

Establishing A Process for Depression Screening on a Pediatric Mobile Health Unit
By

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DNP Project Team Approval Form

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Abstract

The stakeholders of a pediatric MHU, which provides healthcare to underserved children in the Chicago area, are aware of the need for a depression screening tool for the adolescent population age 11-22. Implementing such a screen requires an analysis of the current process and workflow. Such evaluation warrants developing a process change prior to the MHU clinicians implementing the PHQ-2/PHQ-9 depression screening tool. Screening with a validated tool, such as the PHQ-2 and PHQ-9, on a mobile health clinic can help reach underserved adolescents that may be suffering from depression. A total of 58 students were screened who met the criteria and were receiving their sport or school physicals. The depression screening tool was successfully incorporated into the workflow of the MHU and awareness of depression in adolescents was recognized in this vulnerable population.

Establishing A Process for Depression Screening on a Pediatric Mobile Health Unit

Chapter I: Introduction

A concerning epidemic is advancing upon the youth of today and is of public health concern. Depression can be a devastating mental illness and it can interfere with everyday life activities. It does not discriminate against sex or race; however, the initial onset can begin during the adolescent years (U.S. National Library of Medicine, 2017). Depression affects 11% of teens and only 1% will be treated in an outpatient facility (Avenevoli et al., 2015). If left untreated as an adolescent, depression can have a significant impact on future health; therefore, pre-screening and identifying those at risks can help reduce the incidence of depression (Avenevoli et al., 2015). Further, depression is linked to increased school issues, absenteeism, and a higher risk of participating in unhealthy behaviors (Centers for Disease and Prevention, 2016). Screening for depression in adolescents leads to early detection and treatment.

To identify adolescents suffering from depression, it is crucial for health care providers to initiate screenings at the time of the healthcare visit. There are simple tools that are effective in screening adolescents aged 12-18 years for depression. Two screening tools that work in congruence with one another are the Patient Health Questionnaire-2 (PHQ-2) and Patient Health Questionnaire-9 (PHQ-9; American Psychological Association, 2017). The PHQ-2 is a two-question questionnaire and is the initial tool used to screen for depression of adolescents. The PHQ-2 is the first two questions from the PHQ-9. If the patient scores positive on the PHQ-2, the remaining questions on the PHQ-9 are then utilized to further assess the diagnosis of depression (American Psychological Association, 2017). Depression is a common occurrence in teens but is often not identified (Thapar, Collishaw, Pine, & Thapar, 2012). Studies have measured different depression screening tools to test their reliability (Arrieta et al., 2017; Manea

et al., 2016; Mitchell, Yadegarfar, Gill & Stubbs, 2016; Wilson & Agius, 2017). The diagnostic accuracy in detecting depression using the PHQ-2 and PHQ-9 screening tools has been evaluated and proven to be effective (Mitchell et al., 2016). The PHQ-2 and PHQ-9 are tools used in primary and pediatric clinic settings; however, its implementation on pediatric mobile health unit (MHU) is limited. Therefore, for the MHU clinicians to effectively implement the PHQ-2 and PHQ-9 into the standard of care, a standardized workflow should be established. Providing an efficient and effective standardized workflow as it relates to the process change will allow for an easier transition.

Background and Significance

Depression can be a debilitating disease. If left undiagnosed and there is failure to initiate necessary treatment, this can impact the functioning abilities of the adolescent and affect their future as they progress into adulthood (American Academy of Child & Adolescent Psychiatry, 2011). Reports have indicated that in the absence of a screening tool, nearly 50% of cases of depression were overlooked (Corona, McCarty, & Richardson, 2013). Providers have indicated their lack of compliance administering a depression screening tool is due to a lack of skill in diagnosing, access to a validated quick screening tool that does not impede the work flow, and lack of resources for follow up treatment and consultations. A teenager's depression symptoms can often be mistaken for typical teenager demeanor (Corona et al., 2013). The Academy of Pediatrics and the US Preventive Services Task Force (USPSTF) suggest the utilization of a depression screening tool to help trigger further mental health evaluation (Corona et al., 2013). In addition to social and emotional burdens the financial impact of depression is extensive and continues to rise as this problem becomes more significant (Greenberg, Fournier, Sisitsky, Pike, & Kessler, 2015). Categories of depression produced \$83.1 billion in costs in

2000 (Greenberg et al., 2015). More recently the quantifiable cost of depression has significantly increased. The yearly economic burden of depression is projected to be \$210.5 billion (American Psychiatric Association Foundation, 2018). Implementation of screening tools for early detection and management of depression can help mitigate the economic burden.

At the state level, rates of depression and suicide in Illinois have risen; in addition to the financial impact depression and suicide have on the economic budget. Between 2010-2014, depression among adolescents, age 12-17, in Illinois rose from 8.3% to 10.2%; these statistics coincide with the rise of depression among adolescents in the United States (Substance Abuse and Mental Health Services Administration [SAMHSA], 2015). Of those children diagnosed with a major depressive episode (MDE), only 35,000 (38.2%) received treatment within one year of being surveyed (SAMHSA, 2015). The rise in depression also correlates with a rise in suicides among this population. Illinois had 1,363 suicide deaths in 2017 and unfortunately it is the leading cause of death in ages 10-14 years and the second leading cause of death in those of age 15-24; and nearly 90% of teens that commit suicide suffer from a mental illness such as depression (American Academy of Child & Adolescent Psychiatry, 2017; American Academy of Pediatrics, 2018). The financial weight of MDEs and suicide on the economic budget in Illinois are concerning and overwhelming. In 2015, the economic burden MEDs have placed on the Illinois budget was quantified at \$8.3 billion (Menchine, Seabury, Heun-Johnson, & Goldman, 2017). This number does not include those diagnosed with other serious mental illnesses such as schizophrenia and bipolar disorders. The financial weight of MDEs and suicide on the economy are felt at state levels. The cost of suicide in 2010 in Illinois was almost \$1.4 million dollars in lifetime medical and work loss expenses (American Foundation for Suicide Prevention, 2017).

A closer examination of Chicago statistics helps illustrate the local need for adolescent depression screens. In a Youth Risk Behavior Survey published by the Centers for Disease Control in 2013, a resounding 32.5% of adolescents in the Chicago area felt sad or hopeless every day for two weeks in a row; and 15.5% of the responding students representing the Chicago area had considered attempting suicide and almost 14% made a suicide plan (Centers for Disease Control and Prevention, 2014). When compared to the overall Illinois attempted suicide rate for adolescents, 18.9% had feelings of ending their life and approximately 17% made a suicide plan (Centers for Disease Control and Prevention, 2014). Since the 1990s adolescent suicide deaths have continued to climb at an alarming rate (Shain, 2016). Suicide among those age 15 to 19 years has increased by 28%, and boys within in this age group are three times as likely to complete a suicide attempt than their female counterparts (Shain, 2016). The ratio of attempted suicides to completed suicides is 50:1 to 100:1 among adolescents (Shain, 2016).

Primary care providers play a large role in the recognition and management of depression and mental health problems with adolescents (O'Brien, Harvey, Howse, Reardon, & Creswell, 2016). However, there is concern among providers and their ability to properly diagnose and treat depressive disorders. It is common to mistake depressive symptoms for physical symptoms because young people present differently with depression than adults (O'Brien et al., 2016). Barriers that hinder a provider's ability to properly assess for depression are: poor skills when identifying depressed patients (especially in children whose symptoms are not severe), time restrictions, and a lack of mental health specialists and resources (O'Brien et al., 2016).

The USPSTF has released recommendations regarding depression screening of teens. The USPSTF states youth age 12 to 18 should be screened, which coincides with the recommendations of the American Academy of Pediatrics' Bright Futures recommendations

(Siu, 2016). The American Academy of Pediatrics' Bright Futures program further states depression screens should be conducted annually (Siu, 2016). The PHQ-2 and PHQ-9 are simple and reliable tools that can be used to evaluate depression in adolescents. The USPSTF recognizes the Patient Health Questionnaire as one of the most studied screening tools, and the sensitivity and specificity of this instrument are highly accurate which is indicative of a reliable tool (Siu, 2016). Siu (2016) states 36%-44% of youth with depression will continue without treatment. This is significant and implies several teens go untreated and undiagnosed. If depression goes untreated due to an absence in recognition of depression this can lead to suicide (Siu, 2016). Statistics indicate nearly 20% of adolescents attempt suicide, which reinforces the need for depression screenings (Siu, 2016).

Depression screening among adolescents aligns with prevention efforts to identify those struggling with depression and contemplating suicide. Without screenings for depression and the ability to initiate a plan of care, these thoughts of self-doubt and sadness have the potential to develop into suicidal ideations (American Academy of Child & Adolescent Psychiatry, 2017). Depression is treatable and without the initiation of proper screening tools for depression, adolescents who suffer from depression will continue to go unnoticed and without proper guidance of available treatment options.

Problem Statement

Continuous improvements are required to keep up with the demands of health care and to continue delivering what health care deems "standards of care" to the community; therefore, process changes are intended for institutions to make progressive steps forward. Community needs assessments and the day-to-day delivery of care set forth an awareness of the depression issues facing the adolescents in the Chicago area. The stakeholders of the pediatric MHU, which

provides healthcare to underserved children in the Chicago area, are aware of the need for a depression screening tool for the adolescent population age 11-22. However, implementing such a screen requires an analysis of the current process and workflow. Such evaluation warrants developing a process change prior to the MHU clinicians implementing the PHQ-2/PHQ-9 depression screening tool (see Appendix A). Depression is on the rise and in 2014 a noticeable 37% increase in prevalence was detected in teenagers (American Academy of Pediatrics, 2016). Depression in adolescents causes emotional hardships, affect activities of daily living, interferes with relationships and social experiences; it can even result in death (American Academy of Pediatrics, 2016). This alarming trend signifies a need for screening interventions. Screening with a validated tool, such as the PHQ-2 and PHQ-9, on a mobile health clinic can help reach underserved adolescents that may be suffering from depression.

Project Aims

The project aim is to enhance patient centered care on a pediatric MHU by developing a standardized workflow for children receiving a physical and assist the MHU clinicians with the implementation of the PHQ-2 and PHQ-9 depression screening tool. The development of an effective standardized workflow will be designed to benefit the MHU clinicians to efficiently transition to a new standard of care. The new process will help ensure the depression screen will be implemented and children receive the care they need. The MHU staff will work more efficiently and feel better prepared to deliver a depression screen, as there can be hesitation to implement due to the sensitivity of the subject. As the MHU clinicians implement the PHQ-2 and PHQ-9 tools as an initial step in screening for depression, this initiative will further develop patient health awareness, lead to further evaluation, and improve emotional health. The objectives for this process improvement project are to: 1) screen 95% of adolescents aged 11-22

for depression that are receiving a physical on the MHU; 2) provide PHQ-2/PHQ-9 and workflow education and training to 100% of the MHU staff; 3) ensure clinician entry of the proper ICD-10 code in the electronic health record (EHR) for 80% of the patients screened; and 4) measure the percentage of PHQ-2 positive screens that generate a PHQ-9 questionnaire.

Clinical question

Establishing a standardized workflow on the MHU is necessary for a new change process to be effective. Adding a depression screen into the workflow of the MHU during patient physicals can create barriers; hence the need for an efficient workflow process. Therefore, the clinical question proposed is: How can clinician workflow on a mobile health unit be standardized to ensure depression screens are performed and documented on children aged 11-22 receiving physicals?

Congruence with Organizational Strategic Plan

The MHU is associated with Norwegian American Hospital (NAH), a long-standing hospital committed to serving the Humboldt Park community in Chicago, IL. The mission statement of NAH (2018) states they will “provide high quality and compassionate health care services by partnering with patients and their families, our employees, physicians, and the communities we serve;” and their vision at NAH “is the hospital of choice for our communities and our caregivers. We are best in class for clinical care, customer service, employee engagement, access to care and stewardship” (“our mission”, para.1; “our vision”, para.2). Implementing an effective workflow process on the MHU correlates with improving quality and safety of patient care. Employee engagement and stewardship among the staff is enhanced when initiatives correlate with the mission and values of the organization. This project assists with serving the community with compassionate, quality health care services, and increases access to

care. The vision of the institution aligns with the initiative of the screening tool and the community it will reach by improving patient care, improving population health of the community it serves, and by reducing costs. In congruence with their strategic goals, NAH is invested in utilizing screening processes to help identify those who are at risk of developing an illness or recognizing those that have an untreated illness.

Synthesis of Evidence

Search strategy. Search databases included Google, Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed, Mobile health map website, and OSF Saint Francis Medical Center literature database. Key words used were: mobile health, mobile clinic, mobile van, underserved, poverty, children, health disparities, patient health questionnaire, PHQ-2, PHQ-9, adolescents, depression, suicide rates, cost of depression, workflow, process change, process improvement, and quality improvement. Nine-teen articles were selected for the synthesis of evidence. Inclusion criteria included the following subjects: quality improvement on mobile health units, supported improvements in health outcomes, depression in adolescents, implementation of PHQ-2 and PHQ-9 screening tool, use of PHQ-2 and PHQ-9 in primary care, and how process change impacts workflow. Articles that did not contain the defined search criteria and were only applicable to adult research were excluded. Articles were not used if they were published more than 6 years ago; therefore, the criterion for published information was limited to 2012 to the current date.

Barriers to screening. Primary care settings appear to be a common setting for recognition and management of adolescent mental health problems; however, it remains underdiagnosed (O'Brien et al., 2016). This phenomenon is mostly in part due to the high number of adolescents seen by a primary care provider; nearly 70% of young people see a

primary care provider yearly and are more likely to discuss this sensitive issue with medical staff instead of a counselor (Diamond et al., 2012). Major medical and psychiatric associations are encouraging and supporting the application of a depression screening tool; even the Joint Commission on Accreditation of Healthcare Organizations is recommending patients be screened for suicide risk (Diamond et al., 2012). Although these recommendations are necessary in health care and are part of preventative measures, many barriers exist when it comes to implementing the use of a depression screening tool. Identification and management of mental health are two barriers that come between primary care providers administering a depression screen (O'Brien et al., 2016). Children present symptoms differently than adults do when it comes to mental health, and many present with physical symptoms making the diagnosis of emotional and behavioral problems difficult (O'Brien et al., 2016). However, with adequate assessment knowledge, providers are five times as likely to screen for mental health problems than those who have a lack of knowledge (Diamond et al., 2012). Another barrier that exists is the lack of access to specialists who manage mental health services (O'Brien et al., 2016). Diagnosing mental health issues in adolescents in the primary care setting is becoming common practice, yet many providers feel their skills in management and knowledge in this area are limited; therefore, having the proper resources available for these patients is needed (O'Brien et al., 2016). Even with appropriate referral, providers indicate minimal feedback from the behavioral health provider, making management and follow up difficult (Diamond et al., 2012). Time and reimbursement from insurance companies are other deterrents to providing mental health exams. Providers feel there are time restrictions when seeing patients which impacts their ability to properly recognize, diagnose, and manage adolescents with mental health issues (O'Brien et al., 2016). Financial concerns are factored into the barrier component when insurance companies are

less than eager to reimburse primary care providers for their services (Diamond et al., 2016; O'Brien et al., 2016). Reimbursement and restrictions applied by insurance companies are reflected by both services provided by the primary care provider and for the referral process; which also impacts the management of these patients (O'Brien et al., 2016). Several barriers exist and imply further research is needed to identify gaps among the different stages from identifying the issue to the referral to a behavioral health specialist (O'Brien et al., 2016). Practitioners have identified their lack of knowledge and training when it comes to properly identifying young people with mental health issues (O'Brien et al., 2016). This reinforces the need to implement an evidence-based screening tool, such as the PHQ-2 and PHQ-9, into practice and provide adequate education, training, and workflow processes.

Process change. Implementation of a new process can bring up many questions regarding interruptions to workflow. Factors such as time restraints, available staff, and cost factors are some barriers to adhering to changes in process (Loeb et al., 2015). Loeb et al. (2015) implemented the PHQ-2 and PHQ-9 in two clinic care settings and the scores were recorded in the electronic health record. Prior to implementation of the PHQ-2 and PHQ-9, clinician education and training was provided, and the process was evaluated (Loeb et al., 2015). This study reiterated the importance of training prior to the implementation of a process change and how it positively affects staff's adherence to the change (Loeb et al., 2015). The staff's comfort level improved in regard to administering the depression screening tool with education provided prior to implementation (Loeb et al., 2015). Change processes that are new can be difficult to follow and sustain long term. This study supports how an innovative process can be implemented and maintains sustainability as long as providers comply with documentation; thus, allowing for success and indicating the usefulness of the process change (Loeb et al., 2015). The

approach to training was intended to communicate practical knowledge of the process of care involved in the implementation of the depression protocol (Loeb et al., 2015). A qualitative study by Olson, Tooman, and Alvarado (2010) evaluated health care teams and the methods used to acquire knowledge. Olson et al. (2010) analyzed three tactics to improve clinical practice by differentiating between “knowing how” and “knowing that” (“Discussion,” para 3). The differentiation between the two refers to the understanding of how to implement a practice change versus understanding that the process change should occur (Olson et al., 2010). Through education and training, how to execute the proposed protocol demonstrated a substantial role in the “knowing how” portion of practice change (Olson et al., 2010). The workflow of this process change was also evaluated. The PHQ-9 was utilized and the EHR technology provided clinical support and allowed the providers to efficiently provide patient care (Loeb et al., 2015). The PHQ-9 screening tool offers a quick option to allow effective screening of depression in patients while easily transitioning into the clinical workflow of the clinic (Loeb et al., 2015).

Screening among adolescents. The USPSTF has recommendation guidelines for screening depression in adolescents (Siu, 2016). Screening adolescents aged 11-18 for major depressive disorder (MDD) is highly suggested as part of provider practices (Siu, 2016). Limited evidence exists suggesting that screenings for depression improve health outcomes; however, depression identified through routine screenings offers benefits and is linked to improved symptoms of depression, severity, and performance scores (Siu, 2016). These findings suggest with early screening and interventions related to MDD, future impact on the adult mental health outcomes could be limited (Bhatta, Dimmitt Champion, Young, & Loika, 2018). In a cross-sectional study evaluating depression screens in family/pediatric practices, the documented depression screening rate was 0.2% (Zenlea, Milliren, Mednick, & Rhodes, 2015). Although

90% of pediatricians feel they should be responsible for identifying depression, several barriers prevent them from performing routine screenings which include: time, lack of training, inadequate mental health providers to refer to, and inadequate reimbursement (Zenlea et al., 2015). Implementing a tool such as the PHQ-2/PHQ-9 is simple, effective, and an inexpensive way to screen for depression (Zenlea et al., 2015). Primary providers are instrumental in identifying depression and can establish a trusting relationship with their patients, which can lead to open discussions about depression. Nearly 70% of adolescents who are depressed do not discuss their feelings with their care provider; despite the prevalence of depressed adolescents of 9%-20% in primary care settings (Bhatta et al., 2018; Taliaferro et al., 2013). Providers often rely on presenting symptoms or verbal expression from parental concerns before investigating depression; therefore, reinforcing the importance of a screening tool to improve identification of depression in adolescents (Bhatta et al., 2018; Taliaferro et al., 2013; Williams, O'Connor, Eder, & Whitlock, 2009).

Increasing healthcare access. Mobile clinics possess a unique ability of providing access to health care where standard stand-alone health care buildings cannot. The services provided are convenient and commonly respond to the needs of the community it serves. A major aspect and principal concentration of a mobile health unit is their ability to deliver care to those who in areas that are disconnected from traditional health care facilities (Abbasi, Mohajer, & Samouei, 2016). Since the initiation of the Affordable Care Act in 2010, the goal was to increase the number of those insured. After the initial enactment of the Affordable Care Act the number of uninsured decreased from 44 million in 2013 to 28 million in 2016 (The Henry J. Kaiser Family Foundation, 2018). However, there is still a need for improving access to health care in rural and urban areas. The need for community outreach is significant and many barriers to reach

health care services are complicated by transportation issues, insurance status and requirements, financial costs, and the lack of understanding of the health care system (Hill et al., 2014). The services they provide vary based on the community needs but are not limited to primary care, dental care, mental health, women and children's services, among a diversity of other specialty services (Hill et al., 2014). To provide better access to care, mobile units work with community services and surrounding health care agencies to provide care to these populations. Robinson et al. (2017) investigated the impact of those who have fractionated access to care in rural and urban communities and compared the differences among health care, family, and community factors associated with mental, behavioral, and developmental disorders (MBDD) in young children. A public health action is required in these circumstances to include collaborative health care and community services to address these segmented services and offer support for children who have a MBDD (Robinson et al., 2017). Mobile units can bridge the gaps associated with the pitfalls linked to the lack of access to health care services by accessing and initiating collaborative efforts with local connections that can be of assistance. In many circumstances, there is a lack of knowledge regarding behavioral needs and options available for management, lack of financial income, and community separation among vulnerable populations in rural areas (Robinson et al., 2017). Robinson et al. (2017) suggest collaboration with early learning and parent support programs, community health programs, and financial assistance programs can encourage healthy development in children of rural communities. Linking families with behavioral health resources and socially developmental opportunities within the community can present treatment opportunities (Robinson et al., 2017). In addition to the capabilities of a mobile clinic reaching those who are underserved and are fractionated from accessible health care, mobile clinics also offer strategic means of collaborating with other services that will help

those in need, provide a convenience in logistical tactics and reach those where they live, work, and play, and build a trusting relationship with those in the community which inspires those who are vulnerable to take charge of their own health (Robinson et al., 2017).

Improving health outcomes. The progression of health care has developed into a reform that places an emphasis on preventative care and screening clinics with a focus on urban and rural low-income communities. Mobile clinics have been found to initiate such programs and in return have diagnosed life-threatening diseases early (U.S. Department of Health and Human Services Office of Minority Health [OMH], 2013). Their value is placed with screening programs and with initiating preventative care, management of chronic disease, and promotion of self-efficacy (OMH, 2013). A mobile health clinic located in Boston, MA, The Family Van, set out to reach low-income individuals and screen clients for blood pressure, glucose, and cholesterol levels (Hill et al., 2012). This screening process brought forth some valuable information about their clients and those who live in underserved areas. Roughly 60% of their clients had undetected elevated blood pressure, 14% had undiagnosed increased blood glucose, and 38% had elevated cholesterol levels that not been previously checked (Hill et al., 2012). Other key findings were the rates of visits between men and women were very similar; however, undetected hypertension and elevated blood glucose was more common in men than the women that visited the clinic, and although most of the clients possessed health insurance, this information is suggestive that access to care does not just apply to those who do not have insurance (Hill et al., 2012). An important takeaway from this study reflects the mobile health clinics ability to assist those who require health management, health coaching, and monitoring of potentially chronic illnesses (Hill et al., 2012). Song et al. (2013) conducted a study that similarly depicts the effectiveness of chronic disease management. The Family Van

organization, associated with Harvard Medical School, evaluated 5900 patients who presented with hypertension (Song et al., 2013). The patients who participated in the study demonstrated an average decrease in systolic blood pressure by 10.7 mmHg and a decrease diastolic blood pressure by 6.2 mmHg after education was reinforced and monitoring and follow up was encouraged (Song et al., 2013). Song et al. (2013) demonstrated the significance of these numbers by associating the decreased risks of myocardial infarction and stroke by 32.2% and 44.6% respectively. Similarly, another mobile screening program in New Mexico, HABITS for Life, monitored patients by screening body mass index (BMI), cholesterol, and retinography screens (Brown-Connolly, Concha, & English, 2014). The HABITS for Life program proved successful by lowering client's cholesterol levels significantly after four visits over the course of nine months (Brown-Connolly et al., 2014).

Limited research was found with a focus on pediatrics and mental health in mobile clinic settings. No evidence was found regarding studies of implementing a mental health screening tool to assess adolescent depression in a mobile health setting. This synthesis of evidence outlines the benefits of planning for a process change for effective and efficient workflow, the PHQ-2/PHQ-9 depression screening tool, mobile health units, and their impact on communities and their assistance in improving health outcomes. The U.S. healthcare system is transforming the way it delivers care to modify health care delivery and improve health outcomes. Mobile health clinics have a significant role in the healthcare delivery system. These clinics can reach vulnerable populations and provide deliverable services that operate on all levels of care and specifically focus on the needs of the community (Yu, Hill, Ricks, Bennet, & Oriol, 2017). Management of chronic illness, promotion of preventive health through screening processes, and assessing the needs of the community by targeting those needs to improve the overall outcomes

of health is the goal of creating access to care (Yu et al., 2017). Mobile units create a trusting relationship with the community and partner with surrounding facilities as resources to help assist those who need referrals (Yu et al., 2017). The impact of mobile health clinics on health care costs is significant (Yu et al., 2017). The ability to deliver affordable healthcare and positively impact health care costs is another capability of these units (Yu et al., 2017).

Theoretical Framework

The theoretical framework that served as a guide in this change process, including the MHU's implementation of the PHQ-2 and PHQ-9 depression screening tool, is Lewin's Change Theory. A major aspect of this theory is the concept that practice change has three major concepts: driving forces, restraining forces, and equilibrium (Nursing Theory, 2016). These driving forces push the change to occur, shift the equilibrium towards the change, and evaluates the opposing forces that resist change. For the change to occur there are three stages in this theory: unfreezing, change, and refreezing (Nursing Theory, 2016). The unfreezing stage assesses the need for change (Mitchell, 2013). This applies to the need to implement standardized workflow to successfully integrate the depression screening into practice. The second stage, moving, indicates the movement of the process change and the understanding of how the new change will benefit patient care and the delivery of care on the MHU (Mitchell, 2013). The final stage, refreeze, involves embracing the new change and establishing a solid change in process.

Chapter II: Methodology

Needs Assessment

The USPSTF and the American Academy of Pediatrics' Bright Futures strongly recommends screening youth for depression (Siu, 2016). Currently the MHU does not utilize a

depression screening tool; thus, the need for an implementation of a standardized workflow to integrate the practice change is highly essential as depression signs and symptoms may not be recognized and needs of children will go untreated. A basic needs assessment was completed using feedback from key stakeholders on the MHU. Results showed that while providers are aware of the need for screening, they worry about how they will ensure the young person receives adequate care. Additionally, there is some staff resistance due to the lack of knowledge regarding how to incorporate new state laws into plans of care. Because of this resistance, staff education and a clear process for implementation is recommended. Stakeholders involved with the MHU discussed the barriers regarding a change in process and applying the standard of care of implementing a depression screening tool. The current process of conducting a mental health exam is limited but is included in the HEADSS assessment. The HEADSS assessment is an acronym that stands for Home, Education, Activities/Employment, Drugs, Suicidality, and Sex (Katzenellenbogen, 2005). The HEADSS assessment has been adapted over the past few years to include two additional areas of assessment. The new HEEADSS acronym includes eating and safety to the assessment (Klein, Goldenring, & Adelman, 2014). As one of the MHU stakeholders pointed out, the assessment can be useful because it asks open ended questions; which can develop into conversation and reveal issues or risky behaviors. The lack of standardization of the exam among providers and absence of an algorithm plays into the downfall of the HEADSS assessment. Additionally, the current process minimizes who can perform the assessment; currently only the nurse practitioner can conduct the assessment. No tracking process exists to indicate the assessment was done except to track manually. Furthermore, a score cannot be calculated to indicate next steps or need for a referral. The current process of screening adolescents for depression is suboptimal and indicates a need for

change. Implementing a process change will allow the MHU clinicians to adapt to the standard of care recommended by the USPSTF.

The MHU recently transitioned to an electronic health record, Athena, in October of 2017 which contains the PHQ-2 and PHQ-9 screening tools. The depression screening tool has not been utilized and streamlined into the MHU's standard of care for several reasons. Process changes are personnel driven and man power is required to continue the changes and maintain sustainability. The MHU has a small team consisting of a medical assistant, nurse practitioner, one student (nurse practitioner or medical resident), and a driver. When members are on a leave of absence or if personnel are absent for lengthy periods it is difficult to implement and optimize changes. With the implementation of Athena, this program can help influence and ease the transition of changes in process as they are implemented.

When participating in community work and administering health care to a diverse population multiple obstacles are encountered, which may include health disparities and health issues that were not recognized as issues before. As awareness increases regarding health issues within a community or specific population, the usefulness of screening tools become clear on their importance in the way health care is delivered. Uncertainty regarding supportive infrastructure and resources are additional reasons for not using the screening tool. If a patient screens positive, it is necessary to have a referral process in place and resources available. The stakeholders are concerned about this step and what do to if a patient screens positive. Ethical dilemmas arise due to the mental health law and disclosing minor mental health information. Illinois Mental Health Law states the following:

Any minor 12 years or older may request and receive counseling services or psychotherapy on an outpatient basis without the consent of the minor's parent or

guardian. The minor's parents shall not be informed without the consent of the minor unless the facility director believes such disclosure is necessary (Coalition of Illinois Counselor Organizations, 2018, "Mental Health Treatment- Outpatient," para. 12).

The process of mental health screening can be sensitive and raise apprehension with those administering the screen and those being screened. This reinforces the need for a process change and the development of an established strategy when providing patient care to the depressed adolescent.

Knowledge about the PHQ2 and PHQ-9 screening tool is limited on the MHU, but the stakeholders are aware of the benefits the tool offers. A providing nurse practitioner (NP) on the MHU has encountered the PHQ2 screening tool at another facility, but not the PHQ9. The current placement of the PHQ2 and PHQ-9 scale is in the intake portion of the EHR and can be located under "screenings". The medical assistants utilize the intake portion, whereas the NPs do not. Concerns regarding a new process change also include the impact on workflow. The PHQ2 and PHQ-9 screening tool is quick to administer and process a score. The screening tool already embedded in the EHR automatically calculates the score and provides a scoring guide to help determine the need for intervention. With the PHQ2 and PHQ-9 already in the EHR the transition to a new process change should be attainable with minimal interruption to the daily workflow of the MHU.

Project Design

The project design chosen for this process change is based on the need for quality improvement and transforming the current practice and delivery of care on the MHU. Currently the MHU does not have a standard process of screening adolescents for depression. Use of the current HEADSS assessment as the only screening for depression is suboptimal. Standardizing

the MHU's process of delivering a depression screening tool will help identify adolescents at risk for depression, increase awareness of adolescent depression among clinicians, and facilitate intervention methods using Lewin's Change Theory. Developing a process improvement will effectively allow for the MHU clinicians to efficiently implement the PHQ-2 and PHQ-9 depression screening tools. Assisting the clinicians on the MHU transition their workflow to utilizing the PHQ2/9 depression screening tool will facilitate a standard of care. The new standard of care will help identify adolescents who screen positive and need a proper referral.

Setting

The MHU services low-income communities located on the west side of Chicago, IL and annually serves 2500 children. The zip codes located within this area and serviced by the pediatric mobile unit are: 60612, 60618, 60624, 60639, 60647, and 60651. The Norwegian American Hospital is located in the 60622-zip code which serves this population and is affiliated with the MHU. The MHU offers screenings and educational opportunities to children who live near or below the poverty level. Specifically, the MHU delivers sports physicals, immunizations, hearing/vision screenings, and lead/hemoglobin screenings. The MHU has two clinical rooms where health care providers can provide care to children who have barriers to health care access. At any given time when the MHU is in operation a NP, medical assistant (MA), driver, and student (NP or medical resident) are active on the MHU. The goal is to have at least three qualified persons on the MHU when in operation. The MHU team starts their day at 8 a.m. and are usually parked at the site and ready for services by 8:30-8:45 a.m. The safety of the students is always in mind; therefore, the MHU is always parked in a safe location for the student to reach safely. The MHU visits 80-100 sites and some are visited one a year while others are visited multiple times a year. On average the MHU clinicians complete 1400 school

physicals, 220 sports physicals, and provides 3500 vaccinations annually. These sites range from day cares, elementary schools, high schools, and alternative schools, and other various places such as health fairs. The MHU's schedule can vary week to week. At the beginning of the school year, schools are sent a consent packet. The consents are sent home and signed by the legal guardian, which allows the MHU clinicians to treat the patient. These consents are valid for the remainder of the school year. The schools' administrators contact the MHU directly if they require medical assistance for students who are non-compliant with vaccinations, need vaccinations, or those who require sports or school physicals. Appointments are scheduled one to two months out upon initial request. To ensure delivery of care, reminders are sent to the schools via email at one month and again at two weeks before the visit. Prior to the visit, the MHU staff retrieves the signed consent packets. A minimum of 15 consents are needed to retain the visit or it will be cancelled. The main goal of the MHU is to see those who require health care and to capture those who are non-compliant (i.e. immunizations, physicals) and provide education regarding weight management and sexual education (i.e. provide HPV series and condoms).

Participants

Participants involved in this process improvement are the clinicians who serve on the MHU. The team consists of a MA, a NP, and a student (nurse practitioner or medical resident). A total of four participants were included in this process improvement. Their involvement in the quality improvement project will ensure a change in the standard of care provided to the patients who are seen on the MHU.

Tools

A post-implementation survey (see Appendix B) designed by myself and the MHU director will be distributed at the end of the project to evaluate staff's understanding of the PHQ-2 and PHQ-9 and to assess the effectiveness of the process change. This anonymous and voluntary survey, approved by the Bradley University Committee on Human Subject Research, was designed to adequately determine how prepared the staff felt prior to and during the implementation phase; in addition to their confidence in delivering the PHQ-2 and PHQ-9 screening tool. The survey also evaluates the staff's opinions on the process change and the impact on their workflow. The MHU director is responsible for distribution and collection of the paper post-implementation survey to all MHU employees.

Project Plan

Education. Prior to the process change, staff on the MHU received training on the importance of depression screenings and how to plan for the implementation of the new workflow. Education was provided to the nurse practitioners, medical assistant, and medical resident regarding how to utilize, understand, and respond to the PHQ-2 and PHQ-9 depression-screening tool. Education to the director, one MA, and lead NP was delivered on-site at the main office in Chicago, IL on May 15, 2018. An outline of the education and training is provided in Appendix C. A part-time NP and medical resident were not present at the time education was given. Individualized education was provided to the medical resident while on the MHU the following day and an email was sent to the NP who works part-time. Any questions the medical resident had at time were addressed. An email of the outlined education with specific detail was provided to the NP who was unable to attend. A week later, a follow up email to the NP was sent to ensure thorough understanding of the new process. Education included the background and significance of depression and how it impacts adolescents as well as detailed information on

the importance of the depression screen, why the MHU is implementing this process change, specifics of the PHQ-2 and PHQ-9 depression screening tool, when to provide the screen, who will receive the screen, and how to interpret the score. Lastly, documentation was reviewed and a live presentation on how to document the PHQ-2 and PHQ-9 was available for demonstration. A computer with Athena was available to demonstrate the ease of administering the PHQ-2 and PHQ-9 to employees.

Current process. During a routine visit the MHU operates with a medical assistant (MA), nurse practitioner (NP), a student (NP student or medical resident), and a driver when providing healthcare to the community. The current process begins when the MHU arrives at the designated site and the van will park in a designated area. The nurse practitioner will enter the building and give a list of students who need to be seen that day and a walkie talkie to the contact person at the school. The school calls the students down two at a time. The MHU will radio in when they are ready to start accepting the students via a walkie-talkie. The students proceed to the MHU to be checked in for the services they need. The MA will escort the student back to the patient room and verify name, date of birth, and obtain a set of vital signs and enter the data into the EHR. At this time the MA will inquire about recent immunizations in the past month, if they have allergies to food or medications, update any current medications the patient might be taking, if they have had a fever within the past 24 hours, and if they are pregnant. Once the MA has completed the patient's assessment, the patient waits in the common area until the NP is ready to see the patient. The NP then conducts their assessment and plan based on the needs of the patient. If the patient required a vaccine at the time of the exam, they will be required to stay for an additional 10 minutes to assure no adverse effects. Once cleared, the patient will receive a

copy of their record. A second copy will be obtained with pertinent information required for school records and will be delivered to the school by the end of the day.

Process change. The new process will include initiating the PHQ2 depression screening tool during the intake portion of the exam. When the MA is taking vital signs on the patient and asking preliminary questions (allergies, medications, vaccination questions, etc.), the MA will also complete a PHQ2 in the EHR as part of the final step in the intake process. The patient will be escorted to a separate room with the door closed and allowed to confidentially answer the questions to ensure a level of privacy. The patient does not have to answer the questions, or they can stop answering the questions at any time if they do not feel comfortable. If the PHQ2 score is positive, the PHQ9 will be triggered and the additional questions will generate and allow the patient to answer the remaining questions if they choose to. Once the patient has finished the screen, the MA will escort the patient back to the common area. If the patient primarily speaks Spanish and requires an interpreter, the MA and one of the MHU drivers, who both speak fluent Spanish, can provide translation. Finally, the NP reviews the intake summary and will review results from the PHQ2/9 at that time.

Timeline. This project was implemented during a 3-week period in the summer of 2018. Education was provided prior to implementation on May 15, 2018. Education regarding the need for the process change, why the process change is being implemented, and the process for implementing the screening was discussed. A post-survey was given to MHU employees at the end of the process change on June 19, 2018. Informal weekly check-ins with staff were conducted to assess feedback on the effectiveness of the change process and workflow. The following information was collected and placed in an Excel spreadsheet: number of patients seen in a day, unidentifiable patient code, if the screen was conducted or not (yes/no), documentation

of ICD10 code pertinent to the screening (yes/no), and if PHQ-9 was completed after a positive PHQ-2 screen (yes/no).

Measured outcomes:

The following outcomes were measured for the process change:

- Measure the percentage of patients age 11-21 receiving a school physical exam/ sports physical exam that have a PHQ2 completed over the total number of patients age 11-21 who received a physical/sports exam and did not receive a PHQ2 depression screen.
- Of the patients receiving a sports or school physical, 80% of the patients will have an ICD10 code for depression screen applied to their chart by the nurse practitioner.
- Of the patients age 11-21 who received a sports or school physical and had a positive PHQ2 screen, 80% will receive a PHQ9 screening tool.
- Measure the number of total patients served aged 11-21 compared to eligible patients that received the depression screening.

Procedures for data collection. I was granted read-only access to Norwegian American Hospital's (NAH) electronic health record, restricted to only patients seen on the Mobile Health Unit. The data was extracted from the Athena electronic health record. I read and signed NAHs Confidentiality Statement and Informational Systems statement. The charts of patients that received a school or sports physical between May 25, 2018 and June 22, 2018 were reviewed. The data was entered into a password protected Excel spreadsheet on a password-protected computer, known only by the MHU director and me, and kept in a secured location. Confidentiality of the patients was secured with a numeric code and neither name nor date of birth was recorded. The data file was saved in a Microsoft Excel spreadsheet and analyzed using quantitative descriptive analysis such as line graphs, frequencies, or run charts.

Post-implementation surveys were sent via email to the MHU director for distribution to the MHU staff in which they were instructed to complete them at the end of the implementation phase on June 19. To maintain anonymity, the MHU staff scanned their surveys and sent them to the MHU director, and then the anonymous surveys were forwarded to myself on a password-protected computer to a password-protected email account. The survey assessed the MHU clinician's knowledge and comfort level of administering the PHQ-2 and PHQ-9. The survey also contained a process evaluation regarding the ease of use for the staff and impact of the new process change on the daily workflow. The survey consisted of five multiple choice questions and three short answer questions. The answers to the surveys were assigned a number: strongly agree= 1, agree= 2, neither disagree or agree= 3, disagree= 4, and strongly disagree= 5. These results were placed into an Excel spreadsheet and analyzed using quantitative descriptive statistics and qualitative analysis for short answer responses.

Sustainability plan. A change in process in health care is implemented for reasons to improve standard of care. Sustainability is important in health care and allows for progress and advancements in patient care with continual assessment of operations through data collection and generated reports. Establishing effective and efficient routine workflow is a valuable assessment when a new process is implemented. Interruptions and disorganized processes can negatively impact the sustainability of the implemented process change. Staff input during this process will be valuable in maintaining consistency, effectiveness of collecting data, and assuring patients are screened. Evaluating intended outcomes is encouraged; therefore, evaluation of interventions will be needed to maintain the effectiveness of the project. This change in process is necessary and positively affects the standard of care provided on the MHU. Continuity and maintenance of the process is vital to improving patient outcomes. The MHU director will continue to assess

data monthly, similar to the data collected for this quality improvement project, to evaluate the continued success of the project. The MHU director can obtain reports on patient rates of depression as needed. The current process involves manual data retraction, therefore, consultants with IT will be arranged to determine feasibility of running reports from the Athena database.

Data Analysis

Data analysis was conducted using the Athena electronic health record and transferring the collected data into an Excel spreadsheet to calculate statistic data. Frequency tables were used to break down characteristics of the data collected regarding how many screens were conducted, how any positive PHQ2 screens generated a PHQ9, and documentation of ICD10 coding. Data pertaining to the outcomes were extracted, used as input, and calculated to obtain quantitative data. The post-implementation survey was also reviewed and analyzed. The post-implementation survey consisted of 5 multiple-choice questions and a short answer section. The multiple-choice answers had assigned qualitative values and were utilized to calculate the percentage of each question answered. Additionally, responses to the short answer questions were organized and analyzed to identify themes or patterns to seek understanding about the process change.

Ethical Issues

Ethical aspects with regards to the process change will ensure confidentiality, privacy, and protection of participants' rights and welfare. Adolescents screened for depression should be aware of their protection of rights and the confidentiality of the assessment. The Mental Health Law, as it applies to minors, allows for any minor 12 years and older to independently decide if they would like to participate in counseling services without parental consent (Coalition of Illinois Counselor Organizations, 2018, para 12). If a minor chooses to undergo counseling the

parent or guardian is not allowed to be notified unless permission is granted by the minor. When referral is indicated, this can complicate ethical boundaries. Staff voiced an ethical dilemma when the patient screens at a moderate risk but does not want to tell the parent. It is important to maintain confidentiality and respect the minor's decision; however, in the event there is a compelling reason (harm to self or others) to share the information the guardian will be notified.

Institutional Review Board

This project was reviewed and received Institutional Review Board approval from Bradley University Committee on the Use of Human Subjects in Research (CUHSR). Level of determination was approved based on expeditable level under Category 5 and includes waiver of informed consent (see Appendix D). Additionally, the post-implementation survey was reviewed and received CUHSR approval based on exempt level under Category 2. Participation in the post-implementation survey is anonymous and voluntary and participants could discontinue the survey at any time. No identifiable personal information will be collected to ensure confidentiality (see Appendix E).

Chapter III: Organizational Assessment & Cost Effectiveness Analysis

The MHU is associated with a small safety net hospital with minimal resources. Currently the MHU has a high volume due to the need for access and healthcare services in the areas they serve. Due to the size of the MHU, the assembled healthcare team will be small; however, the size of the team will help with the ease of implementation of the change process. The MHU is led by a nurse practitioner with process change experience and will be a strong resource to staff that have not been involved in process change. The MHU director is supportive of this project and will be instrumental in staff engagement and change management.

Stakeholders have indicated a willingness to change due to the need for depression screening in the areas they serve.

I will be working closely with the MHU director to facilitate the overall acceptance and functionality of implementing the quality improvement project. Interprofessional collaboration among the MHU team including one MA, NPs, students (NP and medical resident) , and the MHU director, facilitates effective team work and optimizes patient outcomes. Utilizing one another's abilities and skills and working effectively as a team will help improve health outcomes.

Barriers and facilitators to implementation. Process changes can impact workflow and daily organizational processes that occur on the MHU. Barriers can be foreseen, and others will be determined as the project is carried out. Adjusting to a new workflow can create limitations. A barrier to consider as the MHU clinicians implement a new screening tool is increased time away from class for the student. With the addition of the PHQ-2 and PHQ-9 screens this could add additional time to the appointment and ultimately increase the amount of time the patient is out of class. When administering the depression screening tool and adjusting to a change in workflow, staff may feel uncomfortable with this change; thus, screens could be missed. Variability in scheduling can also impact the implementation process. Schedules can fluctuate based on the number of consents obtained from the schools that are visited daily. Reduction in patient flow would also impact the data collected and would limit the number of screens conducted. Also, a lack of patients could impede the staff from becoming more familiar with the new workflow. Consideration will be made to adjusting criteria and allowing patients other than those receiving their school or sports physical who may be involved in the study. Other barriers to consider are in regard to the functionality and maintenance of the MHU. Incidences can occur

that would impact the ability of the MHU to run effectively. If the MHU is inoperable, the ability to reach and see patients is unattainable.

Influencing the success of the project is the lead NP and MHU director that have been involved in previous successful projects implemented on the MHU. Their experience will help with the transition of the change in workflow and implementation of a new process. Compliance from the staff and appropriate education, developed in collaboration with the MHU director, prior to implementation is vital to making this process change a success.

Cost Factors

Cost factors relating to this project are minimal and non-restraining. The PHQ-2 and PHQ-9 screening system is already imbedded in the Athena electronic health record which will eliminate the cost of purchase and installation of this screening tool. Budget considerations will primarily be invested in time involving education with the MHU staff, rather than actual monies. Factors implicated in the budget would include education time for the depression screen and new workflow management. When considering time into the budget it is necessary to look at additional time needed to deliver the screening tool to patients. This will be further evaluated as the project continues. There will be consideration in improving the process if the estimated five-minute screening time causes impediment in the flow of patients.

Potential cost savings are associated with early identification of mental health issues. However, the goal of this project is to establish a process for adolescent depression screening in the workflow on the MHU and identify those that need mental health services; it is not focused on the treating and management of depression. When an adolescent screen is positive on the PHQ-9, utilization of resources and clinical judgement will be the responsibility of the NP.

Chapter IV: Results

Outcomes

Analysis of the implementation process. Implementation of the process change on the MHU required fulfillment of many obligations prior to and during the implementation phase. First, an Institutional Review Board (IRB) application was completed and submitted to the Committee on the Use of Human Subjects in Research (CUHSR) located at Bradley University. A detailed description of the process change was required for IRB submission. Details regarding those involved in the process change, anonymity of the participants, and data collection processes were explained in the submission required. In addition, participant questionnaires were developed for assessment of overall project effectiveness to be handed out post-implementation. Submission of questionnaires and a detailed description of the implementation process was submitted for IRB approval. IRB approval was received in June 2018 (Appendix D).

Prior to implementing the process change, education was provided to staff on the MHU. This presentation included background significance of depression, the PHQ-2/PHQ-9 depression screening tool, and the process of implementation into the staff's workflow. The presentation also discussed where the staff would locate and document the depression screens in the EHR. A computer was provided to allow staff to view the location of the depression screening tool and how to use it in the EHR. The PHQ-2/PHQ-9 was utilized by the MHU clinicians and delivered to patients aged 11 to 21 receiving a school or sport physical. The PHQ-2 was delivered first to the patient and if the score was 3 or greater, the PHQ-9 was triggered and the remaining questions were asked to the patient. If the score was greater than 3 on the PHQ-9, further discussions with the patient were initiated at the discretion of the provider.

During the implementation phase, weekly communication via email or phone conversations were conducted. The lead APN provided feedback using a Plus/Delta assessment technique and weekly phone conversations were conducted with the MA. A Plus/Delta assessment is an evaluation that allows for input regarding a new process and allows identification for improvements to be mentioned (IGI Global, 2018). Areas that are a success are identified in the plus section; while the delta section allows for discussion of areas that need improvement (IGI Global, 2018). The weekly communications were necessary to evaluate what was working well and where changes would be needed. Post-implementation surveys (see Appendix B) were provided to the MHU staff involved in the process change. Post-implementation surveys evaluated the effectiveness of the process and the staff's comfort level of administering the depression screening tool. The feedback provided in the post-implementation survey was positive overall. The change in practice was met with positivity and was an opportune time to implement a much-needed screening. With the screening tool already built into Athena, the transition of use and delivery of the depression screening tool was effortless. The staff felt the criteria for screening patients was straightforward and allowed staff to easily recognize those who qualified for the depression screens.

A barrier the MHU staff noted was if the MA, who is Spanish speaking, was not on the van to interpret the screening tool. As a temporary solution, the questions were translated from English to Spanish and printed out for staff to use if the MA or driver was not present on the van. The MHU clinicians treat many patients that do not speak English or Spanish as their first language. A permanent solution for translating languages for the spectrum of care provided to the diverse population served will have to be explored.

Another barrier indicated in the open answer portion of the post-implementation survey was having access to behavioral health resources for the patients. The MHU director is currently reviewing this process and a list of resources is being compiled and organized. The first question, “little interest or pleasure in doing things,” on the PHQ2 seemed to have produced some difficulty for patients to answer. Staff felt they had to interpret the question for the patients, and it was felt this may have inadvertently introduced bias and influenced the way the patient answered the question. Staff also suggested that the patients may feel more comfortable answering the questions if they were able to read and answer the questions independently. Some patients appeared uncomfortable answering the questions aloud. Staff felt these patients would appreciate more privacy when answering the questions and questioned if a paper questionnaire would be more appropriate. A solution to this scenario would be to have the PHQ-2 and available in paper form on the MHU. This will allow the patients who are uncomfortable with the verbal screen to privately answer the questions. The NP or MA will then manually enter the answers immediately into the EHR to ensure the PHQ-9 is triggered if necessary. The PHQ-9 would also be available in paper form for use when needed.

The project’s original intention was to evaluate the scores of PHQ-2/PHQ-9 and assess the prevalence of depression in the schools where the MHU provides services. Due to IRB requirements and the inability to obtain consent from minors, time constraints, and parental absence during school hours, the project was redirected to a process improvement project. A pre-implementation survey was also originally part of the project. The purpose of the pre-implementation survey was to measure and establish a pre-assessment of the staff’s knowledge about PHQ2/PHQ9 depression screening tool, the staff’s comfort level of screening adolescents for depression, if the staff feels depression is an issue in the adolescent population they serve,

and how the staff feels about incorporating a quick depression screening tool into their workflow. The data collected from the pre-implementation survey would have been used to compare with the post-implementation survey results to assess the effectiveness of the education provided and the project. The pre-implementation survey was eliminated due to the initiation of the process change prior to IRB approval. The implementation was time sensitive because the Chicago schools were dismissing for the summer soon and there would be a limited number of students needing services. Without a pre-implementation survey the effectiveness of the education that was provided and assessment of staff's knowledge about the PHQ-2/PHQ-9 depression screening tool was unable to be measured.

An additional change during implementation was the MA did not always conduct the PHQ-2. At times the NP would conduct the PHQ-2 if the MA was busy with another patient. This occurred to maintain a continued flow of patients and mitigate patient back up. If a PHQ-9 was triggered, the NP or MA would write a note in the EHR regarding any issues with the patient that could be addressed. If the MA wrote a note in the chart, the NP was able to see this note and she could address any issues. There were some scenarios in which the patient screened less than 3 but had indicators that may need to be addressed in the future. For example, some patients would express how they are bullied in school and how upsetting this was for them; however, the PHQ-2 score was less than three. In another situation, a patient was questioning their sexual identity but did not want to discuss it further. The staff respected the privacy of the patients and their autonomy when they encountered these situations. No further investigations were made when patients did not feel comfortable discussing their feelings; however, a note was made in the EHR to identify these situations.

Analysis of project outcome data. The total number of patients served over the project period of two and a half weeks was 160. Of the 160 patients, 76% (n=123) of those patients were qualified based on their age; however, only 47% (n=58) qualified to be screened for depression. A majority of the eligible patients, 65% (n=38), were patients who required school physicals and 34% (n=20) were patients who required a sports physical (see Table 1).

Table 1

Patients Who Qualified for PHQ-2

Total Patient Encounters	Total Patients who Qualified Based on Age	Total Patients who met criteria for PHQ-2 screen	School Physicals Conducted	Sports Physicals Conducted
160	123	47% (n=58)	65% (n=38)	34%(n=20)

Table 1 Depicts total patients encountered, those who qualified for the depression screen, and how many were receiving school and sport physicals.

The primary goal of this process change was to establish a primary depression screening tool and incorporate the implementation of the screening tool into the workflow on the MHU that was effective, efficient, and convenient. Initiating a process change that has little impact on the workflow can promote compliance and adherence to the change. In addition to the process change, the awareness of depression in adolescents could be recognized and further consequences of a missed diagnosis could be mitigated. Research, along with recommendations from the USPSTF, provides supporting evidence of conducting depression screenings within this population of adolescents. Establishing an effective workflow on the MHU while implementing the depression screening tool will establish a consistent process, increase the awareness of those who are at risk, and meet compliance standards with the recommendations provided by the USPSTF. Each patient, age 11-21 years, was screened during their school or sport physical. The PHQ-2 was presented during the intake portion of the visit by either the MA or NP and if the

score was great than three, the PHQ-9 was triggered and those questions were then asked. The patient does have the option to not answer the questions if they so choose. Once the patient was with the NP, the results were reviewed, and follow-up was provided as indicated (see Table 2).

Table 2

Objectives, Goals, and Outcomes

Objective	Goal	Outcome	How will this data be used?
Measure the percentage of patients age 11-21 receiving a school/sports physical exam who have the PHQ2 completed over the total number who fit the criteria and are not screened with the PHQ2	All patients who meet the criteria will be screened with the PHQ2	98%	To help determine the compliance of delivering the depression screen to those who meet criteria
Measure those who fit the criteria have the proper ICD 10 code applied by the nurse practitioner.	80% of the patients screened will have the ICD 10 code applied by the nurse practitioner	100%	To help provide specific and thorough coding and verify that the depression screen is being conducted and reviewed
Measure those who triggered the PHQ9 (PHQ2 ≥ 3) and had PHQ9 successfully completed.	80% of the patients who screen positive on the PHQ2 (a score ≥ 3) will receive the PHQ9	100%	Measure the compliance of staff with carrying out the tool as designed and Identify those patients who are scoring higher on the depression tool and may require intervention
Measure the number of total patients served aged 11-21 compared to eligible patients that received	N/A	Number of patients served age 11-21: n= 123 (76.8%)	To determine if the screen should be expanded to all patients served aged 11-21 regardless of

<p>the depression screening.</p>		<p>Patients who qualified n=58 (47%)</p> <p>Patients who qualified based on age but did not receive a sport or school physical n=65 (52.8%)</p>	<p>care or service needed</p>
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Table 2 Objectives and data outcome results

After the data was analyzed, it was noted that one patient was not screened who did meet the criteria for the depression screening tool. This was due to the initiation of the new process and it was a minor lapse in recall that a new process was in effect. All patients' charts were coded appropriately with the correlating ICD 10 code. This helped verify that the depression screen was being conducted and reviewed by staff. All of those who screened positive on the PHQ2 also triggered the PHQ9. This analysis helped measure the compliance of the staff and identify those patients who are scoring high and may require intervention. The percentage of patients who qualified for a depression screen based on age but who were not receiving a physical was 52.8%. This number is valuable because it can be used to determine if the screen should be expanded to all patients served age 11-21 regardless of care or service needed. The MHU director may need to explore if adding a depression screen and potentially uncovering patients that need mental health services outweighs the potential addition of time to workflow. Patients age 11-21 who were included in the 52.8% of those not screened were those who were receiving vaccinations. Patients who use the MHU for vaccinations are involved in a different workflow process; however, minimal adjustments would need to be made to add in the depression screening tool.

A post implementation survey (see Appendix B) was administered at the end of the process change implementation time frame. Five surveys were administered to MHU clinicians and all surveys were returned. All the questions were answered as “strongly agree” or “agree;” there were no questions where the responses were “neither agree or disagree,” “disagree,” or “strongly agree.” Question 1 evaluated the staff’s level of training for delivering the depression screening tool. The staff responded with n=3 (60%) “strongly agree” and n=2 (40%) “agree” they had adequate training. The second, third, and fourth question had the same responses. These three questions evaluated the staff’s confidence and comfort level in administering the PHQ2/PHQ9 screening tool. The staff responded with n=2 (40%) “strongly agree” and n=3 (60%) “agree”. The fifth question evaluated the staff’s perception of having adequate time to administer the depression screening tool. Eighty percent (n= 4) “agreed” they had adequate time to administer the tool and n=1 (20%) “strongly agreed” (see Figure 1).

Figure 1

Post Implementation Survey

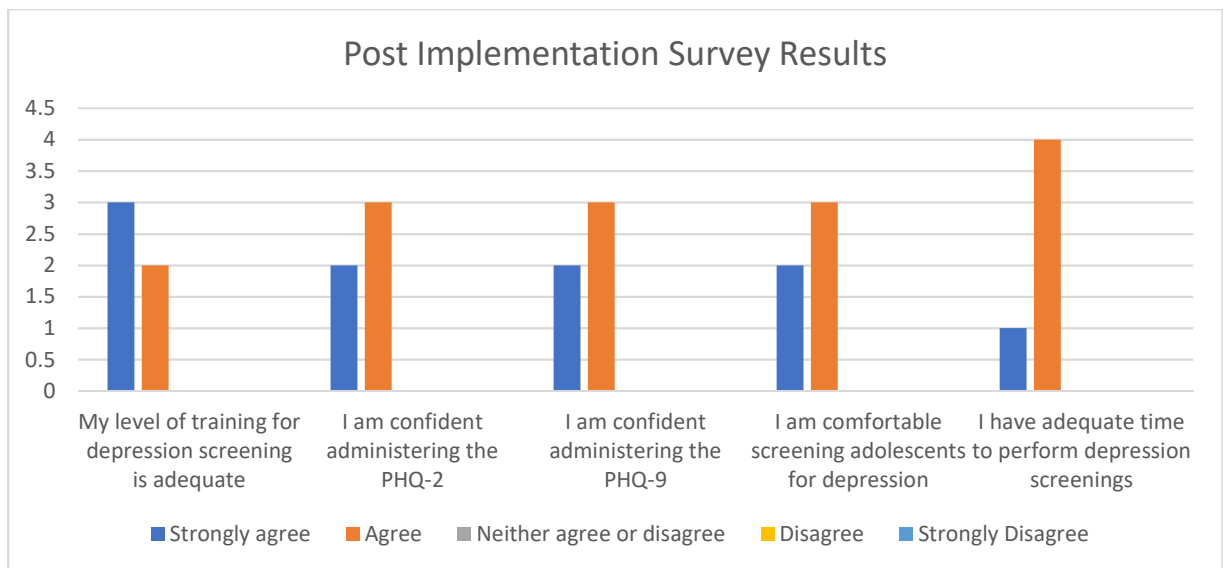


Figure 1 Post implementation survey results

Chapter V: Discussion

Major Findings and Outcomes

The purpose of this process change was to implement a standardized depression screening tool for patients aged 11-21 receiving sport or school physicals on the MHU with minimal disruption to clinician workflow. After discussing the project with MHU staff and stakeholders, it was identified that the PHQ-2 and PHQ-9 depression screening tool aligns with the strategic plans of Norwegian Hospital. The MHU serves a diverse population and can help fill the gap in preventive mental health screens needs in primary care. The revised process was suggested to bridge the gap among differentiating assessment techniques and standardize the process of depression screens. The depression screens were delivered to patients between the ages of 11 and 21 and who were receiving their sport or school physical. The current process of discussing depression with patients was analyzed to determine the need for a standard assessment; thus, the current workflow was assessed to decide where the depression screening tool would best be placed. The decision to introduce the PHQ-2/PHQ-9 during the intake portion was determined since this is where the patient initially has contact with the MA or NP, and it coincides with the other questions asked during this time (i.e. immunization update, recent illness, etc.).

The staff expressed satisfaction with the revised workflow and addition of the depression screening tool. Minimal impact on the workflow after implementing the depression screening tool was apparent once the initiative began. The MHU has continued to apply this new process into their daily workflow. The results obtained were exceptional, and the outcomes established for the project were met. The compliance of the delivery of the depression screening tool was met with near 100% accuracy. The team's enthusiasm with the application of this

process helped attain success of the new process. The ICD 10 code was applied with every individual assessed. The accuracy of adding the correct ICD 10 code helps identify those who are being screened and verifies compliance with administering and reviewing the screen by the clinician. With the PHQ-2 and PHQ-9 depression screening tool already operating within the Athena EHR program, those who scored ≥ 3 on the PHQ-2 automatically triggered the PHQ-9 within the software. The final outcome measured those who qualified for the screening tool based on age but were not assessed because they were not receiving their sport or school physical. By measuring those who qualified for the PHQ-2 based on age helps identify those who could be at risk for depression but are going undetected. This number could be used for future data purposes and possibly changing the criteria to administer the PHQ-2 to all patients on the MHU between the ages of 11-21 regardless of care needed.

Project findings support the new process and indicate the need for a standard tool when screening for depression. The initiation of the screening tool and its impact on workflow in the MHU was minimal. The only instances that appeared to effect workflow were in cases where the PHQ9 was triggered and further discussion was needed with the patient; however, this impact was marginal. With the implementation of the screening tool on the MHU, this has opened opportunities for discussions about mental health and other issues such as bullying on a provider to patient basis. Clinicians can potentially uncover mental health issues or traumatic causes of behavioral or emotional events that may have otherwise gone undetected.

Process change can be difficult and changing the workflow within an established routine can be challenging. Providing a new tool that is easy to use, is brief, and readily available facilitates an adaptable change in workflow. The new process will also help identify those who

are at risk for depression, improve patient outcomes, and allow for consistency when assessing for depression.

Limitations

Many limitations were noted during the implementation phase of the process change. With the initial implementation, it did take staff a short amount of time, approximately less than one day, to get acclimated with administering the PHQ-2 depression screening tool. The adjustment to the new workflow included establishing a new routine and working the depression screening tool into the staff's daily practice. This adjustment was easy, and staff quickly became oriented to their new workflow. Only one patient was not screened during the implementation phase and this occurred on day one of the process change. That patient was overlooked due to the new process just starting.

A pre-implementation survey had been developed but was discarded prior to the implementation of the project. Had the pre-implementation survey been collected and reviewed against the post-implementation survey, a more effective assessment of knowledge and impact on the work flow could have been evaluated. The period allotted for data collection, two and a half weeks, was another limitation and was much shorter than anticipated. A longer period for data collection, four weeks or more, could have demonstrated impact on work flow and the prevalence of depression in the population the MHU serves on a larger scale. The number of patients that were "no shows" had a significant impact on the data collected and was another identified limitation. The patients who were absent for their appointments limited the data for collection and the true impact on work flow in the MHU. Some of the younger children did not understand the first question on the PHQ-2 and required rephrasing of the question; this was viewed as a limitation in the process change. This resulted in having to additionally explain the

questions in a manner that may have influenced the children's answers. When additional instruction was required, this added some additional time to the exam, but did not seem to affect the workflow negatively.

Evaluating the workflow time for each patient on the MHU prior to the implementation of adding the depression screening tool could have provided valuable information; however, there was an inability to calculate visit times prior to implementation. Length of appointment times were not determined due to the lack of staff on the MHU and I was unable to travel to Chicago to evaluate these times prior to implementation. If these times were available, pre and post implementation workflow calculations could have been evaluated to view the additional time that was spent on administering the PHQ-2/PHQ-9 and the impact on work flow.

The depression screens were limited to only patients who were receiving their sports and school physicals. There was discussion among the MHU staff and I of including those who were receiving vaccinations; however, all areas of concern needed to be addressed prior to expanding the screen to those being vaccinated. Had patients who received vaccinations been measured, more patients would have been screened and could have made an impact on data results and workflow.

Language was another barrier noted during the length of the project. The Chicago area is home to many families that do not speak English or speak very little English. Part of the population that the MHU staff serves are Spanish speaking. One issue that was discovered was with the Spanish translation of the PHQ-2. It was found to be difficult to interpret some of the questions, so the children could understand them. Another limitation was the schools visited during the project time period. During the implementation phase, there were many grade schools visited; thus, limiting the number of screens conducted in one day. Many of the children at these

schools were under the age of 11. During the project time period, scheduled appointments were limited to grade schools, so many schools with vulnerable populations, according to the MHU NP, were not visited. The NP stated there are several schools the MHU visits where the students have specifically discussed issues concerning depression and bullying. Visiting these schools could have provided more information regarding these issues and potentially triggered positive PHQ-2 or PHQ-9 screens. The positive screens could have developed into extended discussions and its impact on the workflow could have been assessed.

Implications for the Organization

Implementing this process change is helpful in identifying those who may be silently suffering from depression. Furthermore, identification of those individuals will allow for proper referrals. Currently the process of organizing a reference for referrals is being investigated. This referral form will list options for referrals for the patients that screen positive and need further help. Sustainability and data collection methods are also being investigated, and informational technology consults have been contacted. A meeting will be arranged to discuss how the MHU director will retrieve the data from the EHR as part of the sustainability process and continue to examine data. Currently, there are pending responses from IT professional regarding these discussions. The previous IT spokesperson left their position and current IT professionals are limited in their abilities to assist with data retrieval. The data could be extracted manually but this can be challenging and time consuming. This will have to be further investigated to ensure sustainability. Running monthly reports could help with sustainability. This process is under review. Several advantages were also noted with the use of the PHQ-2/PHQ-9: ease of use, low cost, and minimal barriers. Issues faced by providers are recognition, intervention, and appropriate treatment of depression. Implementing the depression screening tool aids in closing

the gap in depression identification, and eventually improve resource referral and treatment.

Currently I am working with the MHU director to present this project to the Norwegian Hospital and local conferences.

Implications for Practice Change

Implementing a process change was initiated because a need for a practice change was identified on the MHU. Previously the MHU providers did not have a standard method of screening adolescents for depression. By establishing a process change that implements the PHQ-2/PHQ-9 into the MHU's workflow, allows for standardization in their practice. The MHU now has an improved screening process and staff can identify those who are suffering from depression. With the process change and utilization of the depression screening tool, it has allowed for mental health discussions to be initiated and opportunities for education. The results of this project can be used to further the assessment needs of the population served by the MHU by improving available resources for patients who score positive on the depression screens. Currently, discussions are being focused on improving the referral system to behavioral health providers. At this time school counselors are being notified of those who have been identified as having depression with the consent of the patient. The MHU recently added a Master of Social Work (MSW) to their team. The MSW does not reside on the MHU; however, her current role is to help find better resources in the community. This addition can be proven beneficial and further evaluation and education regarding depression can be provided to those who may need it.

This process change may also be applied to assist in the implementation of depression screens on other MHUs that serve pediatric populations. The results from the post-implementation survey indicate the ease and quick delivery of the depression tool. However, the results of this project also stress the importance of having necessary resources in place to provide

further evaluation, treatment, and follow-up of patients with a positive screen as recommended by the USPSTF.

Implications for Future Research

A recommendation for furthering this project involve including a resource pool of referrals. Currently I am organizing a list and updating the behavioral health resources that are available in the community. This will be accessible to the NPs on the MHU. The resource form will include those who specialize in counseling and psychiatric services within the Chicago community. Currently the list includes five outpatient facilities for counseling services and two inpatient hospitals that specialize in pediatrics psychiatric issues. I will detail the agency's services that are offered, fees, and goals. This will be a simple resource guide with additional information included and will help decrease additional work as the information will be readily available. By continuing the utilization of the depression screening tool, opportunities for improved analysis regarding provider comfort and confidence with depression-screening tool delivery, treatment, and referral can be assessed. Evaluation of efficacy of treatment and proper referral should occur in the future. Evaluation of efficacy of treatment and providing an extensive referral service was beyond the scope of this DNP project but could be considered as a subsequent DNP project. Further research could involve a more detailed examination of those who screen positive such as which school they attend, their age, and sex. Screening all patients aged 11-21 years old will increase the number of depression screens provided to this vulnerable population.

Implications for Nursing

Nursing projects such as those in the DNP program allow nurses to participate as key participants in education, detection, intervention, and allow for application of new strategies.

Workflow is an important dimension when delivering health care. A pattern is established, and that pattern is occupied with time and a frequency of activities. Changes in workflow can be integrated in quality improvement, technology implementation, and process improvements (Cain & Haque, 2008). One important theme among these processes is the emphasis on teamwork and their involvement in every aspect of the workflow (Cain & Haque, 2008). Establishing a good workflow has significant impact on the delivery of care; and with the PHQ depression screening tool being easy to administer and quick to deliver, the delivery of care was improved without a significant impact made on the workflow on the MHU. Also, importantly enough is identifying those who suffer from depression is also instrumental to the way providers provide care and help improve patient outcomes. Mental health is seen through out the lifespan of humans. Research and DNP projects such as this one can provide evidence-based practices that other providers can apply confidently. By identifying, supporting, and improving depression within the adolescent population, the hope is eventually to be able to manage depression as they grow into adulthood. As opportunities present themselves they offer a better understanding about depression and provide providers with essential insight into how to diagnose and treat.

Chapter VI: Conclusion

The Value of the Project to Health Care

Adding another task to an appointment can have an impact on extending patient wait times and create barriers to the workflow. Administering a simple tool, such as the PHQ-2/PHQ-9, can effectively be inserted within any workflow. By incorporating the depression screening tool into the workflow of the MHU, care delivery was improved and compliance with USPSTF recommendations were met. Mobile health is an entity of its own but an important extension within the health care system. MHU's are integrated into the communities to supply health care

and help those who do not have access to medical care. The ability to reach those in need and provide appropriate screens will help those who might slip through the cracks and have undiagnosed depression signs and symptoms. Although there is much research regarding the administration of depression screening tools in primary care, there is limited research of assessing workflow and implementing a depression screening tool on an MHU. Yu et al. (2017) states “with the evolving role of (MHUs) in the context of an ever-demanding healthcare services landscape, (MHUs) will need to continue developing protocols to appropriately assess and respond to the health needs of target communities” (p. 178).

Depression is an illness which can lead to other devastating circumstances such as suicide. The value of a depression screen can be just as important as screening for hypertension, diabetes, or other illnesses. A provider cannot treat what has not been diagnosed. Screening for depression is the initial step towards identifying depression and helping reduce burdens related to the mental illness. This process change can motivate other MHUs to follow in these footsteps and provide depression screens to those underserved and vulnerable. A need was identified on the MHU and the with the establishment of a new workflow allowed for an easy transition.

Providing the staff with adequate training and education helped lead to a successful implementation. The prevalence of depression among adolescents is high and the long-term morbidity attached to the disorder is substantial (Zenlea et al., 2014). Nationally, depression rates increase as people age and there is nearly a twofold increase in depression disorders from age 13-14 (8.4%) to 17-18 [15.4%] (Zenlea et al., 2014). As depression continues to go untreated there is an association with decreased academic performance, impaired social and family functioning, and poorer self-perceived general health, which has been substantially evident in research within the United States (Zenlea et al., 2014).

Specific DNP Essentials Met

The Doctor of Nursing Practice (DNP) essentials are the “foundational competencies that are core to all advanced nursing practice roles” (AACN, 2006, p. 8). This scholarly project that implements process change meets many of the DNP essentials: DNP Essential II, Organizational and Systems Leadership for Quality Improvement and Systems Thinking; DNP Essential III, Clinical Scholarship and Analytical Methods for Evidence-Based Practice; and DNP Essential VII, Clinical Prevention and Population Health for Improving the Nation’s Health (AACN, 2006).

DNP Essential II underlines the importance of the possession of knowledge and skill the DNP prepared nurse should reflect in organizational and systems leadership. This essential emphasizes the structure the DNP graduate should follow to improve patient and healthcare outcomes (AACN, 2006). A gap in a consistent method for screening for depression was identified. A change in practice policy with the intention to meet the health needs of the pediatric population the MHU serves was established. Screening for depression is encouraged by the USPSTF and suggest the utilization of a depression screening tool to help trigger further mental health evaluation (Corona et al., 2013). This project aimed at process change with the initiation of the PHQ-2/PHQ-9 depression screening tool and maintaining an efficient workflow on the MHU. Implementation was aimed at creating and sustaining the process change at the organizational level.

DNP Essential III examines clinical studies and research as they pertain to evidence-based practices (AACN, 2006). The intention of the process change was to identify the research, provide evidence based best practices, and integrate those into practice on the MHU. I was able to provide supportive research and associate the screening tool with evidence-based practices. By

delivering this information and establishing a depression screening program for the MHU, the staff was able to implement this process change.

DNP Essential VII integrates clinical prevention and population health for improving the number of depression screens among adolescents (Office of Disease Prevention and Health Promotion, 2018). This essential targets Healthy People 2020 to nationally improve the mental health status of adolescents in the United States (Office of Disease Prevention and Health Promotion, 2018). Current data collected through Healthy People 2020 suggests this target is not being met. In 2008 the baseline percentage was 8.3% of adolescents age 12-17 experienced a major depressive episode (MDE); and by 2020 the target was set at 7.5% (Office of Disease Prevention and Health Promotion, 2018). However, between 2011 and 2016 there has been over a 4% increase in MDEs reported in adolescents age 12-17; that is an alarming 12.8% (Office of Disease Prevention and Health Promotion, 2018). Even more alarming, there is a decrease in youth aged 12-18 being screened for depression. The baseline data of adolescents being screened for depression in 2005-2007 was 2.1% and Healthy People 2020 established a goal of 2.3%; however, the current data from 2009-2011 indicates only 1.4% of adolescents are being screened (Office of Disease Prevention and Health Promotion, 2018). The targets set within the Healthy People 2020 objectives are not being met. These statistics raise large concern and substantiates the significance of the MHU instituting the PHQ-2 depression screen. Screenings are useful and identified as a secondary preventative measure; however, “prevention interventions are underutilized in health care settings” (AACN, 2006, p. 15). Screens, such as the PHQ-2/PHQ-9, are useful when targeting the health status of the U.S. population and reaching the goals outlined in Healthy People 2020. The key components of DNP Essential VII

are met within this scholarly project, which supports the DNP's efforts to promote clinical prevention and improve population health (AACN, 2006).

Plan for Dissemination

Dissemination of project results include presenting to the public at Bradley University. Submission of the DNP scholarly paper to the Doctors of Nursing Practice, Inc. e-Repository will be included as part of the dissemination plan. Consideration for dissemination through manuscript submission for publication in a peer-reviewed journal and presentation at a regional, state, or national conference will be anticipated. A meeting will be arranged with the MHU director regarding a project presentation at Norwegian American Hospital and participating in a joint presentation at OSF Saint Francis Medical Center in Peoria, IL.

Attainment of Personal and Professional Goals

My journey to advance my career through obtaining my Doctor of Nursing Practice (DNP) degree began with the suggestion from a fellow coworker. We were both motivated and had the desire to take on the challenge of the DNP program. I knew going into the program there would be challenges, but I was also naïve to the demands of this program. There were times I wondered if this was what I really wanted to do and if I was intelligent enough to make it through. As I continued the program I saw myself checking off one class at a time and moving onto the next. Time has flown by and now I see light at the end of the tunnel, and I can confidently look back and say it was all worth it. To understand the transformation that has taken place through my experiences and see the progress of my professional growth and where it will take me is truly an eye-opening experience. The connections made during this scholarly project has given me hope for my future aspirations and I can vision see myself doing something similar: providing care to the underserved and helping patients find connections to get the help

they need. Although there were times of doubt and I felt vulnerable and anxious, I hope that the challenges I have overcome will influence others to embark on the same journey.

It can be discouraging to see a plan that has your heart and sincere hopefulness be rejected. In the beginning of the scholarly project, I presented an ambitious project. I had great support from my professor and other stakeholders; however, it was too big, and it would be unattainable. Although it was disheartening, I had other opportunities waiting. This project and the awareness it has placed on depression has fueled my future professional goals I would like to eventually attain. I faced challenges and roadblocks, but I was able to overcome those barriers with new action plans and the support of my mentor and professor.

This DNP track has been difficult and academically challenging, but graduating will be a proud moment. It is an accomplishment I never thought I'd see. I will also be obtaining my Family Nurse Practitioner (FNP) degree in August; although my initial drive will be to deliver care as a clinician, I will also represent the DNP through leadership qualities learned. I feel prepared to tackle challenges that I will encounter clinically, academically, organizationally, and systemically as I advocate for the nursing profession.

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Appendix A

Patient Health Questionnaire (PHQ-2 & PHQ-9)

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

Total Score: 1-4 Minimal depression; 5-9 Mild depression; 10-14 Moderate depression; 15-19 Moderately severe depression; 20-27 Severe depression

Appendix B

Post Implementation Survey

Study Title: Establishing a Process for Depression Screening on a Pediatric Mobile Health Unit
You are invited to participate in a research project. The purpose of this research project is to standardize the depression screens on the MHU using the PHQ-2 and PHQ-9 depression screening tool. Adolescents age 11-22 who are receiving their sport or school physical will be screened for depression using the depression screening tool. Your participation in this study will take approximately 10 minutes. This is an anonymous survey and there is no link between your name and the research record. Taking part in this study is voluntary. You may choose to not take part or may skip specific questions.

Questions about this study may be directed to the advisor in the charge of this research project: Melinda Rankins at 217-218-9328 or mrankins@mail.bradley.edu. The faculty advisor that is associated with this project is Karin Smith and can be reached at 309-677-4588 or kbsmith@fsmail.bradley.edu. If you have general questions about being a research participant, you may contact the CUHSH office at 309-677-3877.

You are voluntarily making a decision to participate in this study. Your submission of the survey means that you have read and understood the information presented and have decided to participate. Your submission also means that all of your questions have been answered to your satisfaction. If you think of any additional questions, you should contact the advisor.

Post-Implementation Survey

1. My level of training for depression screening is adequate.
 - a. Strongly Agree
 - b. Agree
 - c. Neither Agree or Disagree
 - d. Disagree
 - e. Strongly Disagree
2. I am confident administering the PHQ-2.
 - a. Strongly Agree
 - b. Agree
 - c. Neither Agree or Disagree
 - d. Disagree
 - e. Strongly Disagree
3. I am confident administering the PHQ-9.
 - a. Strongly Agree
 - b. Agree
 - c. Neither Agree or Disagree
 - d. Disagree
 - e. Strongly Disagree
4. I am comfortable screening adolescents for depression
 - a. Strongly Agree

- b. Agree
 - c. Neither Agree or Disagree
 - d. Disagree
 - e. Strongly Disagree
5. I have adequate time to perform depression screenings.
- a. Strongly Agree
 - b. Agree
 - c. Neither Agree or Disagree
 - d. Disagree
 - e. Strongly Disagree

Open Answer:

1. What is working well with the process change?
2. What barriers are you experiencing with the process change?
3. What would you change regarding the process change?

Appendix C

Pre-education Provided to Staff Outline

- Discussion of depression in adolescents
- Screening patient for depression on a MHU
 - Why is this important?
 - Why is the MHU doing this?
 - What is the PHQ-2/9 depression screening tool?
 - When to provide the screen
 - Who will receive the screen?
 - How to interpret the score?
- Benefit of screening MHU patients
 - How does this benefit the patients?
 - What benefits will be seen by the health care system?
- Process change implementation plan
 - Discuss process change with new depression screening tool
 - How will this effect workflow?
 - Who conducts the depression screens?
 - Where to document the PHQ-2/9?
 - Who reports the results?
 - Documentation of referral and intervention
- Review workflow
- Where to add the PHQ-2 into the workflow
- Allow for hands-on use of PHQ-2/PHQ-9 in the EHR

Appendix D

CUHSR Approval Letter

Dear Investigators:

Your study (CUHSR 40-18) *Establishing a process for depression screening on a pediatric mobile health unit—data only* has been reviewed and was found to be expeditable under Category 5. This approval also includes a waiver of informed consent.

All vita and ethics certificate are on file.

Be aware that future changes to the protocol must first be approved by the Committee on the Use of Human Subjects in Research (CUHSR) prior to implementation and that substantial changes may result in the need for further review.

While no untoward effects are anticipated, should they arise, please report any untoward effects to CUHSR promptly (within 3 days).

As this study was reviewed and approved for one year, the maximum allowed under regulations. Please complete a final status report when the study is completed. If the study is not completed within one year, please submit a Continuing Review form before the one year date with adequate time for CUHSR to review to prevent a lapse in approval. These forms can be found on our website, <http://www.bradley.edu/academic/cio/osp/policies/cuhsr/forms/>

This email will serve as your written notice that the study is approved unless a more formal letter is needed. Just let me know.

Ross L. Fink
Chairperson, CUHSR

Appendix E

CUHSR Approval Letter

Dear Investigators:

Your proposed study (CUHSR 40e-18) *Establishing a process for depression screening on a pediatric mobile health unit* has been reviewed and was found to be exempt from full review under Category 2. **This approval applies only to the post-implementation survey.**

Your vita and ethics certificates are on file.

Be aware that future changes to the protocols must first be approved by the Committee on the Use of Human Subjects in Research (CUHSR) prior to implementation and that substantial changes may result in the need for further review.

While no untoward effects are anticipated, should they arise, please report any untoward effects to CUHSR promptly (within 3 days).

As this study was reviewed as exempt, no further reporting is required unless you change the protocol or personnel involved.

This email will serve as notice that your study has been reviewed unless a more formal letter is needed. Please let me know, and I will provide the letter.

Ross L. Fink, Ph.D.
Chairperson, CUHSR