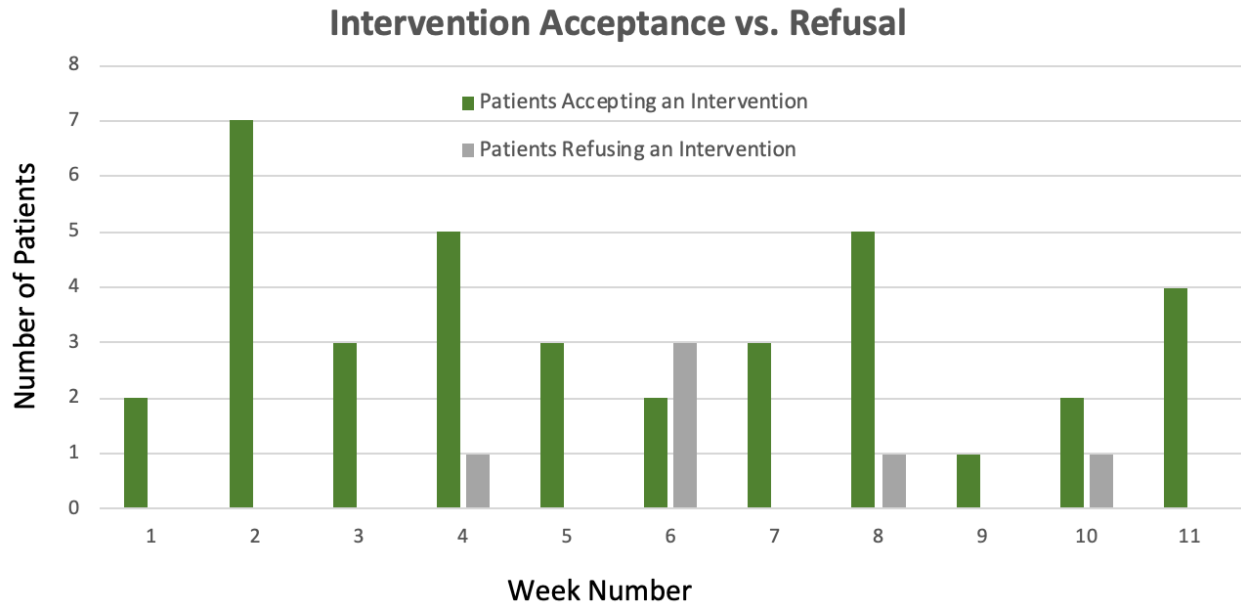
Number of patients scoring ≥ 5 on PHQ-9



Note. An analysis of the number of patients (n=43) with PHQ-9 scores indicating depression

Figure 2

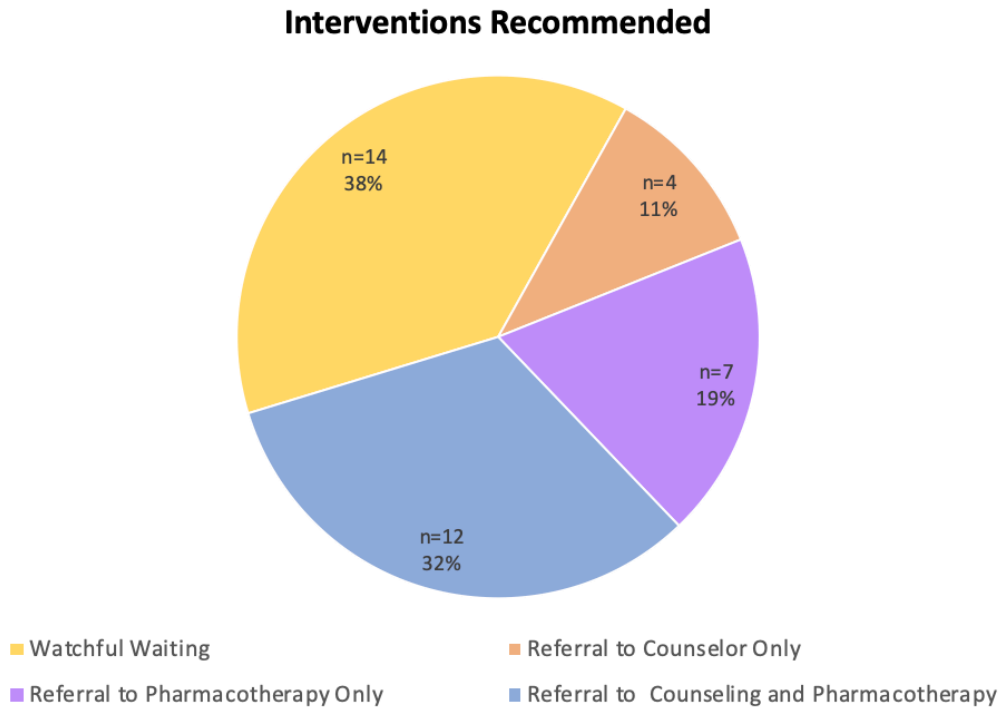
Weekly patient acceptance and refusal of depression interventions



Note. 100% of patients were offered an intervention, n=37 accepted and n=6 refused

Figure 3

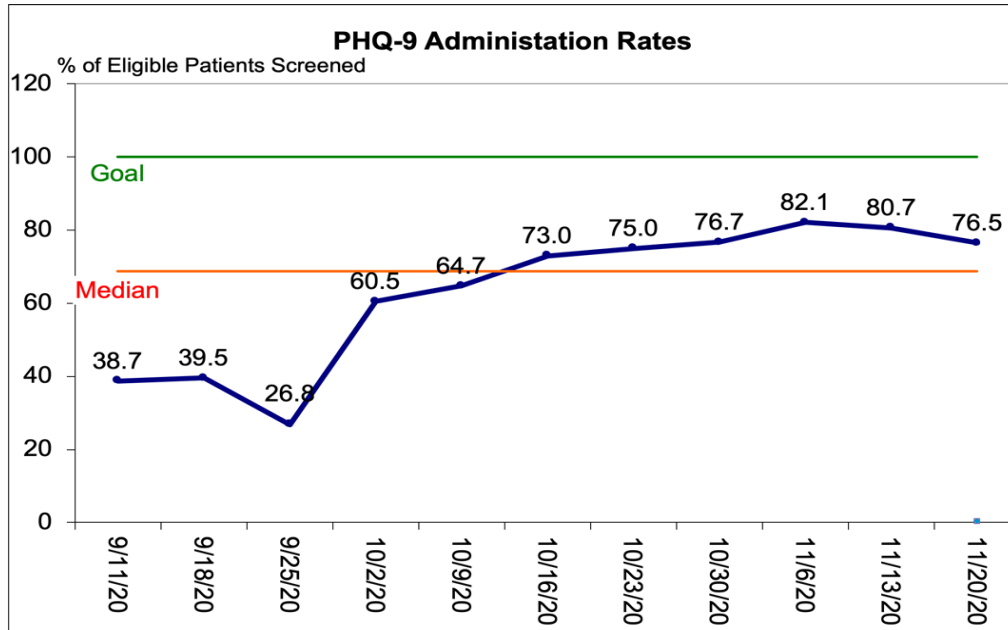
Intervention types recommended



Note. Interventions assigned per Kroenke & Spitzer (2002) algorithm and clinical judgement

Figure 4

Run chart of weekly PHQ-9 screening compliance rate



Note. Upward trend began with the implementation of the electronic PHQ-9 form

Appendix A

Evidence Review Table

| <p>Citation: Levis, B., Benedetti, A., & Thombs, B. D. (2019). Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis. <i>BMJ (Clinical Research Ed.)</i>, 365, 11476. https://doi.org/10.1136/bmj.11476</p> | | | | | Level/Quality: I/A |
|---|--|---|---|--|--|
| Purpose/Hypothesis | Design | Sample | Intervention | Outcomes | Results |
| <p>Purpose: “To determine the accuracy of the PHQ-9 for screening to detect major depression”</p> | <p>Systematic review with individual participant meta-analysis</p> | <p>Search strategy: Databases (Medline, Medline In-Process and Other Non-Indexed Citations via Ovid, PsycINFO, and Web of Science) were searched for peer-reviewed studies on the PHQ-9. Researchers contacted authors for unpublished studies.</p> <p>Eligible studies: n=96 studies with n=58 datasets; n=17,357 adult participants, n=2312 depressed</p> <p>Included studies: Studies which compared PHQ-9 scores with depression identified through validated diagnostic interviews</p> <p>Excluded studies: MDD not assessed, PHQ not administered, no comparison or ineffective comparison with validated diagnostic interviews, or sample selected from patients with known distress/in psychiatric care</p> <p>PRISMA: Flow diagram of search strategy included in supplementary materials</p> <p>Group homogeneity: Moderate heterogeneity among studies, improved with subgroup analysis.</p> | <p>Control: Varied across studies, either semi-structured or fully-structured diagnostic interviews for depression, or the Mini International Neuro-psychiatric Interview (MINI) for depression.</p> <p>Intervention: PHQ-9 administration</p> <p>Intervention fidelity: Varied across studies. In general, participants were given diagnostic interviews for depression. Results and outcomes were compared with PHQ-9 results.</p> | <p>DV: Diagnostic validity of the PHQ-9</p> <p>Measurement: Bivariate random effects meta-analysis was used. Researchers constructed empirical receiver operating characteristic (ROC) curves among subgroups based on pooled sensitivity and specificity estimates.</p> | <p>Statistical results: A PHQ-9 cut-off score of 10 produced the highest combined sensitivity and specificity when compared to studies using semi-structured interviews (sensitivity 0.88, 95% confidence interval 0.83 to 0.92; specificity 0.85, 0.82 to 0.88).</p> <p>Compared to fully structured interviews, the a PHQ-9 cut-off score 10 had sensitivity 0.70 (95% CI: 0.59 to 0.80) and specificity 0.84 (95% CI: 0.77 to 0.89), and compared to the MINI, a sensitivity of 0.77 (0.68 to 0.83) and 0.87 (0.83 to 0.90).</p> <p>Conclusions: The PHQ-9 optimal cutoff score is 10 for identifying MDD. The PHQ-9 was found to be more sensitive than previously report in other meta-analysis studies, with high accuracy in primary care although false positives may occur. Positive scores should be followed by patient interview and referral.</p> |

| <p>Citation: Mitchell, A. J., Yadegarfar, M., Gill, J., & Stubbs, B. (2016). Case finding and screening clinical utility of the Patient Health Questionnaire (PHQ-9 and PHQ-2) for depression in primary care: a diagnostic meta-analysis of 40 studies. <i>Bjpsych Open</i>, 2(2), 127–138. https://www.ncbi.nlm.nih.gov.proxy-hs.researchport.umd.edu/pmc/articles/PMC4995584/</p> | | | | | Level/Quality: I/B |
|---|---|--|--|--|---|
| Purpose/Hypothesis | Design | Sample | Intervention | Outcomes | Results |
| <p>Purpose: “to determine via meta-analysis the diagnostic accuracy of the PHQ-9 linear, PHQ-9 algorithm and PHQ-2 questions to detect major depressive disorder (MDD)” within primary care settings (Mitchell et al., 2016, p. 127).</p> | <p>Systematic review with meta-analysis</p> | <p>Search strategy: Databases (Embase, Web of Science, PsychINFO, Cumulative Index to Nursing and Allied Health Literature [CINAHL], and PubMed) were searched with key words “PHQ” “patient health question-naire” “screening” “depression” “MDD” “primary care” and “general practice.” Studies rated using standardized criteria and the Quality Assessment of Diagn-ostic Accuracy Studies-2 (QUADAS-2) tool. Review done independently by two researchers, then discrepancies resolved.</p> <p>Eligible Studies: 26 studies with n=14760 adult participants, and n=2117 diagnosed with MDD.</p> <p>Inclusion criteria: Research done in primary care settings, studies with sufficient data to calculate contingency tables, and studies in which MDD was diagnosed according to standardized interview classification systems.</p> <p>Excluded studies: Studies restricted to MDD among certain groups, studies done in non-primary care settings, or with insufficient data, or no standardized MDD diagnosis structure.</p> <p>PRISMA: Detailed diagram included</p> <p>Group Homogeneity: Significant heterogeneity found but no substantial publication bias detected.</p> | <p>Control: Standardized, structured diagnostic interviews for MDD. The type of interview varied across studies, including: Composite International Diagnostic Interview (CIDI); Diagnostic Interview Schedule (DIS), Diagnostic Interview Schedule for Children (DISC), Diagnostic and Statistical Manual of Mental Disorders (DSM), International Classification of Diseases (ICD), MINI, Patient Health Questionnaire, Schedules for Clinical Assessment in Neuropsychiatry (SCAN), and Structured Clinical Interview for DSM Disorders (SCID).</p> <p>Intervention: Administration of PHQ-9 and/or PHQ-2 screening.</p> <p>Intervention fidelity (protocol): Varied across studies. Generally, physicians conducted standardized, structured interviews for MDD screening. Patients were then classified as having mild, moderate, major or no depression. The results were then compared to PHQ-2 and/or PHQ-9 forms completed by the same patients. Researchers then pooled all data from included studies for meta-analysis.</p> | <p>DV: Overall accuracy, sensitivity and specificity of the PHQ-2 and PHQ-9 depression screening questionnaires.</p> <p>Measurement tool: MDD structured interview results were compared with PHQ-2 and/or PHQ-9 questionnaire results. Overall questionnaire accuracy was measured through receiver operating characteristic (ROC) curve analysis and bivariate analysis.</p> | <p>Statistical results: ROC and bivariate meta-analysis determined likelihood ratios, positive and negative predictive values, sensitivity and specificity.</p> <p>PHQ-2 sensitivity 89.3% (95% CI, 81.5-95.1) and specificity 75.9 % (95% CI 70.1-81.3)</p> <p>PHQ-9 linear sensitivity 81.3% (95% CI 71.6–89.3) and specificity 85.3% (95% CI 81.0–89.1)</p> <p>PHQ-9 algorithm sensitivity 56.8% (95% CI 41.2–71.8) and specificity 93.3% (95% CI 87.5–97.3)</p> <p>Conclusions: The PHQ-2 had a higher rate of true positives, while the PHQ-9 had a higher rate of true negatives with either scoring method (linear vs. algorithm). Therefore, the PHQ-2 may be used first, followed by the PHQ-9 if needed. Both tools are valid for initial screening within primary care; however, diagnosis should be confirmed through additional methods.</p> |

| <p>Mulvaney-Day, N., Marshall, T., Piscopo, K. D., Korsen, N., Lynch, S., Karnell, L. H., ... Piscopo, K. D. (2018). Screening for behavioral health conditions in primary care settings: A systematic review of the literature. <i>JGIM: Journal of General Internal Medicine</i>, 33(3), 335–346. https://doi-org.proxy-hs.researchport.umd.edu/10.1007/s11606-017-4181-0</p> | | | | | Level/Quality: I/B |
|---|--------------------------|--|--|--|---|
| Purpose/Hypothesis | Design | Sample | Intervention | Outcomes | Results |
| <p>Purpose: To evaluate the efficacy of various mental health screening tools within primary care settings.</p> | <p>Systematic review</p> | <p>Search Strategy: Databases PubMed, PsycINFO, Applied Social Sciences Index and Abstracts [ASSIA], CINAHL, and Health and Psychosocial Instruments [HaPI]) were searched for keywords “primary care” and combinations of “screening,” “screening tools,” “instruments,” “assessment,” “alcohol,” “behavioral health disorder,” “behavioral medicine,” “anxiety,” “depression,” “emotional health,” “mental health,” “mental illness,” “mental disorders,” “substance use,” “sub- stance abuse,” “substance-related use disorders,” and “suicide” published between 2000-2015.</p> <p>Included studies: n = 32 studies on 24 different screening tools. English language studies from North America or western Europe, with analysis of tools that had undergone psychometric testing.</p> <p>Excluded studies: General overviews of screening processes, global function or quality-of-life scales, non-proprietary tools, tools not used in clinical settings, tools that measured cognitive impairment only; tools screening for bipolar disorder, eating disorders, schizophrenia; tools created for use outside of primary care.</p> <p>PRISMA: Detailed diagram included which shows search strategy.</p> <p>Group Homogeneity: Not included</p> | <p>Intervention: The validity and reliability of the screening tools were compared, along with the average time length of screening completion.</p> <p>Intervention fidelity: Varied across studies.</p> | <p>DV: Diagnostic validity and utility of mental health screening tools Measurements: validity assessment (psychometric properties, sensitivity/specificity \geq 75%, comparison with a gold standard), analysis of cut-off points, and time-to-complete</p> | <p>Conclusions: The PHQ-9 had the highest rates of diagnostic validity within primary care (sensitivity and specificity 88%), for depression at cutoff score \geq10. The PHQ-2 is also highly reliable in primary care but less sensitive (83%). The World Health Organization-Five Well-Being Index (WHO-5) can be used in primary care but has decreased specificity (64%). Other tools showed little applicability or efficacy in primary care Positive screening should be combined with follow-up, education, treatment, and referral.</p> |

| <p>Citation: Manea, L., Gilbody, S., & McMillan, D. (2012). Optimal cut-off score for diagnosing depression with the Patient Health Questionnaire (PHQ-9): a meta-analysis. <i>CMAJ: Canadian Medical Association Journal = Journal De L'association Medicale Canadienne</i>, 184(3), E191–E196. https://www-cmaj-ca.proxy-hs.researchport.umd.edu/content/184/3/E191</p> | | | | | | Level/Quality: I/B |
|---|---|--|--|---|--|--------------------|
| Purpose/Hypothesis | Design | Sample | Intervention | Outcomes | Results | |
| <p>Purpose: to examine “the psychometric properties of the PHQ-9 across a range of studies and cut-off scores to select the optimal cut-off for detecting depression” within primary care or specialized settings (Manea et al., 2012, p. 191).</p> | <p>Systematic review with meta-analysis</p> | <p>Search Strategy: Databases (Embase, MEDLINE, and PsychINFO) were searched for studies with keywords “PHQ-9” and “patient health questionnaire.” Cited articles within relevant reference lists were screened. Studies selected by one researcher though quality was assessed using cited guidelines.</p> <p>Eligible Studies: 18 studies with (n=7180) from primary or specialty care.</p> <p>Inclusion Criteria: MDD confirmed by standardized diagnostic interview, timing of reference and index tests ≤ 2 weeks apart, with PHQ-9 in validated language.</p> <p>Exclusion Criteria: Studies specific to depression among patients with certain medical conditions, modified versions of the PHQ-9, insufficient cut-off score data, MDD not confirmed through standardized classification system, MDD diagnosed retrospectively.</p> <p>PRISMA: Diagram included of search strategy and inclusion/exclusion process.</p> <p>Group Homogeneity: Significant between-study heterogeneity due to varied methodology among studies ($I^2=82.4\%$); however, meta-regression with a random-effects model was performed which found that diagnostic accuracy was consistent among studies.</p> | <p>Control: A gold standard diagnostic interview for MDD was used. The type of standardized interview varied among, either: MINI, SCID, CIDI, DIS, DSM, or Revised Clinical Interview Schedule (CIS-R)</p> <p>Intervention: Administration of PHQ-9 questionnaire</p> <p>Intervention fidelity (protocol): Varied across studies. Physicians, researchers, or mental health professionals conducted standardized, structured interviews for MDD screening. Patients were then classified by presence or absence of MDD. The results were then compared to PHQ-9 questionnaires completed by the same patients. Researchers were blinded to MDD status when evaluating PHQ-9 scores.</p> <p>Systematic reviewers then pooled all data from included studies for meta-analysis.</p> | <p>DV: Diagnostic accuracy of the PHQ-9</p> <p>Measurement tool: Researchers constructed 2 by 2 contingency tables for each cut-off score to calculate overall diagnostic accuracy through bivariate meta-analysis.</p> | <p>Statistical Results: Bivariate meta-analysis to determined pooled estimates, including sensitivity, specificity, positive and negative likelihood ratios; and diagnostic odds ratios.</p> <p>The PHQ-9 had higher diagnostic ability in primary care settings with diagnostic odds ratio (OR) 65.26 (95% CI 9.17–464.47). Across all settings, PHQ-9 had a sensitivity of 85% (95% CI 0.75–0.91), and specificity of 89% (95% CI 0.83–0.92) and cut-off scores of 8-11 were most correlated with MDD.</p> <p>Conclusions: The tool is valid for initial screening; however false positives may occur and further confirmation is required for diagnosis. The tool performs better within primary care settings.</p> | |

| <p>Citation: Horton, M., & Perry, A. E. (2016). Screening for depression in primary care: a Rasch analysis of the PHQ-9. <i>Bjpsych Bulletin</i>, 40(5), 237–243. http://search.ebscohost.com.proxy-hs.researchport.umd.edu/login.aspx?direct=true&db=cmedm&AN=27752340&site=eds-live</p> | | | | | Level/Quality: IV/B |
|--|------------------------------|---|--|---|--|
| Purpose/Hypothesis | Design | Sample | Intervention | Outcomes | Results |
| <p>Purpose: To evaluate the validity and psychometric properties of the PHQ-9 through Rasch analysis among primary care patients, with sub-analysis of PHQ-2 questions.</p> | <p>Cross-sectional study</p> | <p>Sampling Technique: Purposive sampling of primary care patients enrolled in a randomized controlled trial (RCT) named Randomized Evaluation of the Effectiveness and Acceptability of Computerized Therapy (REEACT), which aimed to explore the efficacy of depression treatment methods.</p> <p>Eligible participants: n = 767 initial participants, with n = 695 randomized to part two of the study: 229 males, 466 females, 95% Caucasian, mean age 39.8 years</p> <p>Inclusion criteria: Participants ≥ age 18, diagnosed with depression, PHQ-9 cut-off score ≥10, not currently receiving treatment for depression</p> <p>Exclusion criteria: Participants who were suicidal, experiencing psychosis, recently bereaved, or with a history of post-natal depression</p> <p>Group Homogeneity: Data not included.</p> | <p>Intervention: Rasch analysis of PHQ-9 scores</p> <p>Intervention fidelity (protocol): PHQ-9 given at baseline, and at 4, 12, and 24 months post-enrollment. Researchers then collected participant PHQ-9 scores for statistical analysis.</p> | <p>DV: Overall validity of PHQ-9</p> <p>Measurement tool: RUMM 2030 software was used to analyze sample data. Internal construct validity measured using scale fit statistics and Rasch analysis.</p> | <p>Statistical Results: Rasch model reliability indices through person separation index (PSI) and Cronbach’s alpha, chi-squared, and t-test values.</p> <p>Tables 1a, 1b, and 2 display lengthy results from modeling. PHQ-9 items 1 and 2 showed dependency with chi-squared interaction (115.1, 72 df, p=0.001), and item 2 had a high negative fit residual (-3.697).</p> <p>The first two items of the PHQ-9 also comprise the PHQ-2, a shorter form of the questionnaire. The first two items were sub-analyzed and no significant differences between the PHQ-2 and PHQ-9 were found, with a PHQ-2 score of 2.705 equivalent to PHQ-9 score of 10.</p> <p>Conclusions: The PHQ-2 and the PHQ-9 scale are equivalent screening tools, at optimal cut-off scores of 3 and 10. There may be redundancy among PHQ-9 items, particularly item 2; however, the tool remains reliable for initial screening purposes in primary care.</p> |

| <p>Van der Zwaan, G. L., Van Dijk, S. E. M., Adriaanse, M. C., van Marwijk, H. W. J., van Tulder, M. W., Pols, A. D., & Bosmans, J. E. (2016). Diagnostic accuracy of the Patient Health Questionnaire-9 for assessment of depression in type II diabetes mellitus and/or coronary heart disease in primary care. <i>Journal of Affective Disorders</i>, 190, 68–74. https://doi-org.proxy-hs.researchport.umd.edu/10.1016/j.jad.2015.09.045</p> | | | | | <p>Level/Quality: IV/B</p> |
|--|-------------------------------|--|---|---|---|
| Purpose/Hypothesis | Design | Sample | Intervention | Outcomes | Results |
| <p>Purpose: To evaluate the diagnostic accuracy of the PHQ-9 among a subset of diabetic and coronary heart disease (CHD) patients, and to examine the best scoring method (sum vs. algorithm) of the PHQ-9 for use within primary care settings.</p> | <p>Cross-sectional design</p> | <p>Sampling Technique: Convenience sample of patients enrolled in StepDeb, a concurrent cluster randomized controlled trial examining cost-effectiveness of depression prevention methods</p> <p>Eligible participants: n = 1076 adult patients across 23 primary care offices, mean age 68.9, 61.8% male</p> <p>Inclusion Criteria: adult primary care patients diagnosed with type II diabetes and/or CHD, with Dutch language mastery and ability to consent</p> <p>Exclusion Criteria: Patients with dementia or Alzheimer’s disease, schizophrenia, bipolar depression, affective psychosis, borderline personality disorder, intellectual disability, recently bereaved, currently using antidepressants, or without Dutch language mastery, or without type II diabetes or CHD diagnosis</p> <p>Group Homogeneity: Data not included</p> | <p>Control: Mini International Neuropsychiatric Interview (MINI) used as the reference standard</p> <p>Intervention: Self-completed PHQ-9 questionnaires</p> <p>Intervention fidelity: Eligible participants received PHQ-9 questionnaires. They were self-completed and returned by mail. Trained interviewers then contacted participants to complete the MINI by phone. PHQ-9 outcomes were compared to MINI results.</p> | <p>DV: Diagnostic accuracy of the PHQ-9</p> <p>Measurement: SPSS software was used to analyze PHQ-9 sum and algorithm-based scoring methods, compared to MINI outcomes, for specificity, sensitivity, positive predictive value (PPV), negative predictive value (NPV), likelihood ratios (LR), and Receiver Operating Characteristic (ROC) curve analysis.</p> | <p>Statistical Results: A PHQ-9 cutoff score of 10 had a sensitivity of 0.84 (95% CI: 0.63–0.95) and a specificity of 0.82 (95% CI: 0.78–0.85), PPV 0.17 (95% CI: 0.11-0.25), NPV .99 (95% CI: 0.98-1), positive LR 4.55 (95% CI: 3.56-5.81), negative LR 0.20 (0.08-0.48), ROC 0.88 (95% CI: 0.78–0.98).</p> <p>Conclusions: The PHQ-9 had a sensitivity of 84% and specificity of 82% at a cutoff value of 10 for MDD. The sum method was superior to the algorithm method for use in primary care. Clinicians should carefully interpret results from patients with chronic illness, as there is an overlap in depression, CHD, and diabetes symptoms. The tool should be combined with diagnostic interview/referral.</p> |

Appendix B

Evidence Synthesis

| Evidence Based Practice Question (PICO): In adult primary care patients, does implementing PHQ-9 screening, compared to not implementing screening, increase the likelihood of depression identification and treatment? | | | |
|--|---------------------|--|--|
| Level of Evidence | # of Studies | Summary of Findings | Quality of Evidence |
| I | 4 | Levis et al. (2019) | <p>A: Researchers conducted a comprehensive systematic review with meta-analysis. Their search strategies are reproducible, with a large number of well-defined studies included. The included studies were evaluated for scientific strength, with risk of bias assessed through QUADAS screening. The researchers are content experts and this appears to be the most recent and comprehensive systematic review published on PHQ-9 screening.</p> <p>B: Researchers conducted systematic reviews of well-designed cross-sectional, observational studies with reasonably consistent results. The included studies were found through a comprehensive literature search, and assessed for quality based on scientifically accepted parameters. The systematic reviews were conducted by specialized mental health researchers, with affiliated institutions listed. Data was sufficient for meta-analysis despite some heterogeneity, which was examined and reconciled.</p> |
| | | <p>Levis et al. (2019) concluded that the PHQ-9 is most accurate for MDD detection at a cut-off score of 10. Subgroup analysis revealed that the PHQ-9 may be more sensitive for older adults. These findings are similar to those of Horton & Perry (2016) and Van Der Zwaan et al. (2016) which also determined the optimal cut-off score is 10; however, Levis et al. (2019) differs from these studies as researchers completed a more rigorous and recent analysis, with additional conclusions. This study design is similar to research conducted by Mitchell et al. (2016) and Manea et al. (2012); however, it differs as researchers used a larger sample size to determine a higher level of PHQ-9 sensitivity than previously found in other meta-analyses.</p> | |
| | | <p>Manea et al. (2012), Mitchell et al. (2016), and Mulvaney-Day et al. (2018)</p> <p>Manea et al. (2012), Mitchell et al. (2016), and Mulvaney-Day (2018) are all similar as they each determined that the PHQ-9 is a valid and reliable initial screening tool for depression, with excellent performance within primary care. Likewise, each of these researchers cautioned that PHQ screening should be considered a first-step towards diagnosis, rather than a stand-alone diagnostic test. Manea et al. (2012) is similar to Levis et al. (2019) in that they both cautioned the readers about the potential for false positives with the PHQ-9, which underscores the need for diagnostic confirmation following positive PHQ-9 scores.</p> <p>Mitchell et al. (2016) differs from the other systematic reviews since they also analyzed the PHQ-2. Mitchell et al. (2016) found that the PHQ-2 had a higher rate of sensitivity than the PHQ-9; however, the PHQ-9 was more specific. They concluded that either tool is acceptable for initial assessment; however, the PHQ-2 could be given first. Mulvaney-Day et al. (2018) differs the other studies as they analyzed a wide breadth of screening tools; however, they still found that the PHQ-9 had the highest rates of diagnostic validity for primary care patients.</p> | |
| IV | 2 | Horton and Perry (2016) and Van Der Zwaan et al. (2016) | <p>B: Researchers used cross-sectional design to find consistent results determined through statistical modeling. The methodological rationale was provided, along with fairly definitive conclusions. The researchers are credible experts in mental health. Studies included background literature and scientific evidence for PHQ psychometric properties. Limitations include purposive and convenience sampling.</p> |
| | | <p>Similar to the other studies, Horton and Perry (2016) and Van Der Zwaan et al. (2016) both found that the PHQ-9 is sufficiently reliable for initial depression screening purposes. Horton and Perry (2016) differs from other studies as they found possible redundancy within PHQ-9 items. They also concluded that the PHQ-2 may be equivalent to the PHQ-9. Van Der Zwaan et al. (2016) differs from other studies as they included a subgroup of diabetic and CHD patients within primary care.</p> | |

Appendix C

PHQ-9 Form

**PATIENT HEALTH QUESTIONNAIRE-9
(PHQ-9)**

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 |

FOR OFFICE CODING 0 + _____ + _____ + _____
=Total Score: _____

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 |
|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Appendix D

Electronic PHQ-9 Form

Patient Health Questionnaire–9 (PHQ–9)

The Patient Health Questionnaire is a form that helps us screen for depression or response to treatment.

Please fill in the form, and we will evaluate it at your appointment.

Name *

First Last

Date of Birth *

/ / 

MM DD YYYY

Appointment Date *

/ / 

MM DD YYYY

Over the last 2 WEEKS, how often have you been bothered by the following problems? *

| | Not at all (0) | Several days (1) | More than half the days (2) | Nearly every day (3) |
|--|-----------------------|-----------------------|-----------------------------|-----------------------|
| Little interest or pleasure in doing things | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feeling down, depressed or hopeless | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Trouble falling or staying asleep, or sleeping too much | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feeling tired or having little energy | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Poor appetite or overeating | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feeling bad about yourself– or that you are a failure or have let yourself or your family down | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Trouble concentrating on things, such as reading the newspaper or watching television | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 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 | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Thoughts that you would be better off dead or of hurting yourself in some way | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

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

Appendix E

Evidence-Based Chart for Proposed Depression Treatment

Table 4. PHQ-9 Scores and Proposed Treatment Actions *

| PHQ-9 Score | Depression Severity | Proposed Treatment Actions |
|--------------------|----------------------------|---|
| 0 – 4 | None-minimal | None |
| 5 – 9 | Mild | Watchful waiting; repeat PHQ-9 at follow-up |
| 10 – 14 | Moderate | Treatment plan, considering counseling, follow-up and/or pharmacotherapy |
| 15 – 19 | Moderately Severe | Active treatment with pharmacotherapy and/or psychotherapy |
| 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, *Psychiatric Annals* 2002;32:509-521

Appendix F

Staff Training: Lesson Plan

| Learning Objectives | Content Outline | Method of Instruction | Time Spent | Method of Evaluation |
|--|---|--|---|----------------------|
| <p>At the end of the training session, clinic staff members will understand:</p> <ul style="list-style-type: none"> • the incidence and prevalence of depression and associated consequences; • the purpose of PHQ-9 screening; • the project scope, timeline, and target population; • PHQ-9 scoring levels and corresponding interventions; • financial reimbursement incentive through insurance; • individual roles/responsibilities; and, • sustainability tactics after project completion. | <ol style="list-style-type: none"> I. Background & significance <ol style="list-style-type: none"> a. Epidemiology b. Etiology c. Consequences II. Project goals <ol style="list-style-type: none"> a. 100% of patients to receive screening at least once annually b. Improved rates of depression identification and treatment III. How to administer PHQ-9 <ol style="list-style-type: none"> a. Inclusion criteria b. Patients receive form in waiting room or in UpDox c. Uploaded to patient chart IV. How to interpret PHQ-9 <ol style="list-style-type: none"> a. Mild, moderate, and severe based on evidence-based scoring chart V. Follow-up procedures <ol style="list-style-type: none"> a. Based on clinical judgement and evidence-based chart b. Psychotherapy c. Pharmacotherapy VI. Billing procedures <ol style="list-style-type: none"> a. Code G0444 b. Reimbursement through Medicare, Medicaid, private insurance VII. Implementation plan <ol style="list-style-type: none"> a. Structure changes b. Process changes VIII. Data collection plan <ol style="list-style-type: none"> a. Weekly audits IX. Sustainability plan <ol style="list-style-type: none"> a. Training log b. Change champions c. Billing incentive | <p>Lecture</p> <p>Group discussion</p> <p>Handouts:</p> <ul style="list-style-type: none"> • PHQ-9 form • Scoring chart • Clinical practice guideline | <p>20-minute lecture</p> <p>10-minute question and answer session</p> | <p>Survey</p> |

Appendix G

Clinical Practice Guideline

Clinical Review & Education **Special Communication**

Screening for Depression in Adults

Figure 2. Screening for Depression in Adults: Clinical Summary

| | |
|-----------------------|---|
| Population | Adults aged ≥18 y |
| Recommendation | Screen for depression, with adequate systems in place to ensure accurate diagnosis, effective treatment, and appropriate follow-up. Grade: B |

| | |
|--|---|
| Risk Assessment | Women, young and middle-aged adults, and nonwhite persons have higher rates of depression, as do persons who are undereducated, previously married, or unemployed. Persons with chronic illnesses, other mental health disorders, or a family history of psychiatric disorders are also at increased risk. Risk factors in older adults include disability and poor health status related to medical illness, complicated grief, chronic sleep disturbance, loneliness, and history of depression. Risk factors during pregnancy and postpartum include poor self-esteem, child-care stress, prenatal anxiety, life stress, decreased social support, single/unpartnered relationship status, history of depression, difficult infant temperament, previous postpartum depression, lower socioeconomic status, and unintended pregnancy. |
| Screening Tests | Commonly used depression screening instruments include the Patient Health Questionnaire in various forms and the Hospital Anxiety and Depression Scales in adults, the Geriatric Depression Scale in older adults, and the Edinburgh Postnatal Depression Scale in postpartum and pregnant women. Positive screening results should lead to additional assessment that considers severity of depression and comorbid psychological problems, alternate diagnoses, and medical conditions. |
| Screening Interval | The optimal timing and interval for screening for depression is not known. A pragmatic approach might include screening all adults who have not been screened previously and using clinical judgment in consideration of risk factors, comorbid conditions, and life events to determine if additional screening of high-risk patients is warranted. |
| Treatment and Interventions | Effective treatment of depression in adults generally includes antidepressants or specific psychotherapy approaches, alone or in combination. Given the potential harms to the fetus and newborn child from certain pharmacologic agents, clinicians are encouraged to consider evidence-based counseling interventions when managing depression in pregnant or breastfeeding women. |
| Balance of Benefits and Harms | The net benefit of screening for depression in the general adult population is moderate. |
| Other Relevant USPSTF Recommendations | The USPSTF has made recommendations on screening for depression in children and adolescents and screening for suicide risk in adolescents, adults, and older adults. These recommendations are available on the USPSTF website (http://www.uspreventiveservicestaskforce.org). |

For a summary of the evidence systematically reviewed in making this recommendation, the full recommendation statement, and supporting documents, please go to <http://www.uspreventiveservicestaskforce.org>.



Appendix H

Educational Flyer

DNP Depression Screening Project: What You Need To Know

| | |
|---|---|
| What is it? | This is a quality improvement project in the clinic to help improve the rates of PHQ-9 depression screening and depression treatment among primary care patients. |
| Who is involved? | All providers and NP students should participate |
| Who gets screened? | <ul style="list-style-type: none"> • ALL new patients • ALL sick- or well-visit patients with last PHQ-9 done ≥ 3 months ago (check left-side of paper chart for last one done) |
| Who does <u>not</u> get screened? | <ul style="list-style-type: none"> • Lab draw-, Echo-, Stress test-, or B12 injection-only patients • Patients who did a PHQ-9 within 3 months • Patients who refuse or cannot consent • Patients who do not speak/understand English |
| How will patients get screened? | <ul style="list-style-type: none"> • In-person patients should receive and complete the PHQ in the waiting room before their visit • Telemedicine patients will receive a link to complete it |
| What if the PHQ score is 0-4? | Nothing! Patient is OK. Document: "Score 0, No intervention needed" |
| What if the PHQ score is 5-9? | Patient MAY have mild depression. Provide helpful guidance, follow-up in 3 months. Document: "PHQ-9 Score 6, recommended f/u in 3 months" |
| What if the PHQ score is 10-14? | Patient has moderate depression 😞 We MUST connect them with counseling or psychiatry. Document: "PHQ-9 Score 10, patient referred to therapist and psychiatrist" |
| What if the PHQ score is 15-19? | Patient has moderately-severe depression. 😞 They need <u>active</u> treatment with therapy and psychiatry. Document: "PHQ-9 Score 15, patient referred to therapist and psychiatrist." Or consider starting a SSRI for them. |
| What if the PHQ score is 20-27? | Patient has SEVERE depression. 😞 They need prescription antidepressants or quick referral to psychiatry and counseling. |
| Where can I refer patients? | <ul style="list-style-type: none"> • Counseling/psychiatry referral list is posted in each patient room or select another provider of your choice • You can also generate an "open referral" |
| What do I do with the completed PHQ forms? | <ul style="list-style-type: none"> • Make a copy, place it in the labeled bin at front desk • Leave the original form in the paper chart |
| Why? | Depression affects many people, but very few people ever receive screening or treatment. We can make a difference by using the PHQ-9 and providing treatment! |

Questions? Call or text Jackie anytime: [REDACTED]

Appendix I

Telehealth Screening Instructional Flyer

HOW DO I SEND TELEHEALTH PATIENTS THE PHQ-9 LINK?



IT'S EASY!

READ THE E-FORM INSTRUCTIONS BELOW:

1. Go to <http://www.updox.com/> click "Login" in the top-right corner
2. Select Practice Fusion from list, click "Sign in with Practice Fusion" and login
3. From the "Inbox" page, select the **text-message bubble** icon
4. Select "I want to send a: **SMS Text**"
5. In the "Send To" field, type the patient's name or cell-phone number
6. In the "Template" field, scroll down to select the "**Secure PHQ Form Link**" text template
7. Click "**Send SMS Text**" – you're done! The completed forms will be sent back electronically for your review.



Questions? Call or text Jackie anytime: [REDACTED]

Appendix L
Staff Training Survey

Depression Screening Training: Evaluation Survey

Read the questions and circle your response:

1. Do you feel the training session helped you understand the problem of unidentified depression and its consequences?

Yes No

2. Do you feel you the training session helped you understand the signs and symptoms of depression?

Yes No

3. Do you feel you the training session helped you understand the purpose of PHQ-9 screening?

Yes No

4. Do you feel you the training session helped you understand the screening project goals and your role?

Yes No

5. Do you feel the training session helped you understand how to administer, interpret, and follow-up on PHQ-9 screening?

Yes No

6. Do you feel you the training session helped you understand the billing aspects of PHQ-9 screening?

Yes No

7. Do you feel you the training session helped you understand the project implementation and data collection processes?

Yes No

8. Do you feel you the training session helped you understand how the project will be sustained?

Yes No

Print Name: _____

Signature: _____

Date: _____