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Standardizing the Screening Process for Behavioral Health Disorders

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Abstract

Background: Active duty members experience significantly higher rates of behavioral health disorders compared to the U. S. civilian population. Primary care clinicians at NMRTC Portsmouth do not utilize a standardized behavioral health screening process for depression, anxiety, and alcohol use disorders. This may limit identification of at-risk patients, potentially delaying appropriate diagnosis and treatment, negatively impacting operational readiness.

Clinical Purpose: To assemble, implement, and evaluate the effectiveness of staff training of a standardized behavioral health screening tool for universal screening for anxiety, depression, and alcohol use disorder with the goal of increasing the number of patients screened.

Project Design: Assemble a standardized behavioral health disorder screening tool including PHQ-4, combination screener of PHQ-2 and GAD-2, and AUDIT-C. Develop a face-to-face educational training session to train staff on proper utilization, scoring, and recording of the screening tool within the electronic medical record. Adherence to the new standardized screening process will be monitored by verifying each patient screened had their corresponding score recorded into their electronic medical record.

Analysis of the Results: The percentages of patients screened for behavioral health disorders increased following the training and implementation of the standardized printed screening tool. Of the participants who screened positive, 43 out of 54 for PHQ-2/9 (79.6%), 43 out of 68 for GAD 2/7 (63.2%) and 25 out of 32 (78.1%) AUDIT-C scores were documented in the EMR. There were statistically significant associations between the implementation period and each individual screener.

Organizational Impact/Implications for Practice: Implementing a standardized evidence-based screening tool will address screening gaps by identifying at-risk service members for behavioral health disorders. Identifying at-risk patients through early screening will limit progression into deployment-limiting conditions. Standardizing screening aligns with the DOD/VA Clinical Practice Guidelines, DHA, and the Quadruple Aim vision to improve readiness through early intervention and effective treatment.

Standardizing the Screening Process for Behavioral Health Disorders

Timely and accurate recognition of mental health disorders is a priority for the Department of Defense (DOD). Mental health disorders have become a global pandemic, disproportionately affecting military members due to combat exposures known to exacerbate psychological health (Meadows, et al., 2018). Identifying these conditions within the military health care system has become an essential role for primary care providers. The Patient Health Questionnaire-4 (PHQ-4), a combination screener of Generalized Anxiety Disorder-2 (GAD-2) and Patient Health Questionnaire-2 (PHQ-2), and the Alcohol Use Disorders Identification Test (AUDIT-C) are reliable first-line screening tools that assist clinicians in identifying patients at risk for anxiety, depression, and alcohol use disorders. Recognizing these symptoms allow providers to expedite care and access specialty services as needed.

The Defense Health Agency (DHA) (2018) extended a policy for Military Treatment Facilities (MTFs) to adopt an evidence-based data collection system standardizing behavioral health screening. This policy will increase clinicians' confidence in identifying and manage behavioral health patients, improve access to care and mental health outcomes, and develop strategies to enhance mental health services, resiliency, and military readiness. Current behavioral health screening methods at Navy Medicine Readiness and Training Command (NMRTC) Portsmouth and outlying clinics do not follow the same process for behavioral health screening. These gaps can create barriers to identifying patients with behavioral health disorders and in delivering care.

Problem Synthesis

In the United States, behavioral health disorders contribute significantly to the disease burden. For example, 18 percent of U.S. adults suffer from mental illness at any given time (Meadows, et al., 2018). However, it is common for these patients to be treated years after the onset of symptoms (Center for Behavioral Health Statistics and Quality, 2015). Similarly, the 2015 Health-Related Behavior Study (HRBS) highlighted that half of the mental health services in the DoD are delivered outside of the mental health specialty (Meadows, et al. 2018).

Universal screening for mental health and alcohol use disorders has been controversial despite evidence that screening tools have greater accuracy in diagnosing these conditions than clinician diagnosis alone (Mojtabai, 2017; Vohringer, et al., 2013). For example, the sensitivity and specificity for the PHQ-9 depression screener are 0.80 and 0.92, respectively. Unaided clinician diagnosis has a lower sensitivity (0.50) and specificity (0.81), suggesting that universal screening would be more efficacious in primary care settings (Mojtabai, 2017). One study in England compared targeted screening to universal screening for alcohol use disorders and found that targeted screening is less effective than universal screening at identifying patients who could potentially benefit from early behavioral interventions (Coulton, et al., 2017). Factors contributing to substandard screening in primary care include a lack of awareness of the severity of the problem and additional time constraints for each patient encounter (Conklin, 2020).

The United States Preventative Services Task Force (USPSTF) recommends universal screening within primary care for depression and unhealthy alcohol use disorders if resources are in place to facilitate diagnosis, treatment, and follow-up care. Currently, there is no similar recommendation to screen for anxiety. USPSTF found small to no harm in early screening based

on the noninvasive nature of the depression and alcohol use screening tools. However, there was insuficient evidence to recommend periodic screening intervals for depression and unhealthy alcohol use (Siu & USPSTF, 2016; USPSTF, 2018).

Relevance to Military Nursing

The Department of Defense analyzed data from the HRBS of over 16,000 participants to understand the current well-being and behavioral health status of the active-duty population. Scores from the GAD-7 and PHQ-9 screeners for anxiety and depression revealed that the active-duty population experiences higher rates of depression (9.4%) and anxiety (14.2%) compared to the U.S. civilian population. This study also shows that 30 percent of active-duty respondents admitted a self-perceived need for mental health services, and nearly 20 percent of participants indicated others recommended them to seek treatment (Meadows, et al., 2018). Likewise, results from the AUDIT-C screening tool used during the HRBS showed that over one-third (35.3 percent) of active-duty personnel met the criteria for hazardous drinking and possible alcohol use disorder, and 30 percent reported current use of binge drinking (Meadows, et al., 2018). Multi-year aggregated data from this survey validates the need to improve screening as it shows there has been an increased utilization of mental health services since 2002.

The DoD currently mandates annual behavioral health and alcohol use screenings in primary care (Department of Veterans' Affairs, 2015, 2016). For active duty service members, this is conducted at their annual periodic health assessment (PHA). However, many PHAs are now being performed by non-credentialed providers, questioning whether these service members are effectively being evaluated for these behavioral health conditions. Current screening

practices observed at various military clinics employ targeted screening for mental health and alcohol use disorders based on provider discretion and judgment, often without a standardized screening tool. Inadequate screening may result in delayed identification and treatment. Failure to intervene promptly could lead to persistent social and health problems, increased absenteeism, and poor performance, ultimately impacting military readiness (Hellmuth, et al., 2012). We recommend that stakeholders evaluate the current screening practices and endorse universal screening with a validated screening instrument; proven to increase early recognition of patients at risk for mental health and alcohol use disorders.

Our project aligns with the DHA Quadruple Aim of improved readiness, better health, better care, and lower health care costs. Improving the screening process to identify at-risk individuals will increase access to care, reduce the burden caused by mental health and alcohol use disorders due to absenteeism, lost productivity, and long-term treatment, and improve military readiness. Implementing a standardized, evidence-based approach will maximize operational tempo (Butler, 2018).

Clinical Question

For active duty beneficiaries at BHC Naval Station Norfolk, does staff training on the use of a standardized behavioral health screening tool improve the universal screening of anxiety, depression, and alcohol use disorders as evidenced by an increased number of patients screened?

Search Strategy/Results

We conducted the literature review based on the PICO question “for active duty beneficiaries (P) at BHC Naval Station Norfolk, does staff training on the use of a standardized behavioral health screening tool improve the universal screening for anxiety, depression, and

alcohol use disorders (I) compared to current practice (C) as evidence by an increased number of patients screened (O)?" The Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, and PsycInfo databases were used to search articles for review using relevant keywords and Medical Subject Headings (MeSH) terms. Keywords used were "Mental Health" OR "Depression" OR "Anxiety" OR "Alcohol use" OR "GAD-7" OR "PHQ-2" OR "PHQ-9" OR "PHQ-4" OR "GAD-2" OR "AUDIT-C" OR "Adult" OR "Primary Care" OR "Screening tools" OR "Modes of Administration" OR "Self-administered" OR "Self-rated" OR "clinician-administered" OR "Patient-administered" OR "Face-to-Face" OR "Pen-and-paper" OR "Interview" OR "Early intervention" OR "Universal Screen" AND "Screen." We also completed the following search based on staff training and mental health screening; (((staff[tiab] OR clinician[tiab] OR surgeon[tiab] OR physician[tiab] OR nurse[tiab]) AND (train*[ti] OR instruct*[ti] OR educat*[ti])) OR "staff training"[tiab] OR "staff development"[tiab] OR "staff education"[tiab]) AND ("Patient Health Questionnaire"[MAJR] OR (("mental health"[tiab] OR "behavioral health"[tiab] OR anxiety[ti] OR depression[ti] OR alcohol[ti]) AND (screen*[tiab] OR pre-screen[tiab] OR survey[tiab] OR in-take[tiab]))) NOT (child*[tiab] OR pediatr*[tiab] OR youth*[tiab] OR adolescent*[tiab]) AND ((english[Filter]) AND (2017:2022[pdat])). Our team narrowed our search to English language and peer-reviewed journals within the past ten years. As of March 2022, CINAHL yielded 147 results, PubMed 470, and PsycInfo 49 for a total of 666 articles. Seventy-five duplicates were excluded, leaving 591 for the screening of titles and abstracts.

Inclusion criteria included studies with a title and abstract that evaluated self-administered screening tools for depression, anxiety, and alcohol use disorders in a clinic

setting and staff education and training on standardized screening tools. Exclusion criteria comprised studies that did not use PHQ-2, PHQ-4, PHQ-9, GAD-2, GAD-7, or AUDIT-C to screen for behavioral health disorders; did not use self-administered patient screening tools; were verbally screened by clinicians for behavioral health disorders; used alternative methods from tablets to online screening tools; or not performed in an outpatient setting. After 503 records were excluded for irrelevancy, this generated 88 articles for project eligibility. Seventy-nine articles were excluded for narrowed study populations such as older adults or pediatrics, inappropriate study design, or failure to disclose whether screening was patient self-administered or clinician-administered. Nine articles were subsequently selected and appraised for literature review. See Appendix A for the PRISMA flow diagram and Appendix B for the Evidence table.

The Johns Hopkins Nursing Quality of Evidence-Based Practice tool was utilized to designate levels of evidence and quality ratings for the literature appraisal (Melnyk & Fineout-Overholt, 2018). The articles received the following ratings: one level IB, one IIA, one IIB, two IIIA, and one IVB. One-level VA and two-level VB studies were also included to provide relevant information on recommended clinical practice guidelines and standardized screening.

Solution Synthesis

Given the prevalence of behavioral health disorders in the military community, the DoD and DHA have identified periodic behavioral health screenings as an essential strategy to improve psychological health services (Department of Veterans' Affairs, 2015, 2016, 2017). Screening tools are not intended to make a formal clinical diagnosis; instead, they have been validated in their specificity and sensitivity to help clinicians identify at-risk patients

(Mulvaney-Day et al., 2017). It should be noted that the current Department of Veterans' Affairs and DoD clinical practice guidelines (CPG) support utilization of the PHQ-9 for self-reporting on pen and paper or be administered verbally by a clinician. However, the American Academy of Family Practitioners (AAFP) has validated this tool for self-administration only (Savoy & O'Gurek, 2016).

Existing literature supports universal screening of behavioral health disorders through self-administered surveys combined with staff training (Conklin, 2020; Coulton, et al., 2017; Vohringer, et al., 2013). Conklin (2020) found that through staff training and embedded alcohol screening templates, alcohol screening and intervention rates increased. A training evolution involving over 300 students from diverse medical fields on utilizing evidence-based screening tools for alcohol use disorders increased skill-building and staff confidence in recognizing and referring at-risk patients. (Pervanas et al., 2019). Likewise, a quality improvement initiative at Mount Sinai Hospital on postpartum depression surveillance and education using the PHQ-9 led to increased screening rates, more positive screens, and referrals for 20,000 patients (Accortt et al., 2022).

These initiatives resulted in an increased capture of positive screens for depression and alcohol use disorders, leading to earlier identification of at-risk patients and timely intervention (McGinnis et al., 2016; Schaeffer & Jolles, 2019). Follow-up on these patients further recognizes at-risk patients and improves treatment compliance, symptom management, and remission (Schaeffer & Jolles, 2019). Increasing the number of patients screened using a standardized screening process for behavioral health and alcohol use disorders within primary care at BHC

Naval Station Norfolk will expedite diagnosis and treatment, access community resources, and improve patient outcomes.

Focus Areas

Two common themes in the literature review were inconsistent utilization of evidence-based behavioral health screening tools across the military services and inappropriate tool administration skewing tool reliability. Adopting the four Iowa implementation strategies for evidence-based practice, we focused on raising awareness and increasing the interest of the staff by stressing the importance of early identification and intervention for patients with these conditions. To build knowledge and commitment, we provided in-service training to engage staff in discussing current evidence and implications for practice. Also, we provided support to verify understanding of the project, invited staff discussion on progress, and provided recognition at the point of care. Lastly, we fully implemented and utilized the combined PHQ-4 and AUDIT-C screening tool; we recognized the staff involvement and briefed the organizational leadership to report our progress (Iowa Model Collaborative, 2017).

Business Case Analysis

See Appendix C for Business Case Analysis.

Organizing Framework

Our group applied the Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care (EBP) to guide our implementation process (Appendix D) to improve behavioral health screening for anxiety, depression, and alcohol use disorders (Iowa Model Collaborative, 2017). This project is consistent with the Department of Defense and recognizes that prompt treatment of behavioral health disorders is a top priority. Our group has identified

data discussed earlier in this paper that shows an increased rate of behavioral health disorders within the military population and dissimilarities in the screening process for these conditions. We raised our opportunity issue for clinical inquiry based on these reports. This project showed how raised staff awareness, educational training, and standardized administration of behavioral health screening tools for anxiety, depression, and alcohol use had increased the number of patients screened for these conditions.

The application of the Iowa Model provides stakeholders with an overview of each step throughout its implementation. In contrast, our team provided hands-on training and prompting through the multiphase processes. In addition, this model offered feedback loops for modification and redesign of the intervention based on evidence when goals were not being met. This flexibility allowed a progress continuum that promoted quality care. The Iowa Model has been adopted extensively to pilot EBP applications in clinical and administrative settings. Our team found the Iowa EBP model practical, systematically easy to follow, and met the required elements to complete each sequence of our project implementation (Iowa Model Collaborative, 2017).

With command support, we completed an extensive systematic literature review that revealed the need to implement our EBP project. The evidence supported two main areas of intervention geared to implement printed tools for self-screening and increase the number of patients screened utilizing these tools. Data substantiated by our literature review in Appendix B supported our decision to strategize a sustainable working plan. We initiated data collection upon

Institutional Review Board (IRB) determination. Our main objective was to implement a sustainable change in the screening process that will impact readiness and patient outcomes.

Project Design

General Approach

Our team developed, implemented, and evaluated the effectiveness of an educational evidence-based intervention to utilize standardized behavioral health screening tools for military and civilian healthcare workers. The goal of the project was to increase the number of patients screened for anxiety, depression, and alcohol use disorders. This intervention is a practice change that requires the treatment facility to implement a universal screening process during patient encounters. However, primary care providers and ancillary staff were able to decline participation in the new standardized screening process.

Setting and Population

BHC Naval Station Norfolk is one of ten outlying branch clinics of NMRTC Portsmouth located in Norfolk, Virginia. The population treated at BHC Naval Station Norfolk are strictly active duty service members. This project focused on the 10,000 beneficiaries empaneled at the Primary Care Medical Home Port Clinic within BHC Naval Station Norfolk. A total of 27 clinic staff members, including primary care providers, corpsmen, licensed practical nurses, and medical assistants participated in the project. One provider and one medical assistant refused to participate, expressing concern about time constraints with each patient encounter.

Procedural Steps

Initially, we observed existing screening practices at multiple clinic locations and gauged staff knowledge of evidence-based screening tools. In October 2021, a chart audit of 150 patients

was completed over a four-week period to determine the current screening rate. The audit assessed whether patients were screened for depression, anxiety, and alcohol use disorders utilizing either the PHQ-2, PHQ-9, GAD-2, GAD-7, or AUDIT-C screening tools.

Following the initial chart audit, we assembled the combined screening tool, which consists of the PHQ-4, a combination of the PHQ-2 and GAD-2, and the AUDIT-C, which are valid and reliable evidence-based screening tools already approved for use at BHC Naval Station Norfolk. See Appendix E for the combined behavioral health screening tool. In January 2022, we provided two 15-minute hands-on training sessions for all providers and ancillary staff. The training sessions focused on the importance of universal screening, scoring the tool, and input scores into the electronic medical record. We also discussed HIPAA protocols, safe handling, and storage of the completed forms within the provided folders for our team to collect.

Project implementation occurred in February 2022 for one week. The first 50 patients who checked in for their appointment were handed a printed behavioral health screening tool attached to the clinic's intake form to be completed in the waiting room. The screening tool took approximately 2-3 minutes to complete seven questions. After the patient was called in for their appointment, the corpsman or medical assistant collected the tool and immediately scored the screeners. Patients who scored positive on the PHQ-4 were provided with the GAD-7 and, or the PHQ-9 screener to be completed in the exam room before the provider entered the room. The GAD-7 and PHQ-9 took roughly 5-6 minutes to complete 16 questions. If the screening tool was negative or no additional screeners were required, then the tool was given to the provider for the disposition plan. Next, The corpsman or medical assistant recorded the scores for each patient in their respective electronic medical record. The screening tool was subsequently placed into each

provider's designated manila folder. During each day of the implementation phase, a member of our team collected the completed screening tools and secured them in a locked cabinet.

In February - March 2022, our team performed a post-implementation chart review on 172 patients to assess the newly standardized screening process by comparing the total number of completed forms to each patient's medical record to verify documentation of the behavioral health screeners. We analyzed the percentage of patients screened for depression, anxiety, and alcohol use disorders and compared the completion rate to the baseline figure of total patients screened to determine the effectiveness of the intervention. Organizational endorsement by NMRTC Portsmouth and leadership at BHC Naval Station Norfolk were crucial in the successful adoption of this intervention. One factor that will increase sustainment will be appointing champions to continue the training, providing support to the staff, and identifying and addressing barriers. See Appendix F for Project Timeline.

Data Analysis Plan Description

Inferential statistics were used to evaluate the percentage of patients who were screened pre-and-post educational intervention. For the pre-intervention analysis, we performed a retrospective chart review on 150 patients who were seen at BHC Naval Station Norfolk Primary Care Medical Home Port clinic in September 2021. We then calculated the percentage of people who were screened for depression, anxiety, and alcohol use disorders using current non-standardized practices out of that sample. Similarly, after implementation, we conducted the post-intervention chart analysis by calculating the percentage of patients whose scores on the new self-screening tool were inputted in their electronic medical records. The two data sets were compared using a Fisher's Exact test to determine if our educational intervention was statistically

significant. Descriptive statistics were used to analyze the percentage of positive screens post-implementation that were transcribed into the electronic medical record. We calculated the number of positive screens input in the EHR divided by the number of total positive screens. See Appendix G for Data Analysis Plan.

Potential Barriers and Dissemination Plan

As with any policy or system change, we anticipated potential barriers during the implementation phase by the providers or patients. Potential barriers included refusal to participate in the project or resistance to utilizing the printed screening tool. Patients also could have declined to complete the self-assessment screeners, resulting in an inadequate sample size. We mitigated these concerns by providing face-to-face training, and discussing the objectives and timeline of the project and its potential long-term benefits to active duty service members. Additionally, we decreased likely patient apprehension by not collecting PHI on the screener tool and placing the completed forms in provider-specific manilla folders collected daily by a member of our team.

For the dissemination of results, we will present an oral presentation to the clinic staff, NMRTC Portsmouth leadership, and other stakeholders to relay our findings, discuss implications for clinical practice, and recognize the efforts made by the team. Stakeholders are welcome to provide feedback on improving the project for long-term sustainment. We will also present our results via poster and oral presentation to Uniformed Services University of the Health Sciences faculty during the annual research week. We will follow recommendations for further dissemination, including peer-reviewed journal submissions.

HIPAA concerns

The primary outcome of our intervention was to standardize the screening process for mental health and alcohol use disorders, increase the number of screened patients by utilizing evidence-based tools, and improve documentation in the medical record. Completed screening tools were collected by team members every day during the implementation phase and secured in a designated envelope in a locked cabinet. Protected health information (PHI) was not collected at any time during implementation. Patient encounter identifiers on the collected screening tools were marked and disposed of appropriately after the scores were entered into the patient's electronic medical record. All study-related information was uploaded into a database on a common-access-card (CAC) enabled computer.

Project Results

During the 1-week period post-implementation, 200 printed screening tools were distributed amongst participating teams. 172 of 200 beneficiaries were screened using the standardized behavioral health screening tool, yielding a 86% screening rate. Of the 172 collected screeners, 97 for PHQ-2/9 (56.4%), 80 for GAD-2/7 (46.5%), and 62 for AUDIT-C (36.1%) scores were documented in the EMR. Of the participants who screened positive, 43 out of 54 for PHQ-2/9 (79.6%), 43 out of 68 for GAD-2/7 (63.2%) and 25 out of 32 (78.1%) AUDIT-C scores were documented in the EMR. See Appendix H for results.

Analysis of the Results

Inferential and descriptive statistics were used for data analysis. SPSS Version 24 was utilized for pre-and post-implementation screening rates. Percentage of positive screens was analyzed using Microsoft Excel version 16.59. Post-implementation, the overall number of screeners charted into the patient electronic health records increased compared to the

pre-implementation chart audit. Compared to baseline rates, documented scores increased by 43.7 percentage points, (PHQ-2/9), 33.9 percentage points (GAD-2/7), and 29.4 percentage points (AUDIT-C). Using Fisher's Exact Test, there were statistically significant associations ($p < .001$) between completing the PHQ-2/9 and the implementation period ($p < .001$); GAD-2/7 and the implementation period ($p < .001$); and AUDIT-C and the implementation period ($p < .001$). Although this data showed statistical significance, it may not be conclusive as a power analysis was not performed to determine the minimum sample size needed for our project.

Universal screening using the PHQ-4 and the AUDIT-C yielded a positivity rate of 31.3% for depression, 39.5% for anxiety, and 18.6% for alcohol abuse. Compared to Meadows, et al. (2015), the positivity rates for the military population in our project was higher for depression and anxiety, and lower for alcohol use disorder. Despite the completed forms, 28% of the positive screens did not make it into the EMR. Documentation noncompliance may indicate staff resistance to the new process, or require additional training for skills reinforcement. Costar and Hall state, "...new protocols sometimes require greater time and participation by the entire team to ensure all elements are covered" (2020, p. S54). Sustainment may be achievable through periodic training in alignment with organizational policy and performance metrics (Rosen et al., 2018). Given the increased risk for behavioral health disorders in the military, universal screening would be beneficial to diagnose and treat these conditions early, however, the resource burden in an already saturated mental health community would need to be further investigated.

Organizational Impact/Implications to Practice and Policy

Existing literature supports the implementation of mental health and alcohol use disorders screening utilizing evidence-based tools (Accortt et al., 2018; Pervanas et al., 2018). Likewise,

universal screening in primary care is recommended by clinical practice guidelines. This creates an opportunity to identify patients at risk for behavioral health disorders early in the disease process (Siu & USPSTF, 2016; USPSTF, 2018). Once identified, timely referrals can increase access to care and interventions, reducing serious complications from unaddressed behavioral health disorders and limiting the progression into deployment-limiting conditions. Also, identifying these patients in the early stages creates an opportunity for the provider to discuss resources to manage the symptoms while waiting for their mental health appointment and identify red flags that require further evaluation.

Organizational strengths include BHC Naval Station Norfolk utilizing a limited behavioral screener on their intake form. Providers may be more receptive to an expanded behavioral health screener since there is already a rudimentary process in place. Organizational weaknesses at this facility include time constraints that could disrupt provider workflow. The literature addresses the time commitment for universal screening as a significant deterrent for implementation by primary care providers (Conklin, 2020; Coulton, et al., 2017; Vohringer, 2017). For this universal screening to be successful, the process needs to be standardized, so screening occurs for every patient (Coulton, et al., 2017). Given the rate of mental health disorders within the military and the proportion of patients enrolled within NMRTC Portsmouth, establishing this process as one of the top priorities of senior leadership is crucial for sustainment, as well as integrating into performance metrics to identify opportunities for improvement.

Future Directions for Research and Practice

Our evidenced-based research project revealed inconsistent screening methods to identify at-risk mental health and alcohol use disorders in Hampton Roads Branch Clinics. Timely identification within primary care is crucial for opportune intervention and treatment for these conditions. Adopting universal screening utilizing evidence-based tools will improve medical readiness and mitigate the fiscal and personnel costs related to these conditions. In a future state, it is imperative to establish a standardized process and provide training to integrate the PHQ-4 and AUDIT-C screening tools for all active-duty branch clinics. Other considerations include appointing a clinic champion for future sustainment, peer-reviewed chart audits, and integrating into performance metrics. Future EBP topics include evaluating the time commitment on the provider workflow, sustainment, and referral rates followed up by mental health services.

Conclusion

Service members are disproportionately affected by mental health and alcohol use disorders compared to their civilian counterparts. This project substantiates the utility of an evidence-based tool to appropriately screen service members for mental health and alcohol use disorders within primary care. It supports the USPSTF recommendation for universal screening. Universal screening creates an opportunity for individuals to express their concerns, reveal any substance misuse, link to resources, and receive timely intervention as indicated. A practice change, including staff training on using an evidence-based screening tool, will ensure sustainability is maintained throughout the constant staff turnover within the military environment.

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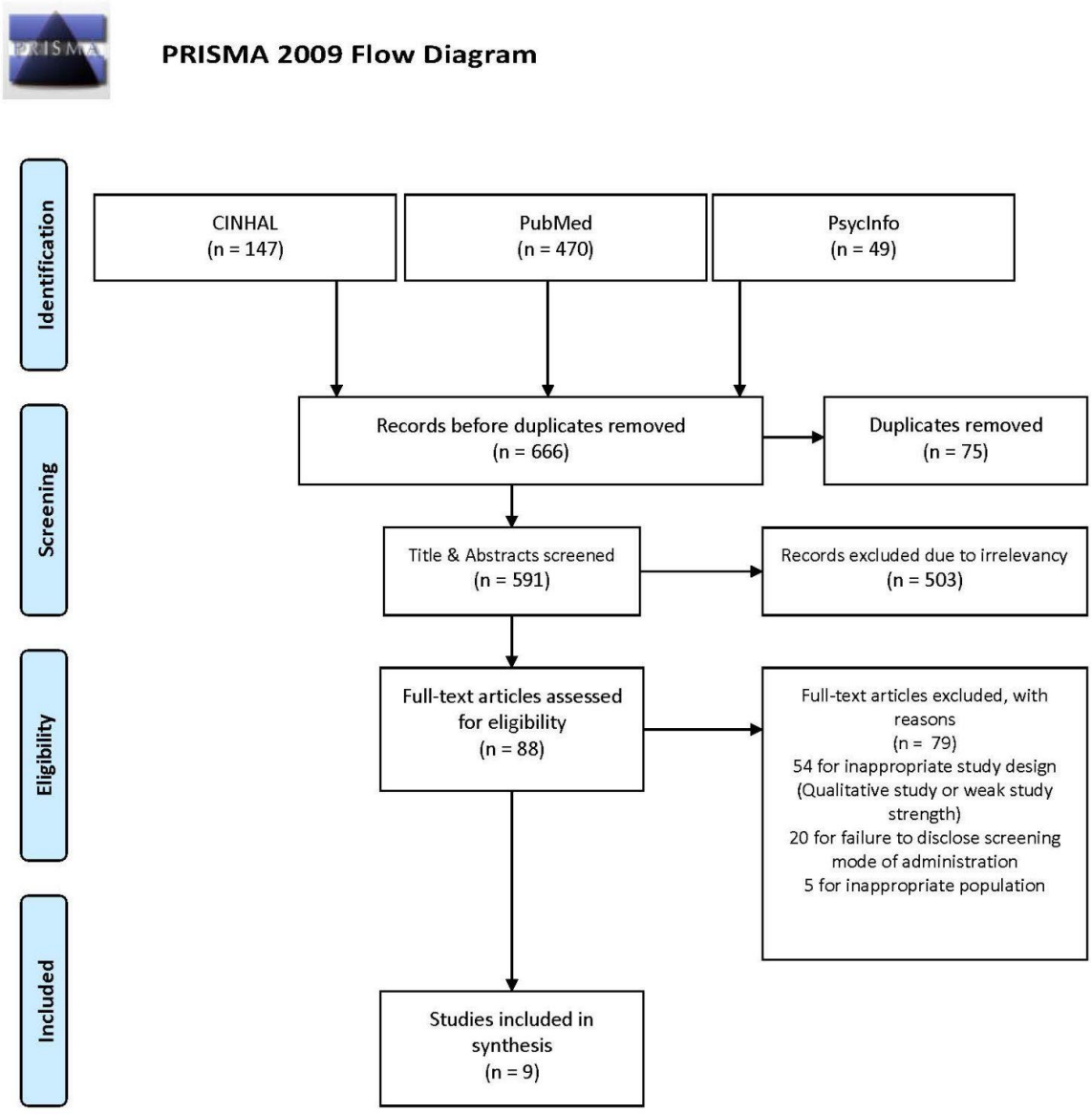
Appendix A

Figure A. PRISMA Flow Diagram



From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). *P*referred *R*eporting *I*tems for *S*ystematic Reviews and *M*eta-*A*nalyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

Appendix B

Table B. Evidence Table

1st Author Name (Publication Yr)	Study Purpose/Aims	Research Questions/Hypotheses (IF different from/specifically described separately from study purpose & aims)	Study Design	Total Sample Size (How many initially, how many at final analysis?)	Sampling Plan	Independent Variables AND LEVEL OF MEASUREMENT	Dependent Variables AND LEVEL OF MEASUREMENT	Statistical Analyses - what tests were used for which research questions?	Results	Strengths (how promoted internal/external validity)	Weaknesses (biases; poorly controlled threats to internal/external validity)	LEVEL OF EVIDENCE - using JHNEBP tool (Strength and Quality)
Conklin, 2020	Determine effectiveness of a formal alcohol SBI program, increase the number of alcohol SBI, and raise awareness about alcohol misuse	N/A	Quality Improvement Project	Initial - 201; Final - 131	Setting: 8 NPs, nurses, and physicians practicing in a private university health center. Inclusion criteria: None stated. Exclusion criteria: None stated.	AUDIT-C screens NOMINAL DATA	Alcohol misuse identification rate RATIO DATA	No statistical test analysis. Descriptive statistics only.	37/131 students screened positive and received an intervention post-implementation. Alcohol misuse identification rate increased from 10% to 28%. Female students had a higher incidence of AM than male students.	Adequate sample size of students completing the AUDIT-C screener	Small sample size of participatants who screened positive for AM. AUDIT-C has the possibility of socially desirable response set bias. No inclusion/exclusion criteria.	Vb
Accorti, 2022	To evaluate four quality improvement interventions: inpatient postpartum depression screening, education, screen positive rate, and referral program	N/A	Quality Improvement Initiative	19,564 over a three year period	Setting: Patients admitted to birthing center and maternal fetal care unit at Cedars-Sinai Hospital	An 8-hr nurse champion training intervention to raise awareness about prevalence of depression, risk factors, symptoms, and negative outcomes including instruction on use of the PHQ-9 screening tool and an instructional 10min video. Implementing the PHQ-9 into the workflow. 20min inservice training. Nominal data.	Standardized depression screening, screening rates, social work consultations, and staff knowledge/compliance. Ratio Data.	SPC was used to identify outliers and compare variables. PHQ-9 screening rates were plotted by month and SPC proportion chart (P-chart) was used to find p-bar, upper control limit and lower control limit	PHQ-9 screening increased from 10 to 99% and screen positive rates increased from 0.04 to 2.9%. Social work consultation increased from 1.7 to 8.4%. Overall improvement in nurse screening comfort and knowledge	Nursing staff committment, large data set with diversity.	Postpartum screening only, no data on prenatal scores which can predict postpartum depression. Only 5% of patients had public funded health insurance so this sample may not represent patients of lower socioeconomic status. Some patients declined using the screening form which possible reduced positive screens, however they accepted social work consultation. Unable to observe nurse to patient interaction when asking the questions to verify the techniques learned were being used. EPDS to screen for anxiety was not used.	Va
Parvanas, 2019	Provide educational training sessions on SBIRT screening stool to healthcare students utilizing interprofessional education activities and assess perceptions of the training sessions and activities with regard to confidence to utilize SBIRT in at-risk patients and overall student satisfaction with SBIRT instruction.	N/A	Randomized, Prospective study	A total of 303 students completed SBIRT training and of those 50% completed the post training survey. those 50% completed the post training survey.	Students enrolled in nursing programs, pharmacy, social work, physician assistant, and medical students across five schools in New Hampshire received SBIRT training on screening for substance abuse and mental health. Then students were randomized to participate in skills sessions simulating different scenarios in asynchronous student-centered case-based learning activity based on their specialty or to complete a face to face discussion platform to participate in perspective learning activities based on different roles to integrate SBIRT, substance use treatment, and use of Naloxone.	SAMSHA training resources on substance abuse and mental health training on utilizing SBIRT methods. Problem-based learning, self-paced online modules with videos and lecture capture technology and didactic/classroom content, online simulation.	Knowledge, skills, attitude, and satisfaction with training and instruction. Confidence in applying SBIRT to practice. Satisfaction and relevance. RATIO DATA	24-Question likety-type survey to access knowledge, skills, attitude, and satisfaction with training and instruction. Parametric tests. 4-point scale to measure usefulness of the training to apply SBIRT, 5-point scale to measure confidence in applying SBIRT to practice. Strongly agree and strongly disagree to measure satisfaction and relevance. Open ended questions to measure most useful parts of the training and future improvement. Ratio Data	Post SBIRT training, 97% reported learning SBIRT methods is relevant to future practice. 34% reported feeling moderately confident, 45% felt very confident, and 11% extremely confident in applying the learned methods. 72% reported satisfaction with the overall SBIRT quality instruction and 70% reported satisfaction with the training material. Overall satisfaction of the SBIRT training was reported at 67%. Qualitative analysis categorized the most useful part of the training programs for the students to be the screening skills, SBIRT materials, and patient case role-play scenarios, 22%, 22%, and 15%, respectively. 24 of the 76 students who participated in asynchronous learning report a range between 57 and 73% effectiveness in increasing knowledge on roles and responsibilities. 25 out of 32 who attended the face to face training report very to extremely effective in building competencies.	Diverse group of medical professionals that collaborated through various educational institutions of higher learning.	Various teaching methods and instructors that used different techniques to deliver the training, possibly affecting reliability and ability to reproduce the study. Varied student participation at each institution, voluntary vs. mandatory participation possibly affecting overall completion rate.	IIa

Schaeffer, 2019	Increase the efficacy of depression screening and follow-up through SBIRT to 75% of screen-positive clinic clients in 90 days	N/A	Quality Improvement Project	237 unduplicated clients used for this project	Setting: Harrisonburg Community Health Center (HCHC) with 2 provider teams (1 CNM and 1 provider) Inclusion Criteria: All clients scoring anything other than zero were considered positive and qualified for the brief intervention and follow-up planning. Degree of clinical depression did not influence whether a person was considered positive or not Exclusion Criteria: None stated	Interventions: use of written standardized Patient Health Questionnaire (PHQ) screening tools in six languages, the Option GridTM for clients who screen positive for depression, a "right care" tracking log for screen positive clients, and team meetings to support capacity building NOMINAL DATA	depression screening, follow-up measures, staffing compliance. RATIO DATA	Descriptive statistics were calculated from the tracking log to gain insight into the frequency and severity of the PHQ scores, patient who declined follow-up, and percentage of those experiencing remission of depression symptoms	Evidence-based care increased to 72.4%, adherence to follow-up care following PHQ-9 screening increased from 33.3 to 80%, screening in the client's preferred language increased screening compliance to 85.2% and positive PHQ-9 identification incidence to 45.5%	Robust process for team engagement project ensuring staff compliance; stakeholder input led to improved outcomes towards appropriate depression screening and follow-up coordination of care; results are consistent with existing literature on evidence-based practices; brought attention to an unaddressed issue within a diverse immigrant and refugee community	Uniquely diverse community, results may not be generalizable to less diverse ones; only two providers providers participated in this project; individual PHQ-2 and PHQ-9 scores and response to treatment over time were not tracked or reported	VIb
McGinnis, 2016	Main goals were to assess agreement of EMR and research AUDIT-C at validated cutoffs for identifying unhealthy alcohol use, explore EMR AUDIT-C cutoffs that maximize agreement with research AUDIT-C, and assess subpopulation variation in agreement	Identifying unhelathy alcohol use among HIV+ can provide an opportunity for intervention, and guide clinical quality improvement and research efforts designed to provide tailored patient care	Prospective cohort study	7,515 individuals (3,629 HIV+ and 3,501 uninfected men; and 99 HIV+ and 286 uninfected women) initially. Of those, 2,242 men (1,082 HIV+ and 1,160 uninfected), and 147 women (32 HIV+ and 115 uninfected) had an EMR AUDIT-C within 90 days of research AUDIT-C	Using data from the Veterans Aging Cohort Study (VACS), EMR AUDIT-C cutoffs of 2+, 3+, 4+ for men (2+ and 3+ for women) were compared to research AUDIT-C 4+ for men (3+ for women). VACS is conducted at eight VHA facilities in the US (Atlanta, GA; Baltimore, MD; Bronx, NY; Houston, TX; Los Angeles, CA; New York City, NY; Pittsburgh, PA; Washington, DC). Recruitment and enrollment began in June 2002 and is ongoing. HIV+ individuals were recruited from Infectious Disease clinics at participating sites. Uninfected controls are recruited from General Internal Medicine clinics at the same sites, and are targeted to match the demographics of the Infectious Diseases clinics by 5-year age blocks, race/ethnicity, and year of active VHA healthcare use. No inclusion/exclusion criteria noted.	HIV status, age, gender, race/ethnicity, site, hepatitis C status, alcohol related diagnosis NOMINAL DATA	AUDIT-C score ORDINAL DATA	T-test was used to compare age by HIV status and chi-square tests were used to compare categorical variables by HIV status. Kappa statistics was calculated for overall sample and separately by HIV status. Kappa statistics were compared by HIV status and gender; and for man by age, race/ethnicity, site, hepatitis C status, and alcohol related diagnosis	Among 1,082 HIV+ and 1,160 uninfected men, 14% and 22% had an EMR and research AUDIT-C 4+, respectively. Among 32 HIV+ and 115 uninfected women, 9% and 14% had an EMR and research AUDIT-C 3+. For men, EMR agreement with the research AUDIT-C 4+ was highest at a cutoff of 3+. For women, EMR agreement with AUDIT-C 3+ was highest at a cutoff of 2+. Moderate agreement was consistent across subgroups.	Data provides the opportunity to be generalizable to large cohorts, adequate sample size for men, methodology of using EMR can serve as a useful model for other healthcare organizations.	No inclusion/exclusion criteria. Small sample size for women so the study was underpowered to run analyses on the subgroups of women. EMR AUDIT-C questions and response options have variable administration compared to the research AUDIT-C, which is a fixed self-administration. Demographic make-up may have influenced results.	IIIa
Savoy, 2016	Discuss the importance of screening for depression, validated screening tools, reimbursement incentives, and screening strategies	N/A	Position statement on the value of systematic depression screening in primary care practice based on the United States Preventative Services Task Force.	No sample size	No sampling plan	No independent variables	No dependent variables	No statistical test analysis	The financial burden of undiagnosed depression can be mitigated with appropriate screening tools utilized in primary care visits. This article states that the PHQ screening tools were developed as self-administered questionnaires to be completed by the patient; as of 2016, the test was never validated for clinic staff to ask the questions directly to the patient.	Utilizes current literature supporting usage of the PHQ-9 as an evidence-based screening tool for depression; includes the opinions and recommendations of the USPSTF promoting standardized depression screening	Literature review on current recommended clinical guidelines and practices by the USPSTF regarding depression screening in primary care	IVb

Mulvaney-Day, 2017	Identify and evaluate publically available behavioral health screening tools primary care physicians can use to identify risk for common mental and alcohol-use disorders	N/A	Qualitative study meta-synthesis	Initial Records Screened = 614 Screeners selected for qualitative synthesis = 24	Following the Institute of Medicine (IOM) guidelines, a systematic literature review was conducted using PubMed, PsycINFO, Applied Social Sciences Index and Abstracts (ASSIA), Cumulative Index to Nursing and Allied Health Literature (CINHAL), and Health and Psychosocial Instruments (HaPI) databases Inclusion Criteria: Article selection was based on articles published in English from 2000-2013 assessing publicly available, nonproprietary tools to screen for anxiety, depression, and substance-use disorders; instruments must target adults ages over 18 years old, had been studied in North America or Western Europe; screening tools were classified as multiple-disorder tools or short single-disorder tool using five or fewer items; screening tools must undergone psychometric testing to determine criterion validity based (i.e. whether a strong gold standard [clinical interview] was used, scale sensitivity and specificity had been tested in primary care and exceeded 75%); screening tool utility in primary care was assessed based on how long it took to administer the test and whether it was self-administered or provider-administered Exclusion Criteria: Proprietary or not publically available screening tools, not targeted health condition, developed for research, not tested in English, not tested in primary care, not a screener, elderly focus or cognitive impairment, or global functioning	None	None	No statistical analysis used. Followed inclusion criteria to determine tool selection. Screening tools must undergone psychometric testing to determine criterion validity based (i.e. whether a strong gold standard (clinical interview) was used, scale sensitivity and specificity had been tested in primary care and exceeded 75%); screening tool utility in primary care was assessed based on how long it took to administer the test and whether it was self-administered or provider-administered	Identified 24 tools appropriate for screening behavioral health disorders in primary care; 13 short instruments with <5 items and 11 longer instruments, 8 of which were subscales developed ar part of the longer PHQ and Patient Stress Questionnaire (PSQ)	Sensitive inclusion criteria to identify well-known screening tools; addresses sensitivity and specificity of identified tools; lists applicability in primary care, identifies strengths and weaknesses, states length of time to administer tool and defines whether tool is intended for self and/or provider-administration	Newly developed tools may have been missed in the literature review; information from every published study on each selected tool was not reviewed; tool psychometrics may have been missed on specific subgroups; did not assess the rigor of psychometric testing for each study or distinctions between the screening tools.	IIIa

Vohringer, 2013	Accuracy of self-administered screening tests (PHQ-9 for depression and MDQ for bipolar) compared to general practitioner assessment for identifying mood disorders in primary care settings	N/A	Cross-sectional prospective study	197 patients at initial and final analysis	Patients were recruited from 10 low-income primary care centers in Santiago, Chile between 2009-2011, ages 18-75 seeking primary care; Patients were approached in the waiting area and asked for their participation, provided informed consent, and cognitively intact determined by a mental status examination; 5 practitioners with a minimum of 5 years experience in primary care were selected from each primary care center to participate but varied due to turnover; Patients were excluded if they were diagnosed with any mood disorders between 6 months and 1 month prior to study enrollment	screening tools, GP assessment, patient population. NOMINAL DATA	percentage of patients who screen positive or negative with screening tools or GP assessment, percentage of true positives, false positives, true negatives or false negatives with screening tools or GP assessment. ORDINAL DATA	Continuous variables were reported as means with standard deviations. Categorial or binary variables were reported as frequencies. Kappa statistic was used to assess the degree of agreement between GP assessment and screening tools with the gold standard evalution; sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and positive/negative likelihood ratio were calculated; sensitivity was determined when the negative screens for the PHQ-9 and MDQ tools coincided with the SCID-I interview for true negative and similarly for true positive if positive screens corresponsed with the SCID-I interview for depression or bipolar disorder.	Kappa statistics: Screening tools (Kappa of 0.7) > GP assessment (Kappa of 0.2) Specificity: Screening tool (0.92) similarly to GP assessment (0.93) Sensitivity: Screening tool (0.74) > GP assessment (0.23) PPV: Screening tools (0.83) > GP assessment (0.64) NPV: Screening tools (0.85) > GP assessment (0.67) Positive likelihood ratio (Prior probability of mood disorders prevalence in population 37%): Screening Tools (8) > GP assessment (2)	Precautions to avoid biases including tandem testing diagnostic assement using a structured interview; Possible cases were approaced after GP assessment to avoid biased evaluation of mental health status by GPs; screening tool accuracy and assessment were compared to SCID-I semi-structured clinical interview; SCID-I assessment was blind to screening tool or GP assessment results; Clinical specialist routinely review randomly assessed cases to ensure accurate diagnosis	Possible recruitment bias from more severely ill patients who had more frequent clinic visits compared to healthier patients and not a true representation of the general population; GP diagnostic skill assessment based on medical records and conducted without their knowledge of the speicific purposes of the study to allow for real-world practice assessment but potentially undermines actual diagnostic accuracy; effective utilization of screening tools is limited to patients with sufficient literacy comprehension rates to fill out self-reported questionnaires.	IIB
Coulton, 2017	Explore the relative efficiency and effectiveness of targeted versus universal screening for at-risk alcohol use in a primary care population in the UK	Whether demographic factors, age and gender, may be more appropriate targets for screening activity than clinical presentations	Randomized control trial	Initial - 3562; Final - 3021 Targeted group - 1280 Universal group - 1741	Setting: 29 general practices across London, South East, and North East England participated between May 2008 and July 2009. Inclusion criteria: Patients who were alert and oriented, aged 18 and over, resident within 20 miles of the practice, and able to understand English sufficiently to complete questionnaires; In the targeted group, only those who presented with one of the targeted conditions were included (mental health problems, gastrointestinal problems, hypertension, minor injuries, and new patient registrations) Exclusion criteria: Already involved in an alcohol research study or who were specifically seeking help for alcohol problems. Patients who were severely injured or unwell, grossly intoxicated or who had no fixed abode	IV: Targeted versus universal screening groups; demographic data NOMINAL DATA	DV: Percentage of positive screens RATIO DATA	No statistical analysis. Descriptive statistics (percentage of positive screens) used only.	908 (30%) scored positive for at-risk alcohol consumption using one of the screening tools. Targeted group were slightly younger, more likely to be male, and more likely to smoke. Prevalance of at-risk alcohol consumption was significantly higher in the targeted group than universal group. In terms of effectiveness, targeted screening is less effective at identifying those who may benefit from intervention, as 81% of those who screened positive in the universal group would have been missed by applying the targeted criteria	Large-scale cluster randomized evaluation that embedded screening into ordinary clinical practice. Used established, valid, and reliable screening tools. Rates of eligibility and consent to be screened were higher than in most similar studies and the sample is similar to the population routinely attending primary care	Used a small number of targeted conditions which may have excluded some appropriate targets	Ib

Appendix C

Figure C. Business Case Analysis

Module 2 Assignment: Business Case with Value Based Care

BUSINESS CASE with VALUE BASED CARE ASSESSMENT	
Proposed Title for Project/Initiative/Opportunity to Improve	
Standardizing the screening process for behavioral health disorders	
Opportunity Statement *(Description of proposed project/initiative/opportunity to improve)*	
Active duty members experience significantly higher rates of depression (MDD), anxiety (GAD), and alcohol (ETOH) consumption compared to the U. S. civilian population (Meadows, et al., 2018). Currently, it is unclear whether primary care clinics at Navy Medicine Readiness and Training Command (NMRTC) Portsmouth utilize a standardized universal screening process for these conditions. Our goal is to review their screening methods and implement a standardized evidence-based screening practice that aligns with DOD/VA Clinical Practice Guidelines, DHA and the Quadruple Aim vision to improve health and readiness, provide better care, and decrease costs related to unaddressed mental health conditions.	
Business Opportunity/Objectives *(Prioritize listing – macro and micro objectives)* *Business Opportunity*	
Macro Objective: **1.** Reduction of time from identification and formal diagnosis to treatment, recovery, and remission from mental health and alcohol use disorders. **2.** Improve medical readiness **3.** Decrease the economic burden of mental health and alcohol use disorders. Micro Objectives: **1.** Increase number of patients screened for anxiety, depression, and alcohol use disorders. **2.** Reduction of time from identification and formal diagnosis to treatment, recovery, and remission from mental health and alcohol use disorders. **3.** Increase identification of individuals afflicted by mental health and alcohol use disorders.	
Potential Impact of the Initiative/Project *(Identify outcome metrics & benchmarks/and how objectives align with Quadruple Aim, Value Based Care, and HRO goals)*	
We will conduct a pre and post-intervention survey to measure the number of active duty patients screened for mental health and alcohol-use disorders and charted in their electronic health record. Our goal is to increase the number of screened patients through staff education, standardized universal screening and appropriate documentation. This will lead to increased identification of at-risk patients for these conditions. These objectives align with the quadruple aim of addressing gaps in treatment, increasing identification of mental illness and alcohol use, reducing expenditures through cost-effective interventions, and improving readiness through effective treatment of potential deployment-limiting conditions. This project provides value-based care as part of ongoing efforts to improve quality and access to healthcare beneficiaries, reducing costs, and improving patient outcomes. This project aligns with HRO goals by providing opportunities for learning and training to healthcare providers and implementing quality improvement interventions.	
Alternatives (courses of action) chosen for Analysis	
1. Self-administered screening tools filled out in the waiting room prior to being screened by tech/MA 2. Adding screening tools within the Tricare Patient Portal to be completed within 24 hours of appointment time 3. *"Status Quo"*: No standardization for mode of administration for behavioral health and alcohol use screening tools	
Analysis of Alternatives	
Alternative 1:	Self-administered screening tools filled out in the waiting area prior to being screened by tech/MA
Pros	**Cons**

1. Increased reliability from self-administration 2. Immediate access to scores by provider 3. Eliminate time during encounter devoted to performing screening tools, allowing more time with provider	1. Potential HIPAA breach from improper handling and disposal of PII 2. Threat of error or omission due to manual input of scores into EMR 3. Potential for running out of screening forms 4. Access to shredder for same-day disposal
Alternative 2:	Adding screening tools within the Tricare Patient Portal to be completed within 24 hours of appointment time
Pros	**Cons**
1. Convenient, ready access by provider 2. HIPAA compliant 3. Cost effective	1. High risk of non-compliance 2. Lengthy implementation process • Will need extra time to contact Tricare Portal engineers to build platform into the portal and perform staff training to competently upload forms into the portal 3. MA/LPN burden to access results and manually input scores into EMR 4. Accessibility of all patients to platform 5. Burden of pre-scrubbing and uploading forms to portal
Alternative 3:	*"Status Quo"*: No standardization for mode of administration for behavioral health and alcohol use screening tools
Pros	**Cons**
1. Ready access of scores into EMR 2. Immediate feedback by provider	1. Variance in administration of the tools leads to decreased reliability in scores 2. Decreased transparency by patient 3. Misinterpretation of signs and symptoms during the administration process by both the administrator and the patient
Assumptions	
- Approval from the IRB - Stakeholder buy-in from the Navy Medicine Readiness and Training Command Portsmouth Family Medicine Clinics - Self-administered paper screening tools will not delay patient encounter times - HIPAA will be maintained - Rights to use screening tools free or already purchased through the Navy	
Recommendation	
Proposal to recommend Alternative #1: Self-administered screening tools filled out in waiting room prior to being screened by tech/MA and increase staff adherence to this mode of administration	
Rationale	
Review of the literature supports universal self-administered screenings to increase reliability by patients which allows for timely interventions aligning with DoD/VA Clinical Practice Guidelines and U.S. Preventive Services Task Force recommendations (Conklin, 2020; Coulton, et al., 2017; Siu & USPSTF, 2016; USPSTF, 2018; VA/DOD, 2016a; VA/DOD, 2016b).	

Value Based Care - Investment Required by the Organization and the Associated "VALUE" or $ GAINED.

Value = Quality + Service

I. Quality projected based on: Cost

Navy Medicine Readiness and Training Command Portsmouth staff, 3,000 (USN, 2020) x 0.403 (% of military population with mental illness [(MDD) 9.4, (ETOH) 8.2, (GAD) 14.2, (PSTD) 8.5], (Meadows et al., 2018) x $181/Day. Estimated for recapturing 1 day of work NOT missed for mental illness.	$218,829	**(For purposes of this budget plan, Navy Medicine Readiness and Training Command Portsmouth staff of 3,000 active duty members and 50,000 active duty healthcare beneficiaries in the Hamptons Road region)**
Navy Medicine Readiness and Training Command Portsmouth adult patient population (minus staff), 50,000 x 0.20 [0.071 (MDD) 0.036 (PTSD) 0.027 (GAD), 0.066 (ETOH)] (NIAAA, 2020; NIMH, 2017a, 2017b, 2019) x $131/Day. Estimated gain for 1 less day of work missed due to mental illness	$1,310,000	
Total	**$1,528,829**	

II. Service projected based on:

Average inpatient hospital stay for 6.4 days $7100 (Owens et al., 2019) minus a 30-day supply of Sertraline, $34.04 (GoodRx.com, n.d.)	**$7,065.96**	**(For purposes of the budget plan. comparison of outpatient treatment for MDD with 30-day supply of Sertraline for 1 patient compared to single inpatient hospitalization for mental and alcohol use disorder)**
Total	**$7,065.96**	

III. Cost projected based on:

Training/hour is $94 per MD, $50 per NP, $49 per PA, $23 per LPN, $16 per MA/HM (salary figures from Salary.com)	**($1108)**	**(For purposes of this budget plan, 10 providers (5 MDs, 3 NPs, 2 PAs), 10 LPNs, 10 MA/HMs assigned to Navy Medicine Readiness and Training Command Portsmouth Family Medicine Clinic compensated for one hour of pay for the hour-long training)**
Supplies est. (Paper, ink, toner, printer, shredder)	**($1000)**	
Total	**($2408)**	

PROJECTED VALUE:

Quality Revenue Gained	**$1,528,829**
Service Revenue Gained	**$7,065.96**
Cost to Organization	**($2408)**
	$1,533,486.96

Risks and Mitigation Plan	
Risks	**Plan**
1. Provider buy-in	1. Educate providers on the efficacy and ease of self-administered paper screening tools 2. Include recommendations for patient encounter workflow to provide ample time for patient's to complete screening tools without prolonging patient encounter 3.Provide information regarding risk mitigation for population if screening is standardized
2. Patient refusal or apprehension to comply with administration of screening tools, resulting in decreased identification of at-risk patients	1. Provide education to patients for the importance of accurately completing the screening tools. 2. Provide reassurance to the patient that HIPAA will be maintained and the information will only be shared with need to know individuals
3. Provider administers screening tools verbally instead of self-administered, leading to decreased identification of patients	1. Educate providers and staff on the most valid and reliable mode of administration for behavioral health screening tools
4. Breach in HIPAA by leaving instruments out in public spaces and not disposing of them properly in shredder	1. Reinforce provider and staff knowledge on proper handling of PII 2. Will place forms in manila envelope to be collected by USUHS students for project analysis 3. USUHS students will properly dispose of instruments in shredder after analysis

Implementation Plan			
Phase 1:	Assess Current Practice in Primary Care Clinics		
Milestone Description:	Gather baseline data and evaluate clinic staff on current clinical practice, knowledge of mental health screening tools and modes of administration. Conduct formal staff surveys to identify knowledge gaps related to annual behavioral health and alcohol use screening and modes of administration. Perform medical chart review on Tricare beneficiaries who screened positive for MDD, GAD, and ETOH use.		
Deliverables		Due Date	Accountable Person
Measurable Goal: Identify target clinical sites for implementation. Select 150 patient charts from target clinical sites and identify the percentage of beneficiaries identified		Three weeks	USU/Navy Medicine Readiness and Training Command Portsmouth FNP student group

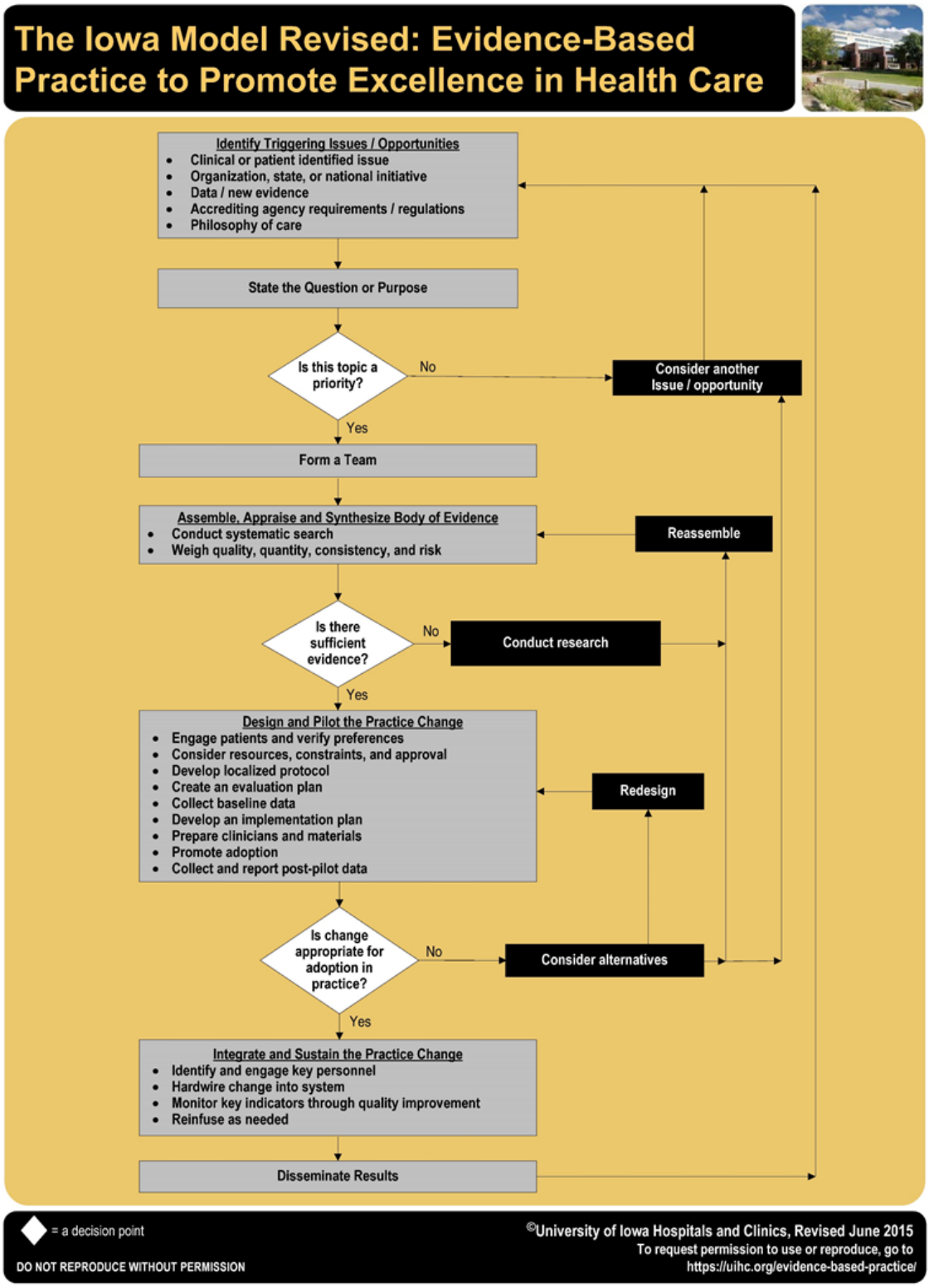
positive through annual behavioral health and alcohol use screening.		
Resources Needed		
Permission from institution to access electronic databases with personnel knowledgeable in extracting the needed data. This will include HIPAA sensitive information. Access to targeted clinics. Approval of clinic management to allow staff to speak with the project team. Approval of clinic management to observe current clinic practices. USUH/Navy Medicine Readiness and Training Command Portsmouth FNP student group will coordinate personnel responsible for deciphering data.		
Expected Level of Benefit		
This step will identify baseline data from the institution that will provide benchmark and comparison data to determine effectiveness of implementing self-administered paper-based behavioral health screening tools.		
Phase 2:	Develop comprehensive behavioral health and alcohol use screening form.	
Milestone Description:	Develop a single-page comprehensive behavioral health and alcohol use screening tool. Include validated screening tools, PHQ-4 and AUDIT-C on the front page. Incorporate a section for the trained clinical screener to tally patient scores and calculate risk for behavioral health or alcohol use and a signature block to confirm acknowledgment of screening results from provider on the back page.	
Deliverables	Due Dates	Accountable Person
Measurable Goal: Create comprehensive behavioral health and alcohol use screening tools to be administered following patient check-in at clinic front desk and completed prior to patient intake by trained clinical staff.	1 week after completion of data collection	USU/Navy Medicine Readiness and Training Command Portsmouth FNP student group
Resources Needed		
Access to identified behavioral health and alcohol use screening tools.		
Expected Level of Benefit		
Tool will be utilized as the self-administered paper-based behavioral health screening tool for target clinics.		
Phase 3:	Develop an educational presentation.	
Milestone Description:	Develop an educational presentation at targeted primary care clinics to demonstrate appropriate universal screening of behavioral health and alcohol use through standardized self-administered patient surveys. Present to senior leadership with projected aims and organizational impact to obtain stakeholder buy-in.	
Deliverables	Due Dates	Accountable Person
Measurable goals: Produce a professional presentation.	One month after leadership approval to proceed	USU/Navy Medicine Readiness and Training Command Portsmouth FNP student group
Resources Needed		
Access to Nurse Executive Committee (NEC) schedule to present to senior leadership and stakeholders		
Expected Level of Benefit		
Standardized instruction will ensure all providers and staff receive the same training. Developing a formal presentation will ensure future providers will receive the training after the formal conclusion of the project. Stakeholders buy-in will provide organizational endorsement to implement screening tool in primary care clinic work processes		

Phase 4:	Conduct training for all providers and ancillary staff	
Milestone Description:	To educate the staff at the primary care clinic on appropriate administration of behavioral health and alcohol use disorders	
Deliverables	Due Dates	Accountable Person
Measurable goal: 100% personnel exposure	1 week after education presentation is complete	USU/Navy Medicine Readiness and Training Command Portsmouth FNP student group
Resources Needed		
Access to targeted clinics and time allotment for all personnel to attend 20-minute training. We will need two 20-minute time slots to maximize staff participation with access to a conference room, technology to display presentation (i.e. computer, projector screen), chairs and 1 table. Mitigate risks by engaging clinic management to stress mandatory training for all providers and ancillary staff.		
Expected Level of Benefit		
Clinic-wide adoption and increased documentation of behavioral health screening in electronic patient record with the new process.		
Phase 5:	Program evaluation	
Milestone Description:	Re-evaluate percentage of patients screened for depression, anxiety, and alcohol use post-implementation period.	
Deliverables	Due Dates	Accountable Person
Status report to clinic management at 6 months and 1 year.	2 months	USU/Navy Medicine Readiness and Training Command Portsmouth FNP student group
Resources Needed		
Access to targeted clinic sites, patient information and medical records. Approval from clinic management to collect and store data. Mitigate risks by meticulous data collection, retraining personnel as necessary, and continually engaging staff for engagement. Access to NEC schedule to present post-implementation findings.		
Expected Level of Benefit		
Determine the effectiveness of the intervention and ensure continued engagement with implementation in accordance with DoD/VA Clinical Practice Guidelines and U.S. Preventive Services Task Force recommendations.		

NOTE: Modified from Harvard Business Review Press. (2011). *Pocket mentor: Developing a business case.* Boston: Author (pp 82-85).

Appendix D

Figure D. Organizing Framework



Appendix E

Figure E. Behavioral Health Screening Tool

Date/Time:_____

Section I

PHQ-4				
Over the last 2 weeks, how often have you been bothered by the following problems? *(Use "✔" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Little interest or pleasure in doing things	0	1	2	3
4. Feeling down, depressed, or hopeless	0	1	2	3

Total Score T**____=_____+_____+_____)**

AUDIT-C

Please circle the answer that is correct for you.

1. How often do you have a drink containing alcohol?					**SCORE**
Never (0)	Monthly or less (1)	Two to four times a month (2)	Two to three times per week (3)	Four or more times a week (4)	_____
2. How many drinks containing alcohol do you have on a typical day when you are drinking?					
1 or 2 (0)	3 or 4 (1)	5 or 6 (2)	7 to 9 (3)	10 or more (4)	_____
3. How often do you have six or more drinks on one occasion?					
Never (0)	Less than Monthly (1)	Monthly (2)	Two to three times per week (3)	Four or more times a week (4)	_____
TOTAL SCORE Add the number for each question to get your total score.					_____

Total _____

STOP

Give to Clinic Staff

Section II: Screening Results
(Complete by Clinic Staff Only)

☐ All Screens NEGATIVE (no further action required based on Screening alone)

☐ Positive Screens (check all that apply)

A. **DEPRESSION/ANXIETY**

PHQ - 4 Score _____

Total score is determined by adding together the scores of each of the 4 items

Scores are rated as normal (0-2), mild (3-5), moderate (6-8), and severe (9-12)

Total scores of ≥ 3 for the first 2 questions suggests anxiety (administer GAD-7)

Total scores of ≥ 3 for the last 2 questions suggests depression (administer PHQ-9)

B. **ALCOHOL USE**

Alcohol Use Score _____

Positive Screen for women score =3 or more

Positive Screen for men score = 4 or more

If ALL points are derived from Question 1 ONLY, screen is NEGATIVE

For Positive screen, PCM conduct further assessment

Section III: PCM Disposition Plan
(*Check all that apply*)

REFERRAL TO

- □ Behavioral Health
- □ Network BH Provider
- □ DAPA
- □ Community Resources: MilitaryOne Source, Chaplain, Fleet & Family Center

NO REFERRAL

- □ No BH treatment need identified
- □ BH treatment will be addressed by PCM
- □ Referral offered and declined
- □ Already in treatment with BH
- □ F/U Appt w/PCM → TCON

PCM Initials _____

Resources

Kroenke, K., Spitzer, R. L., Williams, J. B., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: the PHQ-4. Psychosomatics, 50(6), 613–621. https://doi.org/10.1176/appi.psy.50.6.613

https://www.phqscreeners.com/select-screener

Appendix F

Figure F. Project Timeline

Project Year 1 (2021)												
Activity/Month	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
USUHS VPR Submission and Approval							X	X				
Site IRB Submission and Approval									X	X		
Project Planning -Task 1: Review current practice and select screening method -Task 2: Review resources/develop screening tool and educational presentation -Task 3: Stakeholder engagement meetings										X	X	X
Project Implementation/Data Collection -Task 1: Provide behavioral health screener education training to all staff at BHC Naval Station Norfolk -Task 2: 2 week initial implementation at BHC Naval Station Norfolk -Task 3: Post implementation data collection												
Data Analysis -Task 1: Comparison of pre and post completion rates of behavioral health screenings -Task 2: Compare percentages of positive screens completed on the screening tool versus input into the electronic medical record												
Dissemination -Task 1: Command briefing -Task 2: Poster/Powerpoint presentation												

Project Year 2 (2022)												
Activity/Month	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
USUHS VPR Submission and Approval												

Site IRB Submission and Approval												
Project Planning												
Project Implementation/Data Collection	X	X										
Data Analysis		X	X									
Dissemination				X	X							

Appendix G

Table G. Data Analysis

		Variable Name	Variable Description and type of measure	Data Source	Possible Range of Values	Level of Measurement	Time Frame for Collection	Statistical Test	Decision Rule
Population	**IV**	Behavioral Health (BH) screening tool staff training	Process measure BHC Naval Station Norfolk staff will receive training on performing behavioral health screening tools via paper format for anxiety, depression, and alcohol misuse	EHR	0 = current method 1 = paper format	Nominal	January 2022	None	N/A
	DV	% of patients screened with BH screening tool that	Outcome measure # patients with BH screening tool scores inputted into EHR/total # of collected BH screening tools BEFORE and	EHR/Paper screening tools	0 to 100%	Interval	January/February 2022	Fisher's exact test	Institution dependent

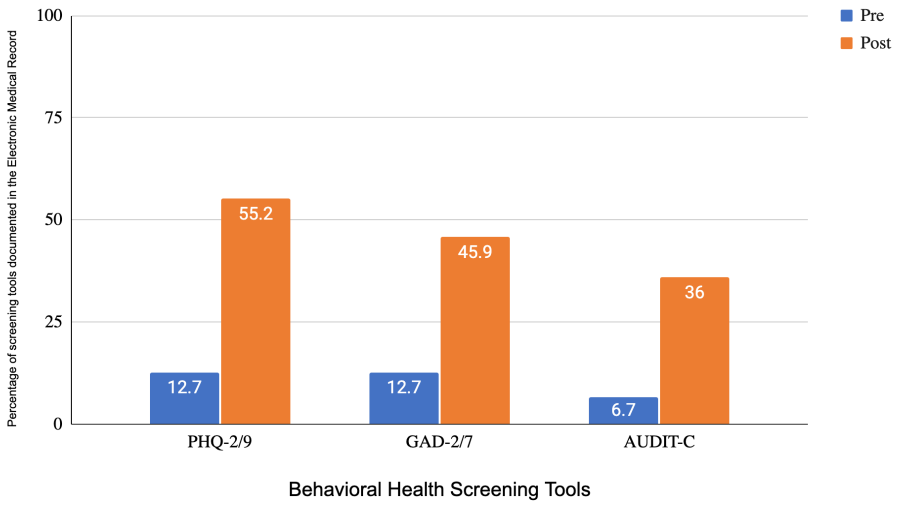
		were documented into the EHR	AFTER BH screening tool staff training						
	DV	% of patients whose positive screens were input into the EHR	Outcome measure #positive screens input into the EHR/total # of positive screens AFTER BH screening tool staff training	EHR/Paper screening tool	0 to 100%	Interval	January/February 2022	None	Descriptive statistics

Appendix H

Project Results

Figure H1

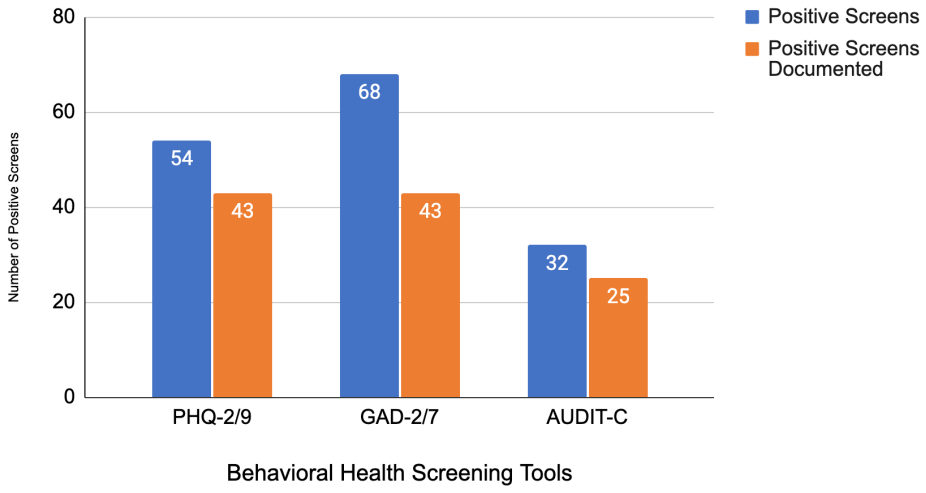
Completed MH Screeners Pre- vs Post-Implementation



Note. Percentage of screening tools documented in the EMR pre- and post- implementation

Figure H2

Documentation of Positive MH Screeners in EHR



Note: Number of completed (+) screening tools documented into EMR during implementation phase

Appendix I

Figure I. Team Mentor and Committee Form

DOCTOR OF NURSING PRACTICE PROJECT
DNP Project Clinical Question and Team Mentor (Committee Membership) Agreement Form

Graduation Year: 2022 **Phase 2 Site(s) Name:** Naval Medical Center Portsmouth

Name(s) of DNP Project Student Team:

1.	LT Heather Nelson	AGCNS ☐ FNP ■ PMHNP ☐ RNA ☐ WHNP ☐
2.	LCDR Sarah Tuparan	AGCNS ☐ FNP ■ PMHNP ☐ RNA ☐ WHNP ☐
3.	LCDR Samira Wrightson	AGCNS ☐ FNP ■ PMHNP ☐ RNA ☐ WHNP ☐
4.		AGCNS ☐ FNP ☐ PMHNP ☐ RNA ☐ WHNP ☐
5.		AGCNS ☐ FNP ☐ PMHNP ☐ RNA ☐ WHNP ☐
6.		AGCNS ☐ FNP ☐ PMHNP ☐ RNA ☐ WHNP ☐

The tentative title of the DNP Project Proposal for this student group is:

Standardizing the Screening Process for Behavioral Health Disorders

Committee Approved DNP Project Clinical Question:

For active duty beneficiaries at BHC Naval Station Norfolk, does staff training on the use of a standardized behavioral health screening tool improve the universal screening of anxiety, depression, and alcohol use disorders as evidenced by an increased number of patients

Names of DNP Project Team Mentors *(type the name and obtain digital signatures)*:

I agree to serve as a member of the DNP Project Team (Team Mentors) for the above DNP Student Project Team. As a Project Team Mentor, I agree to the duties and responsibilities outlined within the DNP Project Manual which include but are not limited to the provision of consultation and guidance supporting the entire DNP project journey and to ensure the DNP project is of sufficient rigor and demonstrates doctoral level scholarship to meet the requirements for USUHS GSN graduation.

NOTE: You may have 3-4 DNP Team Mentors [committee members including your DNP Senior Mentor (Chair)]. The Phase II Site Director may also be a member of the group, as well as other USUHS faculty or others who may serve as content experts. All non-USUHS faculty selected as a Team Mentor must be approved by the DNP Project Director.

Senior Mentor (Chair):	Dr. Jennifer Trautmann	Signature:	TRAUTMANN.JENNIFER.L.1074795443 Digitally signed by TRAUTMANN.JENNIFER.L.1074795443 Date: 2022.04.28 19:20:27 -04'00'	Date:	4/28/22
Team Mentor (Member):	LCDR MaryPat Tobola	Signature:	TOBOLA.MARYPAT.A.1380015915 Digitally signed by TOBOLA.MARYPAT.A.1380015915 Date: 2022.04.21 19:53:20 -04'00'	Date:	4/21/22
Team Mentor (Member):		Signature:		Date:	
Team Mentor (Member):		Signature:		Date:	

Form Version: 4 December 2020

Appendix J

Figure J1. CITI Certificate 1, Nelson, Heather

Figure J2. CITI Certificate 1, Tuparan, Sarah

Figure J3. CITI Certificate 1, Wrightson, Samira

Appendix K

Figure K. USU VPR Form

USU
Uniformed Services University

OFFICE OF RESEARCH
4301 JONES BRIDGE ROAD
BETHESDA, MAYLAND 20814
PHONE: (301) 295-3303; FAX (301) 295-6771

NOTICE OF PROJECT APPROVAL

Change Number: Original

VPR Site Number:	GSN-61-12106
Principal Investigator:	Nelson, Heather
Department:	Graduate School of Nursing
Project Type:	Student
Project Title:	Research 2 Practice: Standardizing the Screening Process for Behavioral Health Disorders
Project Period:	8/17/2021 to 8/17/2022

Assurance and Progress Report Information:

Name	Sup	Approval Type	Status	Approved On	Forms Received
Progress Report	0			To be Submitted	N/A

Remarks:
This Notice Of Project Approval has been reviewed and approved. Please remember that you must submit a final Progress Report (Form 3210) upon completion of this project.

Questions regarding this approval should be directed to the following person in the Office of Research:
Sharon McIver, (301) 295-9814.

RANDOLPH.TOY.A.V.1242107698 Digitally signed by RANDOLPH.TOY.A.V.1242107698 Date: 2021.08.17 11:01:35 -04'00'

Mark G. Kortepeter, MD, MPH FACP, FIDSA, FASTMH
COL (R) MC US Army
Vice President for Research
Uniformed Services University of the Health Sciences

Date

cc: File
Taylor, Laura

Appendix L

Figure L. MTF IRB Letter of Determination

NAVAL MEDICAL CENTER PORTSMOUTH
RESEARCH SUBJECTS PROTECTION DIVISION
usn.hampton-roads.navhospporsva.list.nmcp-irboffice@mail.mil

October 14, 2021

MEMORANDUM

From: Naval Medical Center Portsmouth IRB Office
To: LCDR Marypat Tobola

Subj: DETERMINATION OF NOT RESEARCH
EIRB Reference: 943007

Ref: (a) DODI 3216.02
(b) 2019 DASD (HRP&O) Operating Instruction
(c) NAVMEDCENPTSVAINST 6500.9B
(d) NAVMEDCENPTSVAINST 6500.2G

1. Your project titled NMCP.2021.0143 "Standardizing the Screening Process for Behavioral Health and Alcohol Use Disorders" has been evaluated by an Exemption Determination Official (EDO). This project DOES NOT meet the definition of RESEARCH in accordance with 32 CFR 219.102 and DoDI 3216.02.

2. An EDO must review any study design changes that may change the scope of the project to ensure that they do not affect this determination. All modifications must be submitted in EIRB.

3. Projects that do not require IRB approval are not eligible for Clinical Investigation Department travel funds.

4. Any publication resulting from this project must be cleared through the publication clearance process, which is required for all works presented or published outside of your command. Investigators at NMCP may obtain information from the CID SharePoint page. Investigators from other commands should contact their local Public Affairs Office.

5. The NMCP IRB Office may be contacted via phone at (757) 953-5939 or via email at usn.hampton-roads.navhospporsva.list.nmcp-irboffice@mail.mil.

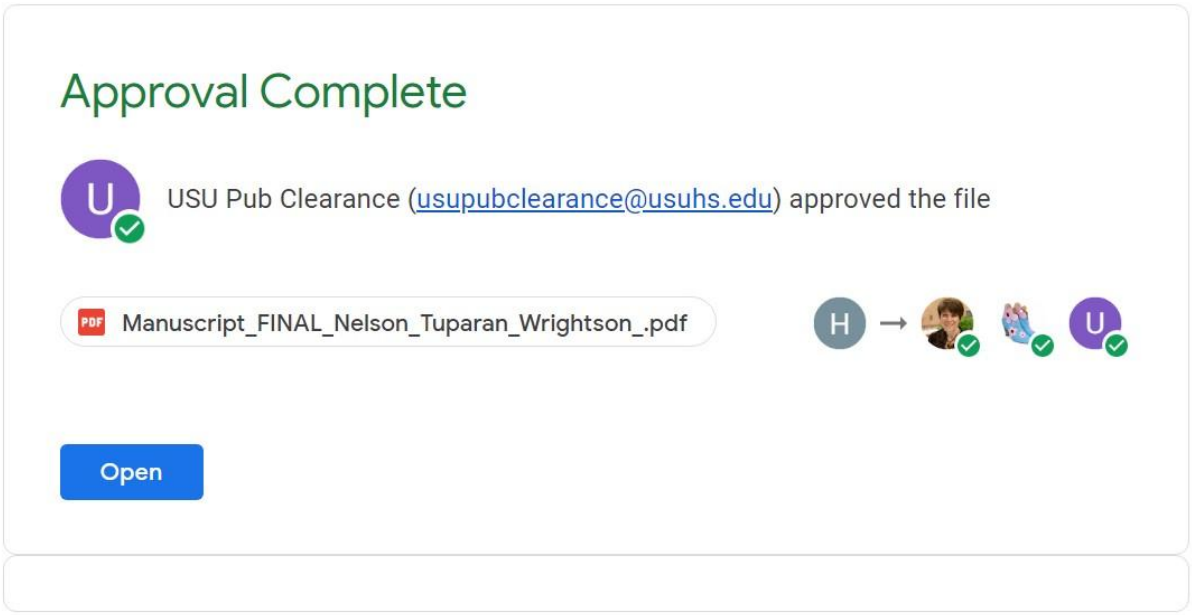
With best regards,

[redacted]

Kersten N. Wheeler, MS
Human Research Director

Appendix M

Figure M. PAO Clearance



Appendix N

Figure N. DNP Project Verification Form

DOCTOR OF NURSING PRACTICE PROJECT
Completion Verification Form

The DNP Project titled: Standardizing the Screening Process for Behavioral Health Disorders

was completed at Naval Medical Center Portsmouth by the following student(s):

(Student Name)	*(Digital Signature)*
LT Heather Nelson	NELSON.HEATHER.WEAVER.1408955200 Digitally signed by NELSON.HEATHER.WEAVER.1408955200 Date: 2022.04.21 16:24:20 -04'00'
LCDR Sarah Tuparan	TUPARAN.SARAH.M.1172768853 Digitally signed by TUPARAN.SARAH.M.1172768853 Date: 2022.04.23 14:27:45 -04'00'
LCDR Samira Wrightson	WRIGHTSON.SAMIRA.LILIETT.1398479048 Digitally signed by WRIGHTSON.SAMIRA.LILIETT.1398479048 Date: 2022.04.22 13:05:02 -04'00'
_____	
_____	

The DNP Practice Project Team verifies that the following components of the DNP project, accomplished by the above students, is of sufficient rigor and demonstrates doctoral level scholarship to meet the requirements for USUHS GSN graduation:

- Presentation of DNP project to the leadership/stakeholders at the Phase II Site,
- Abstract/Impact Statement (*Appendix F*), and
- DNP Project written report (*Appendix E)*.

Verified by:

(type name)	*(Digital Signature)*	
Dr. Jennifer Trautmann	TRAUTMANN.JENNIFER.L.1074795443 Digitally signed by TRAUTMANN.JENNIFER.L.1074795443 Date: 2022.04.28 19:19:28 -04'00'	Senior Mentor
_____		Team Mentor
_____		Team Mentor
LCDR MaryPat Tobola	TOBOLA.MARYPAT.A.1380015915 Digitally signed by TOBOLA.MARYPAT.A.1380015915 Date: 2022.04.25 13:15:14 -04'00'	Team Mentor & Phase II Site Director

For RNA Students only *- add the following additional signature for final verification of project completion:*

_____ _____

RNA Project Director *(type name)* (*Digital Signature)*

Form Version: 4 December 2020