SCREENING FOR PERINATAL MOOD AND ANXIETY DISORDERS DURING WELL-CHILD APPOINTMENTS: A QUALITY IMPROVEMENT PROJECT

by

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ABSTRACT

Perinatal mood and anxiety disorders (PMADs) are prevalent among birthing individuals. Conversely, PMAD screening rates are insufficient to support assessment, making PMADs the most underdiagnosed obstetrical complication in the United States. This quality improvement project aimed to improve PMAD screening and referral rates within one pediatric clinic. Prior to implementation, the pediatric clinic was screening with the PHQ-2 at 2-month well child checks. The purpose of this initiative was to update the clinic's screening process to align with current clinical practice guidelines as outlined by the American Academy of Pediatrics. The Edinburgh Postnatal Depression Scale (EPDS) was provided to birthing individuals at each 2-week, 2-month, 4-month, and 6-month well-child check appointment. Individuals who screened positive were provided with follow-up support. Over six weeks 152 birthing individuals were present for 2-week, 2-mo, 4-mo, and 6-mo well-child check appointments. Among these women, 129 (85%) were screened with the EPDS. Among those individuals, 14 (11%) had a positive score. Among the positive scores, 8 (57%) were addressed for follow-up recommendations. When following clinical practice guidelines, more birthing individuals were screened for PMADs and referred for follow-up support as compared to the previous screening intervention used by the pediatric clinic which was misaligned with clinical practice guidelines. This quality improvement project effectively increased PMAD screening rates and amplified awareness of the topic. Additional PDSA cycles are recommended to bolster adequate follow-up among individuals scoring positive.

CHAPTER ONE

SIGNIFICANCE, PROBLEM, AND LITERATURE REVIEW

Pediatric providers are ideally positioned to expand a child's capacity for resilience by screening birthing individuals for mood and anxiety disorders. Data show that children who grow up feeling safe and protected by a well-adjusted adult are less likely to develop mental illness or poor physical health, even in the face of other adversities (Crouch et al., 2018). While most pediatric care is focused on the wellness of the child, a deeper understanding of childhood trauma underscores the need to focus on perinatal mental health as a source of safety and stability for the developing child (Earls et al., 2019).

Background and Significance

Perinatal mood and anxiety disorders (PMADs) have long-lasting effects on both the birthing individual and the child. Despite this knowledge, it is estimated that 50% of birthing individuals who meet the criteria for perinatal depression go undiagnosed, leaving the infant and family exposed to the long-term effects of PMADs (Rafferty et al., 2019). To gain an understanding of how these effects develop, it is important to understand several key terms. First, the term *birthing individual*, rather than *mother*, is widely used by perinatal mental health professionals to maintain inclusive language and respect for gender identity. Throughout this paper, both terms may be used but can be interpreted interchangeably. Second, the American College of Obstetricians and Gynecologists (ACOG; 2015) defines the perinatal period as occurring anytime during pregnancy through the first 12 months following delivery. PMADs encompass any diagnosis of anxiety (panic, generalized anxiety disorder, obsessive-compulsive

disorder [OCD], post-traumatic stress disorder [PTSD]), mood disorders (major depressive disorder, persistent depressive disorder, and bipolar disorder), and psychosis occurring during pregnancy or in the first 12 months after delivery (Byrnes, 2018; Earls et al., 2019).

PMADs are pervasive, impacting up to 21% of birthing individuals in the perinatal period (Byrnes, 2018). Once thought to be a protective factor, pregnancy, and life with a newborn often compound the stressors experienced by women who are already at a greater risk than men to develop a mood disorder (Byrnes, 2018). PMADs impact the birthing individual, infant, family, and community. Untreated postpartum depression is associated with fewer well-child checks, increased emergency room visits, and changes in childhood brain development leading to emotional dysregulation; specifically, difficulties with aggression, hyperactivity, depression, and anxiety in children (Byrnes, 2018; Earls et al., 2019; Hay et. al., 2010; Hoffman et al., 2017; Letourneau et al., 2018). Perinatal suicide, which undoubtedly has a tragic impact on the developing family system, is one of the leading causes of maternal mortality (Orsolini et al., 2016).

Pediatricians are uniquely positioned to screen the birthing individual as they embark on a journey with an infant. The relationship between a pediatrician and parent is longitudinal, allowing space for deep trust to develop. Parents are also more likely to attend well-child checks as compared to a six-week follow-up visit with an obstetrician (OB) and/or primary care provider (Lomonaco-Haycraft et al., 2020). Screening for PMADs is widely encouraged by the American College of Obstetricians & Gynecologists, Council on Patient Safety in Women's Health Care, United States Preventive Services Task Force, Agency for Research Health & Quality, American

Academy of Pediatrics, American Psychiatric Association, and the Health Resources and Services Administration (Lomonaco-Haycraft et al., 2018).

Barriers to PMAD screening, such as a lack of referral sources and lack of training exist, but the benefits of screening outweigh the barriers. Fundamentally, PMADs thwart an individual's capacity to develop meaningful and loving connections; the very connections that are associated with sustained life. There are many critical periods needed to promote healthy attachments and brain development during the first year of life (Wheeler, 2014). Without healthy attachment, lifelong difficulties follow, underscoring the urgent need to orient pediatricians toward perinatal mental health.

Clinical Problem

With only 55% of physicians routinely screening for PMADs, there is a large gap in care for birthing individuals resulting in PMADs being the most underdiagnosed obstetrical complication in the United States (Puspitasari et al., 2021). Undetected and untreated, PMADs can have a long-lasting impact on the birthing individual and place the child at risk of developing poor emotional regulation and unhealthy attachments (Earls et al., 2019). The aim of this quality improvement project is to partner with a Montana pediatric clinic to implement clinical practice guidelines as outlined by the American Academy of Pediatrics to screen for PMADs during well-child checks to support healthy family and childhood development.

Literature Review

Inclusion criteria established prior to the literature review included: full-text articles written in English, peer-reviewed articles, and articles published in the last 10 years except for seminal works. The following databases were utilized to inform the following literature review:

PubMed, MEDLINE, Proquest, EBSCO-host, CINAHL Complete, and UpToDate: Clinical Decision Support System. Search terms included: “perinatal mood and anxiety disorders,” “trauma,” “childhood development,” “ACEs,” “Edinburgh Postnatal Depression Scale,” “Impact of PMADs on childhood development,” “PMAD screening,” and “Intergenerational trauma and PMADs.” The articles reviewed were assessed in the context of evidence level and study limitations.

Causes of PMADs

PMADs are attributed to a variety of driving factors. Specific to the physical changes of pregnancy and postpartum, birthing individuals experience a dramatic decrease in progesterone, rapid changes in cortisol levels, and changes in blood volume, blood pressure, metabolism, and immune functioning, all playing a role in mood (Cohen, 2006). Following delivery, estrogen, progesterone, and allopregnanolone drop rapidly; these hormones work within the limbic system, facilitating cognitive processing and emotional reactivity (Stahl, 2021). Birthing individuals who are more sensitive to the rapid drop of these steroid hormones may be genetically predisposed to postpartum mood disorders (Stahl, 2021).

Genetic components contribute to PMADs; having a first-degree relative with a mood disorder results in a nearly three-fold increased risk of developing postpartum depression (Rafferty, et al., 2019). Environmental factors, like the added anxiety of caring for a child, difficulties sleeping, a colicky infant, and increased financial responsibilities, also contribute to mood changes. Finally, women who discontinue medications to manage preexisting mood disorders are at increased risk for a reoccurring episode in the perinatal period (Cohen, 2006). For those with preexisting disorders, data show that the most effective way to manage a PMAD

during and after pregnancy is to use treatment that was previously effective, unless contraindicated by the Food and Drug Administration (FDA) (Cohen, 2006). Nevertheless, great fear exists among birthing individuals who worry medication may negatively impact the developing fetus which can lead to the discontinuation of medications (Cohen, 2006).

Impact of PMADs During and After Pregnancy

Mood disturbances in the perinatal period are widespread, with up to 80% of individuals experiencing altered moods (Byrnes, 2018). Most of these mood changes are transient, lasting 1-2 weeks following birth; also referred to as the *baby blues.* Although many are temporary or mild among the general population, 10-15% of postpartum individuals will experience more symptoms meeting the criteria for major depressive disorder. This number increases to 50% for those with previous mood disorders, and to 70% for those with a family history of postpartum psychosis (Orsolini et al., 2016). Vulnerabilities like low socioeconomic status drive rates, up to twice that, of the reported average (Gjerdingen & Yawn, 2007; Grote et al., 2010; Rafferty et. al., 2019). Further vulnerabilities include a history of mental illness, delivering a preterm baby, exposure to trauma, and lack of social support (Byrnes, 2018).

Individuals experiencing a PMAD during pregnancy, are more likely to have a spontaneous abortion, decreased fetal reactivity in utero, c-section delivery, and preterm delivery (Bonari et al., 2004). Additionally, they are more likely to develop hypertension, gestational diabetes, and preeclampsia which may lead to greater mood disturbances in the postpartum (Grote et al., 2010; Puspitasari et al., 2021; Lomonaco-Haycraft et al., 2018). Study findings consistently show that, globally, birthing individuals with PMADs are less likely to breastfeed and practice child safety practices (Earls et al., 2019; Slomian et al., 2019).

Impact of PMADs on the Developing Child

The Adverse Childhood Experience (ACE) Study, conducted by Dr. Vincent Felitti in conjunction with Kaiser Permanente, concluded a powerful dose-response relationship between childhood adversity and physical and mental health outcomes (Crouch et al., 2018; Felitti, 2002). Adversity recognizes any event where the *perceived stressor* outweighs an individual's ability to cope. Evidence demonstrates that the more adversity experienced in childhood, the more likely a child is to experience physical and mental health outcomes like diabetes, liver disease, heart disease, obesity, depression, anxiety, and posttraumatic stress disorder to name a few (Felitti, 2002).

Data also indicate that there is an association between PMADs and higher ACE scores (Johnson et. al., 2017). The impact of this adversity is related to the influence of mood and anxiety disorders on the birthing individual's capacity for attention and attachment with the infant (Earls et al., 2019). Secure attachment results in a safe and secure emotional connection between individuals; it is a bond that forms within the child's first year of life and serves as a template for future relationships (Rafferty et al., 2019). If a pattern of unhealthy attachment is established, a child may feel rejected by the caregiver and begin to believe they are unwanted or unlovable.

Ongoing epidemiological studies show that adversity, like having a caregiver with mental illness, has sustained impacts on brain development (Herzog & Schmahl. 2018). If not treated, infants exposed to a mother with a mood disorder are less likely to participate in explorative play and have lower activity levels as early as two months old (Rafferty et al., 2019). Epigenetics suggests that early childhood attachment and attunement can either turn off or on specific genes that code for mental health vulnerabilities (Wheeler, 2014). An infant's brain is rapidly

developing and relies on the caregiver's capacity to emotionally regulate. If a caregiver becomes dysregulated, this may be perceived as unsafe by the infant and modulate developing neurocircuitry that is more predisposed to hyperarousal and dysregulation (Wheeler, 2014). Additionally, if attachment difficulties occur as a function of maternal mental illness, the orbital medial prefrontal cortex (OMPFC) does not receive the dopaminergic and beta-endorphin activation required to reward intimacy and connections, and consequently, the child has difficulties with relational development (Wheeler, 2014).

Early childhood adversity is associated with a thinner corpus callosum hindering the left and the right side of the brain from properly integrating (Wheeler, 2014). Moreover, neuroimaging shows an association between adversity and thinner synaptic density in several brain regions responsible for regulating memory (Cattane et al., 2017). Several studies have found that children with depressed mothers and disrupted attachment have increased amygdala volume leading to chronic emotional dysregulation (Herzog, & Schmahl, 2018).

Changes in brain development may lead to social and emotional impairments. Consistent findings from research have led to the conclusion that early attachment is crucial to social and emotional development (Herzog, & Schmahl, 2018; Joas, & Möhler, 2021). Deficits in bonding can cause physical symptoms, such as the infant not gaining weight and becoming withdrawn and listless (Joas, & Möhler, 2021). In summary, deficits in positive attachment can result in atypical brain development. Children raised by birthing individuals with depression are more likely to have children with social and emotional delays by age 2.5 years, as quantified by the Center for Disease and Control and Prevention's Learn the Signs and Act Early Milestones Checklist (Chorbadjian et al., 2020). Long-term childhood impairments may also develop, like

emotional dysregulation, mood disorders, depression, poor relationship development, aggression, and difficulties in school which could lead to academic grade retention or dropping out of school (Earls et al., 2019).

Hope rests in treatment for PMADs for the birthing individual. After the birthing individual receives at least three months of therapeutic intervention, there are declines in emotional dysregulation among children (Gjerdingen & Yawn, 2007; Weissman et al., 2006). When birthing individuals do not receive treatment, there is an 8% increase in mood disorders among children compared to an 11% decrease in rates for those whose mother is treated into remission (Weissman et al., 2006). Early diagnosis of anxiety and depression promotes positive bonding and mitigates long-term consequences (Joas, & Möhler, 2021).

Impact of PMADs on the Greater Family System and Community

Suicide is a leading cause of maternal death in the perinatal period, accounting for 20% of postpartum deaths (Chin et al., 2022). Despite a *global decrease* in maternal deaths, the United States has recorded a 26.6% *increase in maternal deaths* with suicide remaining one of the leading causes (Chin et al., 2022). Risk factors for perinatal suicidality include socioeconomic status, history of psychiatric conditions and suicidal ideation, substance use, history of trauma and/or partner violence, stillbirth, significant medical complications after birth, or difficulties bonding with the infant (Chin et al., 2022; Hunter et. al., 2022). Among these mortality rates, 75% of birthing individuals had a history of depression; highlighting a gap in care (Chin et al., 2022). Additionally, data show that individuals with identified PMADs have longer hospital stays after delivery, often due to greater rates of obstetric complications (Earls et al., 2019). These data impact the greater community at a macro level by increasing healthcare

costs by an estimated 12.4 billion dollars a year due to increased emergency room visits and decreased well-child checks (Earls et al., 2019). Time lost in the workplace compounds healthcare costs; with an estimated 44 billion dollars a year in lost productivity time related to PMADs (Earls et al., 2019).

The United States Centers for Disease Control and Prevention (2022) estimate that 50% of pregnancies are unintended, with numbers trending up among individuals of lower socioeconomic status, education level, and those with a substance use disorder. Coinciding with the 2022 overturn of Roe vs. Wade, an individual's right to maintain autonomy over their body and pregnancy is threatened. It is largely anticipated that PMADs will further increase in association with unwanted pregnancies (Byrnes, 2018; Joas, & Möhler, 2021).

Family systems are also impacted by PMADs. If a birthing individual is unable to care for an infant, greater stress is placed on other family members which can lead to a domino effect of stressors creating more adversity and family dysfunction. Epigenetics, the study of gene expression, has significant evidence to support the ways in which trauma impacts the genetic sequence within the individual. While epigenetic patterns are set during neurodevelopment, research shows that genes respond to the *narrative* of the individual by either silencing or activating certain genes (Stahl, 2021). For example, if the context of a child's development is filled with unhealthy attachments, genes that lead to depression may get "turned on." These create a pattern of genes that then get passed down from one generation to the next, meaning a child's gene expression is inextricably connected to the trauma of the generations ahead of them. While this may seem overwhelming, screening for PMADs can help support healthy gene expression which can also be passed down for generations.

Identified Evidence-Based Screening Tools: EPDS and PHQ-9

Regular PMAD screening ranges from 50% and below, leading to ongoing health complications for the birthing individual and family (Gjerdingen & Yawn, 2007; Puspitasari et al., 2021). The American Academy of Pediatrics recommends screening for PMADs using the Edinburgh Postnatal Depression Scale (EPDS) or the Patient Health Questionnaire 9 (PHQ-9) at the 1-, 2-, 4- and 6-month well-child checks (Earls et al., 2019). This frequency is recommended because PMADs tend to peak at 6 weeks and 6 months and allows for multiple assessment points (Earls et al., 2019; Rafferty et al., 2019). By offering regular screening, the process is also normalized which may increase the likelihood that a mother will provide authentic responses.

The EPDS is one of the most widely used and recommended screening tools for PMADs. The tool specifically excludes constitutional symptoms of pregnancy (for example, difficulties sleeping) that may otherwise lead to a positive screen (Mazzoni et al., 2021). It is a free 10-item questionnaire wherein one meta-analysis, found the EDPS to carry a sensitivity of 0.92 and maximized rates using a cut-off score of 11 (Levis et. al., 2020). The tool assesses an individual's mood and experiences over the past seven days specifically addressing depression, anxiety, and suicidal thoughts. An EPDS score can range from 0-30 where positive scores are considered as 10 or greater and require a mental health referral (Lomonaco-Haycraft et al., 2018; Rafferty et al., 2019). If a patient endorses suicidal ideation and self-harm desires, an immediate referral is required for further assessment, regardless of the total score (Lomonaco-Haycraft et al., 2018).

The PHQ-9 is also validated for peripartum use; it is 9 questions and includes queries regarding depression and self-harm. The PHQ-9 is generally concordant with EPDS assessments, although it does not include specific questions to assess for anxiety (Byrnes, 2018).

Anxiety is the most prominent symptom present among all PMADs which is why the EPDS is generally favored. While neither scale specifically screens for bipolar disorders, psychotic disorders, PTSD, or OCD, both provide flags about further needed assessments; with the EPDS providing more accurate flags due to the anxiety assessment (Hunter et. al., 2022). Screening for PMADs alone has been associated with an increase in mental health resources indicating efforts are not wasted in care; this rate increases when combined referrals from a trusted care provider with whom the family has developed a trusting relationship (Lanuza & Butler, 2021).

Practice Change: Barriers

Many barriers associated with PMAD identification come from a social stigma felt by birthing individuals in the United States. Cultural expectations paint pregnancy and postpartum periods as joyful times which creates a profound sense of shame for individuals who may feel otherwise (Puspitasari et al., 2021). While the EPDS is valid and reliable, women report social stigma as a barrier to speaking up which jeopardizes honest reports, potentially skewing the accuracy of a screening tool (Canty et al., 2019; Prevatt, & Desmarais, 2017). For example, up to 40% of mothers with postpartum depression have intrusive thoughts that can be disturbing, like harming the infant (Hudak & Wisner, 2012). These thoughts can be distressing to the patient and silenced by shame. Yet, the frequency of screening can normalize conversations around mental health which begins to break down this barrier.

One cross-sectional, descriptive study found that roughly one-third of clinicians providing care for perinatal women had not received education on PMAD management (Puspitasari et al., 2021). Care providers report top barriers to screening as limited time, lack of referral sources, and lack of training (Emerson et al., 2018; Gjerdingen & Yawn, 2007;

Puspitasari et al., 2021; Rafferty et al., 2019). For example, Puspitasari et al. (2021) found that of women who scored positive on the EPDS, only 2.5 percent were referred to treatment, highlighting the need for more robust clinical referral processes. Gjerdingen & Yawn (2007) show that in a national survey of pediatricians, only 32% reported confidence in assessing PMADs.

For the birthing individual, there are often worries about breastfeeding while on psychotropic medications (Vanderkruik et al.,2021). Specific to the Helena Community, Healthy Mothers Healthy Babies Montana (HMHB, MT) regularly updates referral resources available for birthing individuals and providers. The state has a free consultation line as does Postpartum Support International; these will be integrated into this quality improvement project as a strategy to break down this specific barrier.

Another concern arising from pediatric providers is patient liability because the mother is not the central patient in the pediatric visit (Earls et al., 2019). However, data show the health of the infant is inseparably dependent on the well-being of the mother and therefore is essential to assess. Protocols and billing codes exist to support this concern and outline proper documentation protocols. For example, the Billing Code for PMAD screening is 96161 (Administration of caregiver-focused health risk assessment instrument for the benefit of the patient, with scoring and documentation, per standardized instrument) and is widely covered by insurance companies provided documentation in the pediatric chart (Earls et al., 2019).

Practice Change: Applicability to the Organization

This quality improvement project will take place in a rural pediatric clinic and will screen birthing individuals for PMADs as outlined by the American Academy of Pediatrics Clinical

Practice Guidelines. The selected organization strives to provide comprehensive, family-centered, pediatric care from birth through 18 years. The identified mission is congruent with the efforts of screening for PMADs, providing referral sources and follow-up, and ultimately decreasing intergenerational trauma and strengthening childhood development.

CHAPTER 2

PROJECT PROPOSAL

Introduction

PMADs are a global health crisis. The rate of PMADs has increased over the past ten years with greater increases expected because of the Covid-19 pandemic (Chen et al., 2022; McKee et. al., 2020). Despite the urgency, PMADs remain the most underdiagnosed obstetrical complication in the United States and maternal suicide is a leading cause of maternal mortality (Puspitasari et al., 2021; Orsolini et al., 2016). Compounded with the state of Montana's chronically high rate of mental illness, with a suicide rate of more than twice the national average, the data indicate a pressing need to screen for PMADs (Suicide mortality by state, 2020).

PMADs impact both the birthing individual and the developing child which is why the US Preventative Task Force, American College of Obstetrics and Gynecology, and American Academy of Pediatrics recommend universal PMAD screening (Murthy et al., 2021). The ultimate outcome of PMAD screening is the promotion of healthy parent-child attachment which will foster overall childhood development that may have otherwise been encumbered by adversity.

Problem Statement

With only 55% of physicians routinely screening for PMADs, there is a large gap in care for birthing individuals (Puspitasari et al., 2021). Undetected and untreated, PMADs can have a long-lasting impact on the birthing individual and place the child at risk of developing poor emotional regulation and unhealthy attachments (Earls et al., 2019). The aim of this QI project is

to partner with a centrally located Montana pediatric clinic to improve PMAD screening, identification, and treatment during well-child checks as outlined by the American Academy of Pediatrics. This setting was selected because pediatricians are uniquely positioned to screen the birthing individual as they embark on a journey with a new infant. The relationship between a pediatrician and parent is longitudinal, allowing space for deep trust to develop. Further, birthing individuals are more likely to attend well-child checks as compared to a six-week follow-up visit with an obstetrician (OB) and/or primary care provider (Lomonaco-Haycraft et al., 2020).

Organizational Microsystem Assessment

The mission of the identified pediatric clinic is to treat patients within the context of the entire family; this goal builds organic motivation to assess family attachments. In an ongoing effort to meet this mission, the clinic is enrolled in the American Board of Pediatrics' Maintenance of Certification program (MOC) which focuses on building engagement among providers and growing QI projects (Freed, 2018). Within the past five years, the clinic submitted a QI project aimed at screening for postpartum depression; implementing the PHQ-2 at each two-month well-child check. The clinic has since had sustained implementation using the PHQ-2 but has not hardwired assessment, documentation, and referrals into this process- leading to inconsistency in patient care. Additionally, the PHQ-2 has variable sensitivity and accuracy, missing an undesirable number of individuals with a probable PMAD, and is not congruent with current clinical practice guidelines (Slavin et. al., 2020).

The clinic providers, nurses, and office staff make up a care team of individuals within the pediatric clinic who are enthused to provide excellent care for the entire family. The care team has a history of sustained project implementation which is a positive attribute when

undertaking this QI project. A needs assessment (figure one) was conducted with the care team to better understand factors supporting the current process. Areas of improvement identified in this process include adding an electronic health record (EHR) component, strengthening referral resources, and hardwiring the screening and assessment process. Barriers highlighted by clinic staff mirror data saturating many studies which have found that lack of provider training, time, concerns about liability, documentation concerns, and clinic teams who are unfamiliar with mental health conversations are the primary barriers to PMAD screening (Murthy et al., 2021).

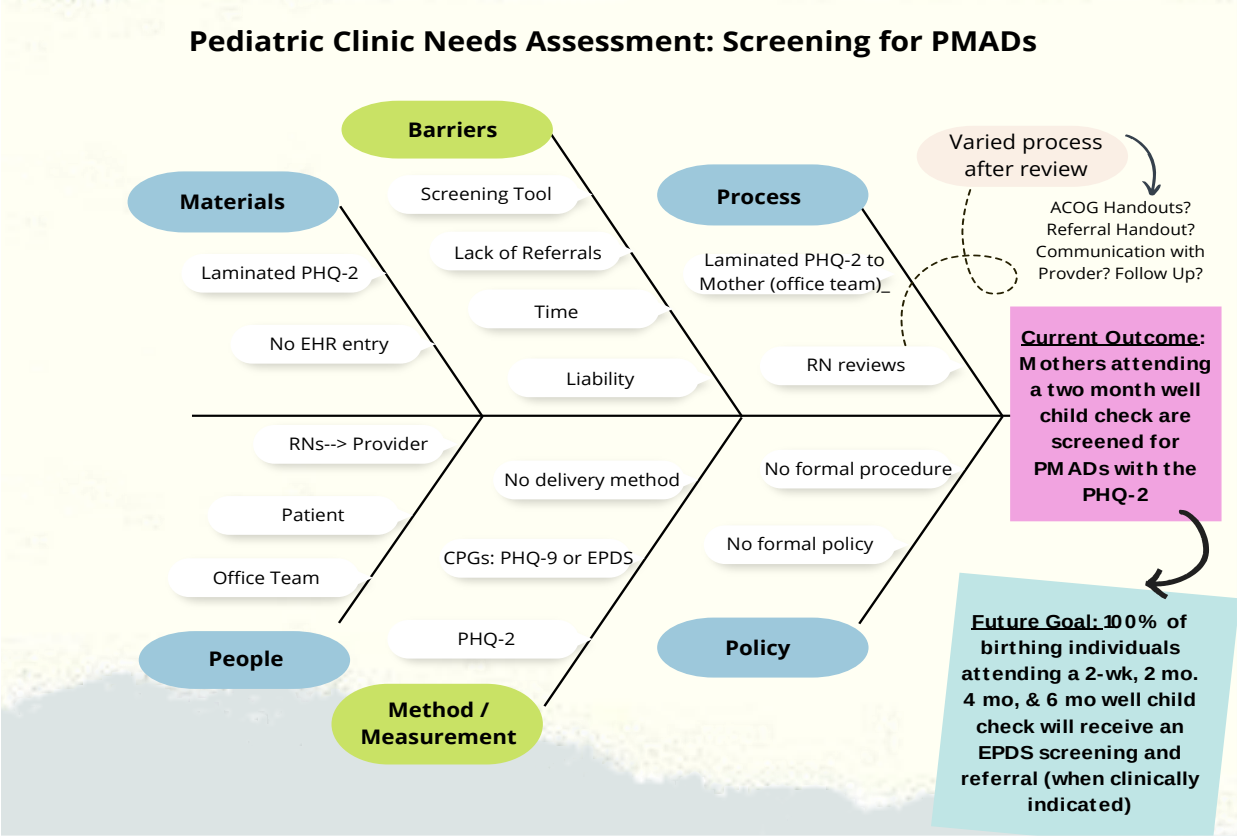

Figure 1. Pediatric needs assessment

Rationale

Capitalizing on the pediatric clinic's mission and enthusiasm for ongoing quality improvement, the team will mobilize the Plan, Do, Study, Act (PDSA) framework which has demonstrated improved patient health outcomes when followed with fidelity (Langely, 2009). The PDSA model is flexible to meet organizational needs and flows well with their current meeting structure; the care team meets every two weeks to assess clinic processes which will inform the length of each PDSA cycle. The care team will blend the flexible PDSA framework with components of The Quality Implementation Framework to strengthen the guideposts provided for performance improvement. Specific components that will be adapted from the Quality Implementation Framework include capacity-building strategies (fostering supportive staff culture and staff training) and process evaluation measures (Meyers et. al., 2012).

The American Academy of Pediatrics recommends screening for PMADs using the EPDS or the PHQ-9 at the 1-, 2-, 4- and 6-month well-child checks (Earls et al., 2019). This frequency is recommended because PMADs tend to peak at 6 weeks and 6 months and it allows for multiple assessment points (Earls et al., 2019; Rafferty et al., 2019). By offering regular screening, the process is also normalized which may increase the likelihood that a mother will provide authentic responses. The screening frequency will be modified for the selected pediatric clinic as their regular well-child checks do not follow the recommended screening frequency. Rather than modifying the well-child check schedule, the team has modified the screening to fit the 2-week, 2-month, 4-month, and 6-month well-child schedules already hardwired into the clinic. Clinical practice guidelines allow for this flexibility in screening and encourage providers to select timeframes that best fit their culture and practice (Earls, et al., 2019).

The EPDS is one of the most widely used and recommended screening tools for PMADs. The tool specifically excludes constitutional symptoms of pregnancy (for example, difficulties sleeping) that may otherwise lead to a positive screen (Mazzoni et al., 2021). It is a free 10-item questionnaire wherein one meta-analysis, found the EDPS to carry a sensitivity of 0.92 and maximized rates using a cut-off score of 11 (Levis et. al., 2020). The tool assesses an individual's mood and experiences over the past seven days specifically addressing depression, anxiety, and suicidal thoughts. An EPDS score can range from 0-30 where positive scores are considered as 10 or greater and require a mental health referral (Lomonaco-Haycraft et al., 2018; Rafferty et al., 2019). If a patient endorses suicidal ideation and self-harm desires, an immediate referral is required for further assessment, regardless of the total score (Lomonaco-Haycraft et al., 2018). The clinic care team was provided copies of the EPDS for review. The tool was approved at a medical staff meeting in September 2022 where sponsorship of the QI project was finalized and granted permission to move forward.

Specific Aims

Robust data indicate that PMADs have a profound effect on childhood development. Study findings consistently show that, globally, birthing individuals with PMADs are less likely to breastfeed and practice child safety practices (Earls et al., 2019; Slomian et al., 2019). Children who grow up feeling safe and protected by a well-adjusted adult are less likely to develop mental illness or poor physical health, even in the face of other adversities (Crouch et al., 2018). Data show that when PMADs are effectively treated, the child grows to be more socially, emotionally, and cognitively resilient (Earls et al., 2019). Therefore, the definitive aim of this QI project will be to improve the social, emotional, and cognitive health of the pediatric

patient via a pathway that supports family attachment and acknowledges intergenerational trauma. Of course, smaller goals, outlined below, will lead to this larger objective and will be the primary focus of this QI project. Figure two conceptualizes the required resources and activities leading to project success from a 30,000-foot view, whereas figures three and four detail the clinic processes and barriers with more specificity.

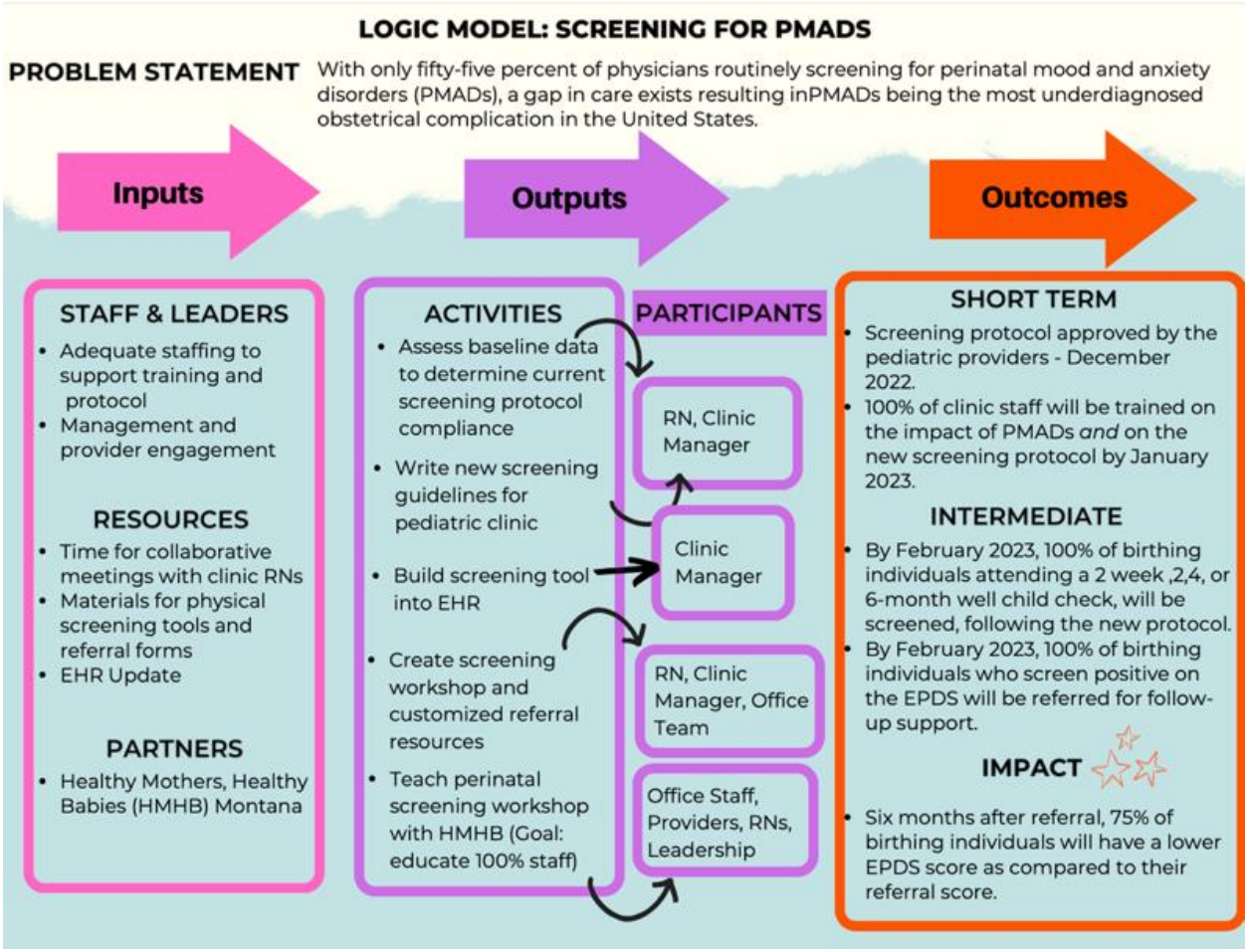

Figure 2. Logic model

Context

The identified pediatric clinic is a private clinic located in central Montana. It was recruited through local community connections; the care team was eager to engage because the project maximizes its mission and fulfills application requirements for the Pediatric Maintenance of Certification (MOC). The clinic provided general details on their location, size, and general patient demographics and selected three care team members, all with previous QI experience, to spearhead the QI project. Care team members include one pediatric medical doctor, one registered nurse, and one clinic manager.

Intervention and Implementation

The proposed practice change will require both care team education and a clinic policy/ procedure for PMAD screening. A high-level summary of the implementation process is provided in figure three, including timeframes and responsibilities for specific tasks. This diagram will drive baseline data collection as well as each PDSA cycle. Three SMART goals (Appendix C) will drive this QI project to meet the primary, long-term goal, of decreasing childhood adversity:

1. 100% of clinic staff will be trained on the impact of PMADs and the new pediatric clinic screening protocol by January 2023.
2. By February 2023, 100% of birthing individuals attending a 2-week, 2-, 4-, or 6-month well-child check will be screened following the new protocol.
3. In February 2023, 100% of birthing individuals screening positive on the EPDS will be referred for follow-up support.

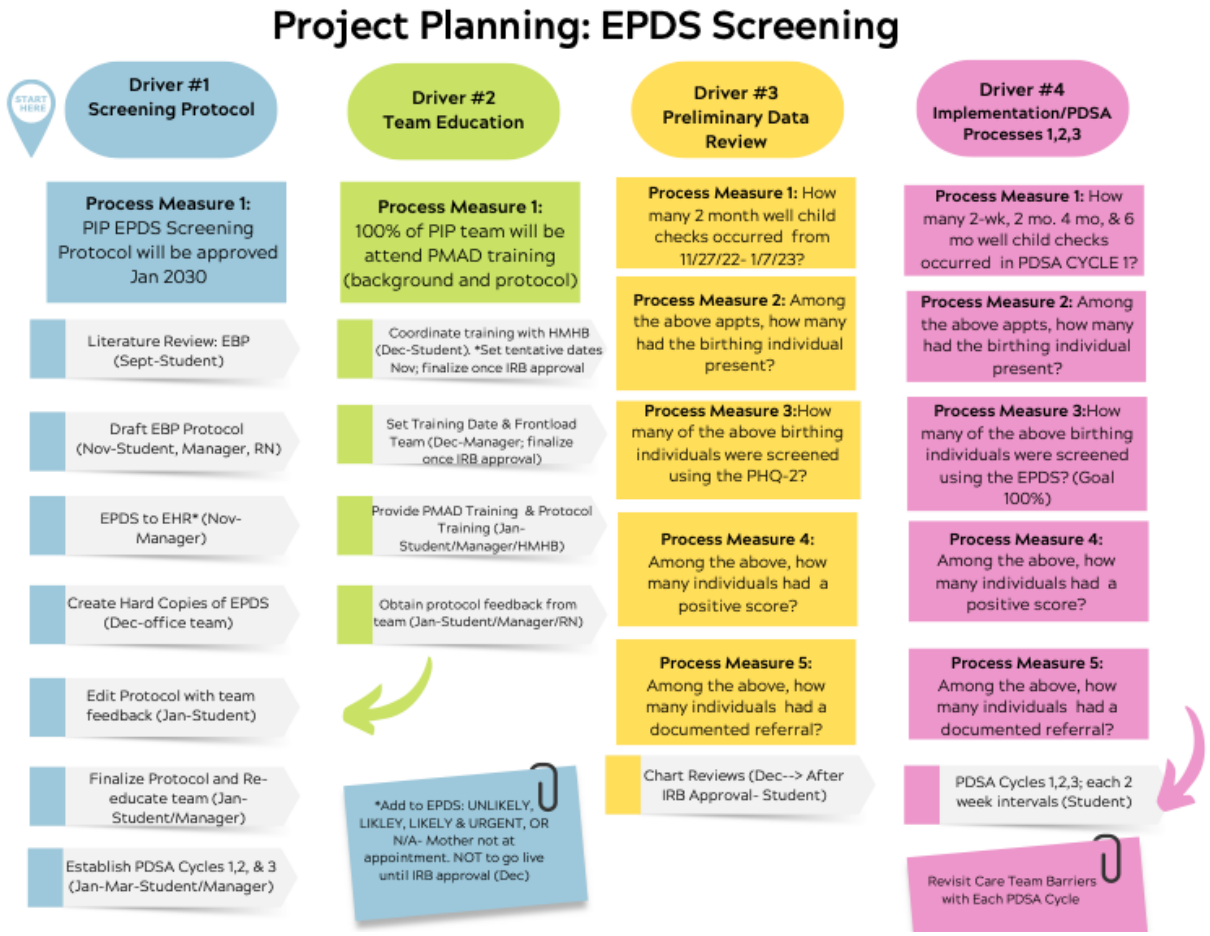

Figure 3. Project planning

Primary implementation barriers (figure four) have been identified by the care team and are, generally, in alignment with data regarding national barriers. Nationally, care providers report top barriers to screening as limited time, lack of referral sources, and lack of training (Puspitasari et al., 2021; Rafferty et al., 2019). The QI team has outlined several strategies to address each barrier as seen in figure four and will intentionally circle back to this form at the end of each PDSA cycle.

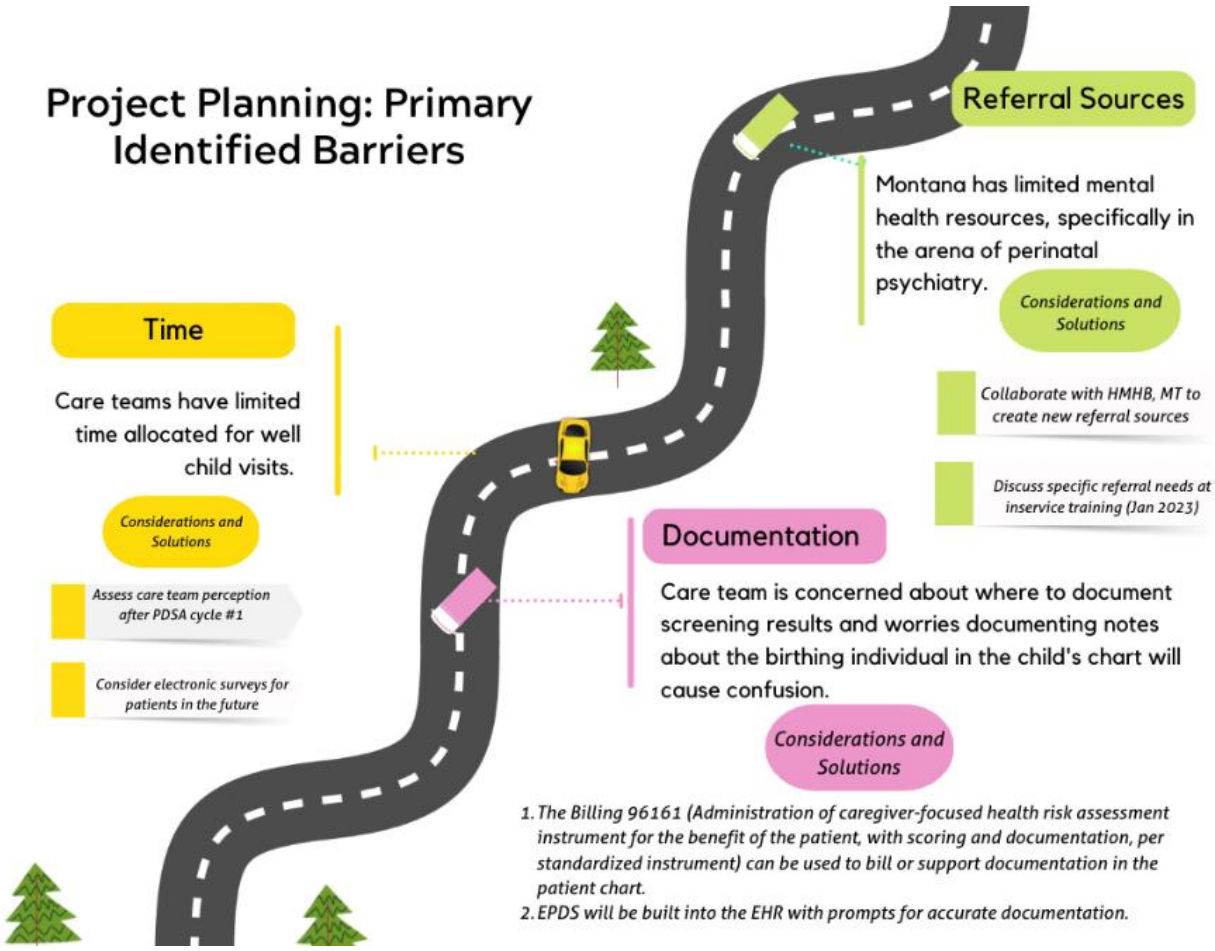

Figure 4. Barriers and implementation strategy

The tactical screening process (figure five) follows the EPDS and American Academy of Pediatrics clinical practice guidelines. The flowchart has also been reviewed and approved by the executive director of HMHB, MT for accuracy and congruence with other statewide efforts to screen for PMADs. This review was not required for implementation but was considered for continuity of practice across Montana.

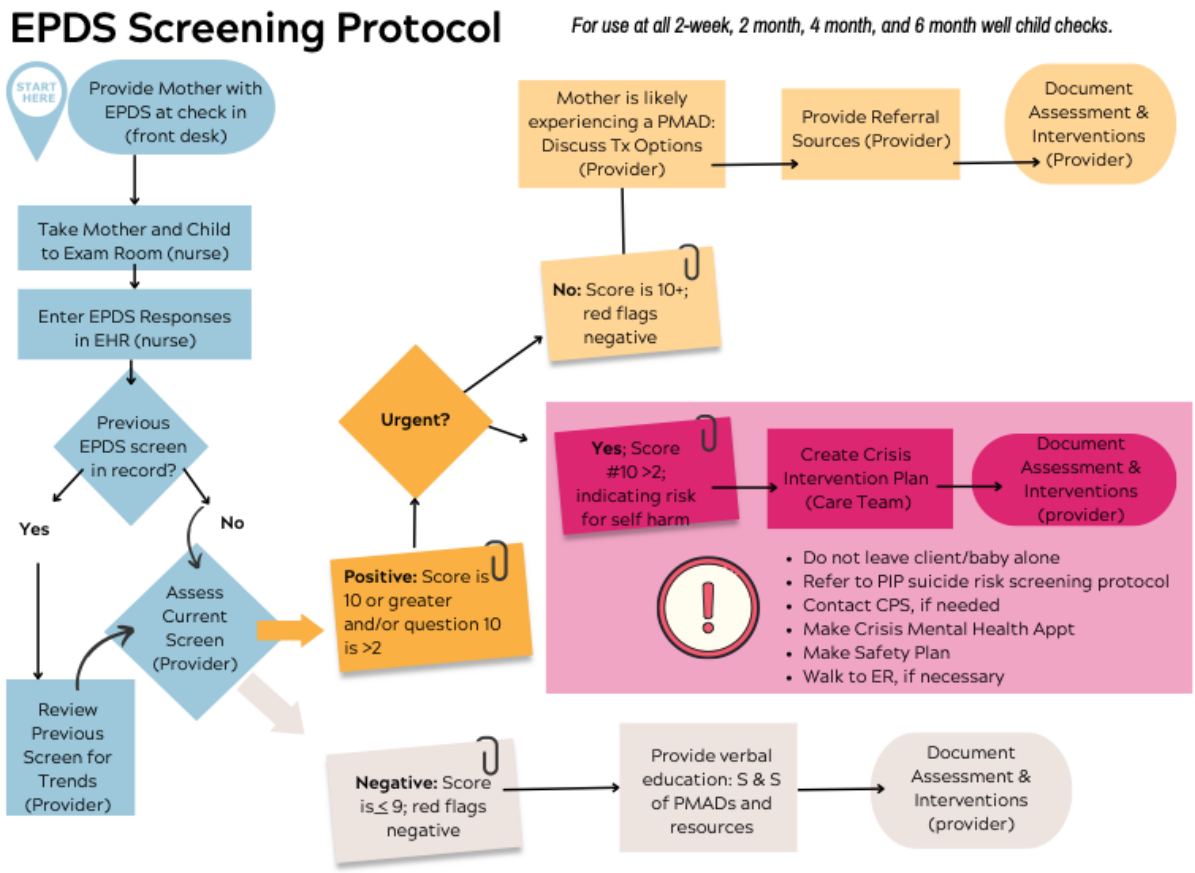

Figure 5. EPDS screening process

In summary, the pediatric clinic strives to provide patients with the most comprehensive pediatric care possible in a family-centered environment. Screening for PMADs is an evidence-based strategy to support healthy childhood attachments which will bolster the social, emotional, and cognitive health of the pediatric patients served by the clinic.

CHAPTER 3

QUALITY IMPROVEMENT PROJECT

Introduction

PMADs are widespread, impacting one in five birthing individuals (Byrnes, 2018). Moreso, children who grow up with mentally well caregivers are less likely to develop mental illness or poor physical health, even in the face of other adversities (Crouch et al., 2018). While most pediatric care is focused on the wellness of the child, a deeper understanding of childhood trauma stresses the need to focus on perinatal mental health as a source of safety and stability for the developing child (Earls et al., 2019).

Impact of PMADs

Untreated postpartum depression is associated with fewer well-child checks, increased emergency room visits, and changes in childhood brain development leading to emotional dysregulation; specifically, difficulties with aggression, hyperactivity, depression, and anxiety (Byrnes, 2018; Earls et al., 2019; Hay et. al., 2010; Hoffman et al., 2017; Letourneau et al., 2018). Perinatal suicide, which undoubtedly has a tragic impact on the developing family system, is one of the leading causes of maternal mortality (Orsolini et al., 2016).

Clinical Practice Guidelines

The American Academy of Pediatrics recommends screening for PMADs using the EPDS or the PHQ-9 at the 1-, 2-, 4- and 6-month well-child check appointments (Earls et al., 2019). This frequency is recommended because PMADs tend to peak at 6 weeks and 6 months and it allows for multiple assessment points (Earls et al., 2019; Rafferty et al., 2019). By offering

regular screenings, conversations around mental health are also normalized, increasing the likelihood that birthing individuals provide honest and vulnerable responses.

The screening frequency was modified for this QI project as the clinic's regular well-child checks do not follow the recommended screening frequency. Rather than modifying the clinic's well-child check schedule, the team modified the screening frequency to fit the 2-week, 2-month, 4-month, and 6-month well-child check schedules already hardwired into the clinic. Clinical practice guidelines allow for this flexibility in screening and encourage providers to select timeframes that best fit their culture and practice (Earls, et al., 2019).

The EPDS is one of the most widely used and recommended screening tools for PMADs. The screening tool is free of cost and can be reproduced without further permission so long as the original copyright is maintained and cited. The tool is specific to the postpartum period and specifically excludes constitutional symptoms of pregnancy (for example, difficulties sleeping) that may otherwise lead to a positive screen (Mazzoni et al., 2021). It is a 10-item questionnaire wherein one meta-analysis found the EDPS to carry a sensitivity of 0.92 and maximized rates using a cut-off score of 11 (Levis et. al., 2020). The tool assesses an individual's mood and experiences over the past seven days specifically addressing depression, anxiety, and suicidal thoughts. An EPDS score can range from 0-30 where positive scores are considered to be 10 or greater and require a mental health referral (Lomonaco-Haycraft et al., 2018; Rafferty et al., 2019). If a patient endorses suicidal ideation and/or thoughts of self-harm, an immediate referral is required for further assessment, regardless of the total score (Lomonaco-Haycraft et al., 2018).

Local Problem

The aim of this QI project was to improve PMAD screening rates and referrals within one Montana pediatric clinic utilizing current clinical practice guidelines. Compounded with the state of Montana's chronically high rate of mental illness, with a suicide rate of more than twice the national average, the data indicate a pressing need to screen for PMADs to support family well-being (Suicide mortality by state, 2020).

Methodology

EPDS implementation occurred over six weeks, divided into three, 2-week PDSA cycles. During each 2-week, 2-month, 4-month, and 6-month well-child check appointment, the birthing individual, if present, was screened using the EPDS. Data were collected at the end of each PDSA cycle to determine (1) the total number of well-child checks, (2) the total number of well-child checks with a birthing individual present, (3) the total number of birthing individuals screened, and (4) the total number of individuals scoring positive (score of 10 + ***or*** reports of suicidality), and (5) the total number individuals with a positive score who received referral resources. The specific protocol for the pediatric clinic (Appendix D) outlines both tasks and responsibilities for implementation. Following each 2-week cycle, data were reviewed with the clinic team and analyzed using the PDSA study framework. Suggested changes were implemented prior to the subsequent cycle for further study.

Phase 1: Development and Initiation

Prior to implementation, a care team of pediatric nurse practitioners, pediatricians, registered nurses, and the clinic manager assembled to assess team engagement and readiness for change. The care team was motivated to implement the EPDS screening tool because it

supported their mission of providing family-centered care. The organic alignment with the organizational mission created an environment of curiosity and enthusiasm that was seen throughout the longevity of the project. A project planning outline was created (Appendix E) to ensure a thoughtful implementation process that would meet Institutional Review Board (IRB) requirements, the needs of the clinic, and the MOC program (for which this project will be utilized). The pediatric providers approved the EPDS for implementation at a medical staff meeting in September 2022 where sponsorship of the QI project was finalized and approved for implementation.

Primary implementation barriers were identified among team members and were generally in alignment with nationally reported barriers: limited time, lack of referral sources, and lack of training (Puspitasari et al., 2021; Rafferty et al., 2019). These concerns were integrated into each PDSA review process for further consideration and promotion of long-term sustainability. Once the project outline was approved by the care team, the project plan was submitted for IRB approval which was granted in January 2023. Following this permission, preliminary data were reviewed to assess the clinic's baseline capacity for screening. Prior to project implementation, the Patient Health Questionnaire 2 (PHQ-2) was used to screen for PMADs at each 2-month well child check. It is worth highlighting that his process was not in alignment with clinical practice guidelines and team members questioned its sustainability. To understand the efficacy of this process a retrospective chart review was completed by reviewing a randomized six-week period of 2-month well-child checks. A review of metrics uncovered during this chart review was shared with the entire clinic staff during the PMAD educational session.

The formal initiation of project implementation began during a team meeting on 1/25/23. A goal of 100 percent staff attendance (N=23) was set for this meeting, with an 87 percent (N=20) success rate. However, it should be noted that two of the physicians were unable to join due to rounding on the pediatric floor of the hospital. All three team members not in attendance were followed up with individually using resources from the educational meeting. During the team meeting, there were several suggestions provided by nurses and physicians which were amended prior to formal implementation. These suggestions were to (1) create a screening tool with larger font, (2) change the color of the screening tool to match the PHQ-2 tool being replaced, (3) put referral resources in each exam room, and (4) review scoring protocol in more detail.

Phase 2: EPDS Screening Implementation

After planning and educating the clinic staff, the care team was ready to activate the first of three PDSA cycles. The PDSA process was selected for its familiarity and efficiency in achieving incremental progress (Chen et. al., 2020). Establishing specific review dates allowed the team to track the efficacy of changes made and to further refine the process.

PDSA 1

Several pediatric care team members began implementation prior to the planned, 2/6/23, start date. However, PDSA data collection cycles remained as outlined by the initial project proposal to ensure consistency within the clinic. Intermittent check-ins with care team members resulted in positive feedback about the new tool. During these check-ins, nurses reported difficulties entering the EPDS responses into the medical record in a timely manner, resulting in several missed or unaddressed screens. After completion of the first two-week cycle, data were

reviewed and highlighted several points: (1) the EPDS data uncovered more individuals with positive scores which is more in alignment with the national trend, (2) a direct comparison of the PHQ-2 and EPDS over a period of two weeks (2-month appointments only) indicate higher frequency of positive scores and referrals, however (3) overall referral rates remained at 50 percent. Therefore, the clinic team focused attention on incorporating an improved process to both alert providers of positive scores and educate providers regarding perinatal education and referrals.

Subjective feedback from the clinic's care team indicated the largest barrier in the EPDS implementation process was the burden placed on the clinic Registered Nurse (RN) who was tasked with the transcription of a paper EPDS into the medical record. RNs noted it was challenging to complete this task in a timely manner due to the high volume of patients. To relieve this burden, it was suggested that the office team both hand out the paper copy of the EPDS and transcribe the results into the patient's medical record. This change would allow providers to see EPDS scores in real time, offering an improved margin for assessment. However, discussions with the team yielded no change in the screening protocol as birthing individuals typically do not fill out the screen until they are roomed by a nurse.

PDSA 2

Data from the second cycle of this project showed increased screening rates (85% v. 83%) and improved referral rates (67% v. 50%) as compared to the first cycle. When comparing total data, there was a substantial increase in both screening and referral rates as compared to the clinic's previous system using the PHQ-2 at each 2-month well-child check. Over 4 weeks, 93% of birthing individuals had a documented EPDS at each 2-month well-child check. Among these

individuals, 12% scored positive, and 67% were referred. The 4-week retrospective data showed 58% of birthing individuals were provided the PHQ-2 at the 2-month well-child check with 0% of these individuals scoring positive. While data were improving, they also indicated a clear need for further study on the referral process.

Upon review with the team, care providers expressed two key themes: (1) the EPDS tool is difficult to quickly score and (2) there is not a clearly defined documentation expectation for each care provider. During the second PDSA review meeting, clinicians agreed on a documentation strategy to address each EPDS entered the chart. Clinic staff and nurses offered suggestions that could potentially increase EPDS documentation efficiency and agreed to monitor future appointments for additional suggestions.

PDSA 3

A primary observation associated with the third PDSA cycle was that screening rates had increased across all cycles (from 83% to 85% to 86% respectively) but the referral rates remained low (50% in the third PDSA cycle). Providers agreed that the lack of a template or reminder cue in the well-child check notes made it difficult for them to consistently address the EPDS. This was discussed after PDSA 2 and remained a concern at the conclusion of the project. One outcome of this QI project was the initiation of a template that will prompt providers to address the EPDS score. This intervention will ensure a consistent charting and referral process across the clinic and will be championed by one of the clinic's pediatricians who started working on this task at the project's conclusion.

When comparing PHQ-2 (preintervention) data among all 2-month appointments over six weeks, the screening rate was 73%, with 6% of these screenings scoring positive, and 50% of

these screens provided follow-up. As compared to the EPDS (post-intervention) data among all 2-month appointments over six weeks where the screening rate increased to 92%, with 9% of these screenings scoring positive and 66% of individuals receiving follow-up (figure 6).

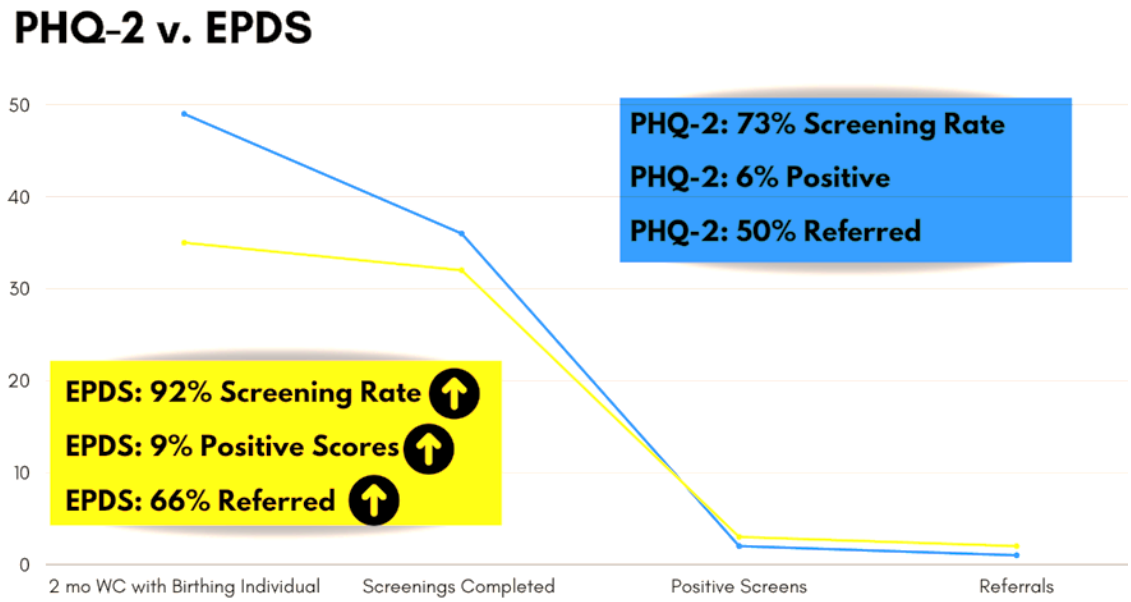

Figure 6. Comparison between PHQ-2 (pre-intervention) and EPDS (post-intervention)

Phase 3: Evaluation

An evaluation phase was completed at the end of each PDSA cycle and summarized in its entirety at the end of the third cycle (figure 7). Data were reviewed by a psychiatric mental health nurse practitioner student after each 2-week PDSA cycle. Raw calculations were cross checked by a statistician to verify accuracy. Data recorded after each cycle included: (1) the total number of 2-week, 2-month, 4-month, and 6-month well child check appointments with a birthing individual present, (2) the total number of EPDS provided to the birthing individual, (3) the total number of positive scores, and (4) the total number of follow ups and referrals. The

specific scores were also collected for further review to assess if any of the scores required urgent follow up. Among all surveys, zero percent warranted emergency follow up as indicated by the birthing individual having immediate thoughts of wanting to harm themselves or others. Each PDSA process allowed the team to further study the implementation process and suggestion changes for improvement.

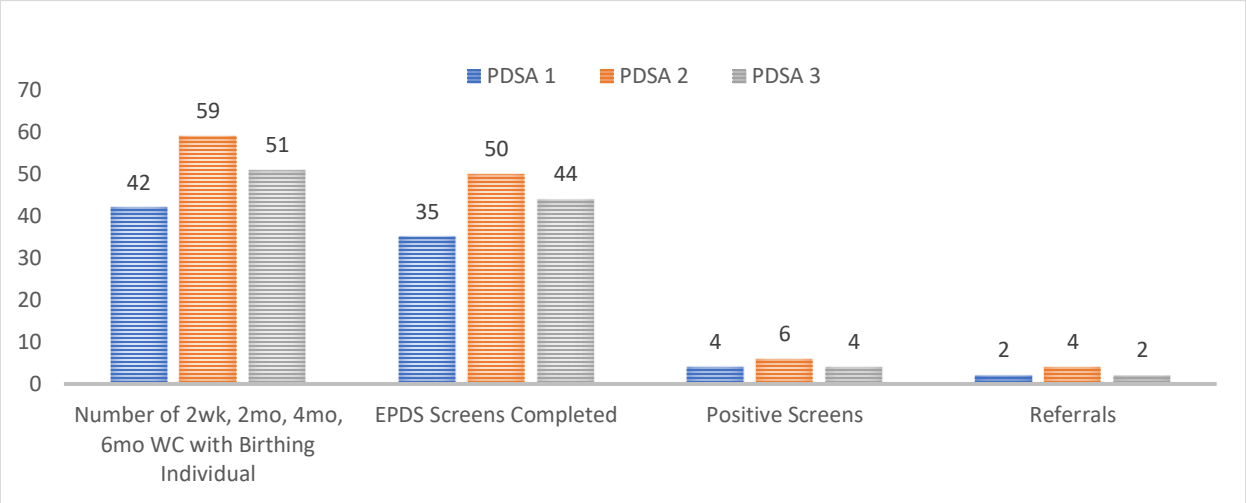

Figure 7. EPDS PDSA Cycle Comparisons

Results

Over six weeks (figure 8), 152 birthing individuals were present for 2 week, 2-month, 4-month, and 6-month well child check appointments. Among these women 129 (85%) were screened with the EPDS. Among these individuals, 14 (11%) had a positive score. Among the positive scores, 8 (57%) were addressed for follow up recommendations. Zero of the positive scores were assessed to be urgent or life threatening.

When comparing PHQ-2 (pre-intervention) data among all 2-month appointments over six weeks (figure 6), the screening rate was 73%, with 6% of these screenings scoring positive,

and 50% of these screens provided follow up. As compared to the EPDS (post-intervention) data among all 2-month appointments over six weeks where the screening rate increased to 92%, with 9% of these screenings scoring positive and 66% of individuals receiving follow up. When following clinical practice guidelines, more birthing individuals were screened for PMADs and referred for follow up support as compared to the previous screening intervention used by the pediatric clinic which was misaligned with clinical practice guidelines.

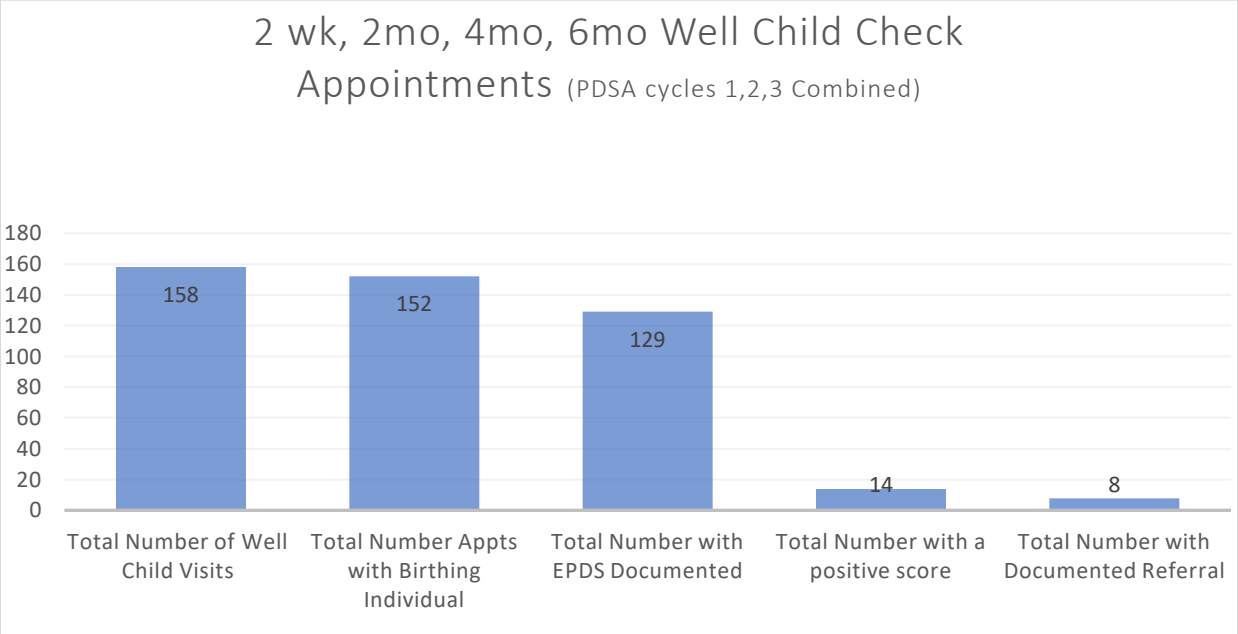

Figure 8. Total EPDS Screens

Discussion

EPDS implementation resulted in increased screening rates among birthing individuals during well child checks. These rates also resulted in increased positive scores as compared to the clinic's previous intervention. Based on national data, it is anticipated that 20% of EPDS scores would be positive. Prior to implementation, 6% of individuals screened had positive

scores. Post intervention, a total of 11% of individuals had positive scores. While not a direct reflection of the national average, the increase in positive scores is reassuring. Follow-up and referrals remained difficult for care team providers related to barriers discussed below. However, in total, more birthing individuals were referred for follow-up as compared to the previous intervention.

Final implementation difficulties were congruent with the identified barriers early in project implementation and include time constraints and lack of EPDS knowledge. Referral resources did not present a barrier as anticipated by the care team; most women who scored positive had a primary care provider monitoring their mental health or were aware of local resources.

One additional barrier that arose was the capacity of the clinic's electronic medical record. The first component in this barrier was that the team had no way for the birthing individual to electronically enter their EPDS responses. Rather, a paper form had to be transcribed by the nurse which compounded time stressors. The second component associated with this barrier, which will be addressed by the care providers in future PDSA cycles, was that the well child check template did not have a pre-existing prompt for providers to reference and assess the EPDS score. Nor was there an agreed upon way to document a positive score and the referral process. Rather, it was dependent on each provider to check the EPDS score and enter their own narrative into the medical record. This variability resulted in confusion and likely contributed to lower referral rates.

Limitations

Project limitations include short project duration and restricted capacity of the electronic medical record. The medical record limits who had the ability to enter EPDS scores into the record. Should the pediatric clinic decide to purchase an interface allowing patients to enter their own answers via a patient portal, it is predicted more surveys would be completed and assessed by the pediatrician. Future PDSA cycles are recommended to further investigate the function of the medical record in association with time barriers.

Financial Implications

The EPDS is a free tool available for implementation. The EPDS implementation process was supported by the privately owned pediatric clinic and costs were largely associated with staff time. PDSA cycle updates were completing during regularly scheduled staff meetings and nurses estimate the additional screenings required several additional minutes per patient. If the clinic chooses to integrate a patient portal, allowing the birthing individual to directly enter their answers into the medical record, this would be a significant cost for the clinic.

Conclusion

Findings of this quality improvement project are associated with improved care for postpartum birthing individuals. EPDS implementation was associated with increased PMAD screening rates and amplified awareness about maternal mental health. Additional PDSA cycles are recommended to bolster adequate follow up among individuals scoring positive. It is largely anticipated that referrals and follow up treatment will have the largest impact on maternal health and pediatric development. Although, assessing impact on birthing individuals and families will require future study.

CHAPTER 4

Doctor of Nursing Practice (DNP) ESSENTIALS

DNP Essential I: Scientific Underpinnings for Practice

Throughout my DNP education, I refined my ability to review and synthesize evidence-based research which has allowed me to both evaluate practice approaches and collaborate with other disciplines to support the well-being of the community. I have analyzed clinical practice guidelines, quality improvement processes, and randomized control trials; I regularly integrate learnings into project proposals and independent clinical practice. I have focused my efforts on the women's healthcare delivery system and have developed approaches to decrease health disparities among this population.

Early in the DNP program, I began to study vulnerable populations, focusing my translational research projects on postpartum anxiety and low-income women. This focus allowed me to propose advanced strategies and develop new approaches to working with women while uncovering my personal biases. Paying attention to these biases allowed me to dismantle my preconceived prejudices so I can design and deliver project outcomes that are equitable and inclusive. For example, I made focused efforts to improve care delivery to low-income women through local integrative health grants and have educated pediatric providers on the importance of perinatal mental health. Co-occurring in these processes was an appreciation for the financial aspects of new practice approaches. Designing a financial proposal for two different healthcare organizations during my time of study allowed me to better understand the connection between patient care and the feasibility of sustained care delivery.

A culmination of this knowledge led me to implement the Edinburg Postnatal Depression Screening (EPDS) at one rural pediatric clinic located in the pacific northwest. I was able to bring a biological, psychological, and human approach to this project with the goal of supporting maternal and childhood well-being while underscoring the importance of intergenerational trauma and human development. I will carry these learnings into my future as a PMHNP leader as I focus on women's mental health through an integrative mental health system.

DNP Essential II: Organizational and Systems Leadership Self-Reflection

Financial challenges in the healthcare system are vast and impact access, inclusivity, diversity, and quality of care. Cultivating a greater understanding of the Affordable Care Act, Medicaid Expansion, payment systems, and budgeting, I am more able to see the connection between finances and population health. Specific to Montana, I have learned that Medicaid Expansion supports one in ten community members, leading to a decreased rate of uncompensated care which impacts organizational debt. I did not previously have an understanding of the importance of legislative advocacy required to maintain Medicaid Expansion within Montana and now see that I am a part of supporting continued resources dedicated towards this initiative within the state.

Using principles of business and finance, I created a project proposal that will allow organizations to assess their internal culture and further develop awareness as to how their culture impacts patient outcomes and the bottom line. This proposal included a project cost and SWOT analysis along with an executive summary. This exercise allowed me to build connections across organizational systems, collaborating with executives, business leaders, and

registered nurses. I was able to articulate how leadership strategies impact organizational health and patient care.

My clinical rotations have led me to a deeper understanding of reimbursement and insurance coverage so I can balance both productivity and quality care for my future patients. Knowing that financial stress is a large contributor to mental health, I will serve as an advocate for my patients and plan to design systems that ease the financial burden placed on individuals. For example, while implementing the EPDS, we were able to implement a screening tool at no cost to the patient, appreciating that mental health should be discussed without significant financial stressors if pediatric providers aim to disrupt intergenerational trauma.

DNP Essential III: Clinical Scholarship and Analytical Methods for Evidence-Based Practice

Throughout my DNP education, I spent time evaluating existing literature, clinical practice guidelines, evidence-based research, and maintaining up-to-date knowledge with reproductive psychiatrists across the country so I can effectively communicate the context and consequences of perinatal mood and anxiety disorders (PMADs). This deep understanding allowed me to integrate new knowledge and apply research into local clinics for optimized patient healthcare.

Evaluating the research led me to better understand current barriers in the healthcare system that limit both clinical understanding and treatment of PMADs. As a result, I created a translational research plan proposing intentional screening and treatment for all women who have symptoms of postpartum anxiety with the intent of both treating the mother and creating space for a healthy mother-infant connection. I was not able to implement this proposal in practice which means that I did not evaluate or assess the effectiveness of the plan, but I did

implement an iteration of this process in my final project which allowed me to integrate past knowledge into an effective screening protocol. During this project, I found myself as the consultant to family nurse practitioners and pediatricians at the local pediatric clinic where I was asked to support the screening process with evidence-based knowledge.

I have spent time understanding organizational systems to evaluate processes, outcomes, and quality improvement initiatives. I spent clinical hours at Shodair Children's Hospital understanding the admissions process, medication administration processes, and materials management systems. These experiences allowed me to assess processes and their impact on patient care. I assessed processes by utilizing new skills in developing value stream maps, fishbone diagrams, root cause analysis, and process flow studies. Having practiced these improvement models, I have a better understanding of how to apply these practices to future project proposals to evaluate financial and health outcomes. As mentioned, I was able to apply this work to my final DNP project where similar tools were utilized to evaluate the EPDS screening process. These experiences have established a blueprint for me to implement future sustainable projects.

Essential IV: Technology for the Improvement and Transformation of Healthcare

Throughout the DNP program, I studied consumer use of healthcare systems and worked with a multidisciplinary team to analyze the impact of electronic health records on patient health outcomes. Prior to this experience I had many assumptions about healthcare technology but did not intentionally spend time verifying or challenging my assumptions.

As technology is increasingly accessible to individuals, it is difficult to discern what healthcare information is valid and reliable. I learned effective strategies to help patients navigate

information and become socially responsible healthcare consumers. I also spent time understanding how to assess and select electronic health systems that will be essential to my future practice. I have explored the electronic needs of my future practice and now have a better understanding of what resources are needed to support the clinical care team. I also hold a greater understanding of the connection between electronic health records and population health; electronic health records play an essential role in monitoring patient wellbeing, tracking health metrics, and understanding population health trends.

I will translate these learnings into my future practice so that they are relevant to the success of my patients. This will look like selecting an electronic health record that can meet specific needs of mental health care while integrating with multiple disciplines (ie. Primary care, pharmacy, occupational therapy, etc.)

Essential V: Care Policy for Advocacy in Health Care

The Ethics, Law, and Policy course I took early in my DNP career was a primary catalyst for my learning in this area and one of the most formative classes in my DNP journey. Throughout my time as a DNP student, I wrote a letter of support for firearm safety legislation to protect Montana's youth from accessing lethal means to end their lives; this conversation was only the beginning of my work with Montana lawmakers.

During the 2021 legislative session, I spent time working with the Montana Human Rights Network to protect Montana's transgender youth from harmful legislation that would limit their access to equitable care and community support. I have been an advocate against Montana House Bills 113 and 112; bills that would prohibit providers from supporting transgender patients. I applied my learnings from Nursing 612 (Ethics, Law and Policy) and

wrote Montana legislators, drafted op-eds, and networked with local hospitals to speak up against this harmful legislation. I believe these actions demonstrate my ability and commitment to advocacy and quality patient care. My role as a future nurse practitioner will not end after a day at the clinic, it will be an iterative process of serving patients within a formal clinic setting and advocating for mental healthcare in my community and across our nation. These experiences led me to join multiple organizations (both local and worldwide) to support maternal mental health. I plan to remain a part of these organizations as I continue my career.

Essential VI: Interprofessional Collaboration for Improving Patient and Population Health Outcomes

The beginning of my DNP education required focused collaboration with fellow Psychiatric Mental Health Nurse Practitioner (PMHNP) students as well as those in the field of primary care, nutritional counseling, and engineering. This work required utilizing different perspectives to review clinical practice guidelines and create a proposal for effective maternal mental health treatment within a women's clinic. The exercise of proposing an initiative rooted in evidence and research was helpful in creating a framework for implementation. I learned how to engage stakeholders, work across disciplines, articulate evidence, develop implementation plans using lean processes, assess cost-effectiveness, and project patient outcomes.

Once I began clinical work, I was able to utilize these collaborative skills in several arenas. Each week I participate in a multidisciplinary call with Massachusetts General Hospital where there are over 150 participants from the field of reproductive psychiatry, including doulas, therapists, lactation consultants, psychiatrists, PMHNPs, hospital administrators, and, occasionally patients. I have been an active member on these weekly calls and lean on my

learned communication and collaboration skills to present complex perinatal cases for interdisciplinary review during such meetings.

My final DNP project led me to serve as a lead consultant among an interprofessional team of care providers, including Family Nurse Practitioners (FNPs), Medical Doctors (MDs), RNs, and clinic staff. This interprofessional collaboration showcases how healthcare providers from different areas of study can work together to achieve more robust and sustainable goals as compared to care providers working individually.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health

I spent significant research and clinical time assessing specific health issues related to low-income women and mothers. Assessing access to care, behavioral patterns, culture, determinants of socioeconomic origin, and environmental forces, I collaborated with peers and created strategies to reduce health disparities among this targeted population.

Low-income women and children are among the most vulnerable populations across the nation, often having experienced additional psychological stress and trauma while also lacking access to quality healthcare. When women are unable to care for their health and the health of their children, they are more likely to sustain intergenerational trauma which contributes to inadequate health outcomes. Through these learnings, I collaborated with colleagues, focusing on process change strategies that would provide access to universal home visiting for all mothers. This strategy would increase social support and educational resources aimed at improving long-term health outcomes of both mother and child. This strategy was formed after consideration and understanding of this specific population.

I synthesized my combined learnings from previous classes when implementing the EPDS at the local pediatric clinic. To successfully implement the work, I needed to have a firm understanding of the current literature and was required to synthesize the literature both in a professional paper and for the general clinic team. From this point, I was able to implement and evaluate the effect of the EPDS which is targeted toward population health and improved national health outcomes.

Essential VIII: Advanced Nursing Practice Self Reflection

My advanced nursing practice skills first grew in the context of the classroom where peer collaboration and clinical observation created a foundation for my growing independence. My work assessing vulnerable populations prepared me to evaluate patients in the context of their culture, complex beliefs, and unique needs. For example, I spent significant time understanding how perinatal mental health is impacted by socioeconomic status. These learnings translated into my clinical experiences and allowed me greater capacity to source empathy for each patient and family.

My clinical experiences were first focused on a systematic assessment and diagnosis of each patient. The stronger my assessment abilities became, the more attention I gave to developing a therapeutic relationship with each patient. When I created space for the therapeutic relationship, I found a greater ability to expand my thinking as I help guide each patient toward health. I pulled on an advanced understanding of pathophysiology, pharmacology, ethics, systems operations, assessment, vulnerable populations, and diagnostic reasoning to both educate patients and create a holistic care plan that can be measured and adjusted throughout the patient's treatment.

My confidence as an advanced nurse practitioner continues to grow from the classroom foundations where it began four years ago. Foundational to my development as an independent practitioner are the core elements reflected on throughout this paper, all of which lead me to believe that I have the resources and foundations to serve patients across Montana with the highest level of integrity and compassion.

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APPENDICES

APPENDIX A

EVIDENCE TABLE

Appendix A: Evidence Table

Citation: Author, Date of publication	Purpose of Study	Conceptual Framework	Design/Method	Sample/Setting
Puspitasari et al. (2021)	Explore clinicians perspectives on screening for PMADS	Disease Prevention	Cross sectional, descriptive study; survey sent to clinicians (online questionnaire)	N=118; community clinics at an academic medical center in the US (WI, MN, AZ, FL); No participants withdrew
Lanuza & Butler (2021)	Improve screening and care for those with PMADs	Disease Prevention	Rapid Cycle QI using 4 PDSA cycles	Individuals 28-32 weeks gestation & at 6 week PP check up. Suburban, private proactive women's health clinic. Eligible pts (N=78)
McKee et al. (2020)	Assess prevalence of PMADs and adverse outcomes.	Disease Rates and Cost of Healthcare	Cross sectional analysis of National prevalence of PMADs, obstetric outcomes, healthcare utilization and costs.	39,025,974 delivery hospitalizations from 2006 to 2015 in the U.S
Vanderkruik et al. (2021)	Explore preliminary findings of piolet study of a digital postpartum depression screening app.	Disease Prevention	Piolet Study; validation of new screening tool.	N=862 Reviewed studies, 29 Published in US. All data points were <37 weeks gestation with antenatal depression.
Joas and Mohler (2021)	Provide empirical evidence about the association of bonding and social competency.	Disease Prevention	Longitudinal Study	101 Caucasian mothers with singleton pregnancies. Criteria: Infant weight over 2500g / born > 37 weeks/APGAR scores>7, good health via first 3 well child checks. Mothers were from urban and rural areas in Germany. Exclusion criteria= acute psychiatric disorder of mom/ use of substances/ smoking/ alcohol.
Levis et al., 2020	Evaluate accuracy of the EPDS	Accuracy of Systems	Meta-analysis; PRISMA-DTA guidelines followed	58 EPDS stidies after PRISMA tool used.

Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Findings	Worth to Practice: LOE, Strengths/Weaknesses, Feasibility, Conclusion, Recommendation
Puspitasari et al. (2021) Cont: IV 1: PMAD screening. IV 2: PMAD education rates. DV 1: Rate of treatment and referral/ DV2: Reported comfort level in screening and management	Name of questionnaire and reliability not reported.	34.7 no PMAD training/ 66.3% had less than 10 years experience in field. 39% reported being somewhat comfortable. 13.6% very comfortable. Top barrier to screening was reported as no time followed by no referral sources.	Improvements needed to PMAD screening training and guidelines.	LOE: 5/ Strengths: large sample size & generalizable. Weaknesses: Validated questionnaire not used. Recommendation: Utilize in conjunction with other research.
Lanuza & Butler (2021) cont: Screening, brief intervention, referral, and treatment follow up (SBIRT) measured. IV 1: PMAD screening DV: BIRTH	EPDS; validated and reliable tool/ teach-back measurement tool (reliability and validity not reported)/ Maternal satisfaction measurement (reliability and validity not reported)	Screening bundle: rates increased to 85% from 7.5%/ 43% of women followed up with treatment.	Screening bundle: rates increased to 85% from 7.5%	LOE: 6. Strengths: Validated tool used to screen. Full screening bundle incorporated. Weaknesses: Not generalizable to entire population.
McKee et al. (2020) Cont: IV1: Positive PMAD. DV= Hospital transfers, LOS, cost of healthcare/ delivery.	The study identified delivery hospitalizations using delivery codes in a hierarchical manner: (1) outcome of delivery (ICD-9-CM disease code = V27), (2) normal delivery (ICD-9-CM disease code = 650, (3) diagnosis-related group (DRG) delivery codes, and 4) ICD-9-CM procedure codes for selected delivery- related procedures based on previously published methods using NIS HCUP data	PMAD increased from 18.4 (95% CI 16.4–20.0) to 40.4 (95% CI 39.3–41.6) per 1000 deliveries/ SMI also increased from 4.2 (95% CI 3.9–4.6) to 8.1 (95% CI 7.9–8.4) per 1000 deliveries. compared to other deliveries ($P < .001$ for all).	Prevalence of PMADs has increased. Women with PMADs experienced increased adverse outcomes including increased hospital LOS, Delivery costs, and hospital transfers. Higher proportions of women with SMI lived in the lowest income quartile compared to women with PMADand all other deliveries.	LOE: 4 (correlational design). Strengths- full statistical analysis. Limitations well thought out (including a possible increase in detection due to intention of study). Generalizable to population. Weaknesses: None identified. Strongly recommend.

Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Findings	Worth to Practice: LOE, Strengths/Weaknesses, Feasibility, Conclusion, Recommendation
Vanderkruik et al. (2021) Cont: IV= antenatal depression. DV= IUGR, PTB, LBW	Studies included those that assessed unipolar depression by means of depression-screening questionnaire or psychiatric evaluation.	LBW and Antenatal Depression in developing countries (RR-2.05; 95%CI) compared to the US (RR 1.10-95% CI). Pooled data are larger than those with continuous depression measures.	Antenatal depression increases risk for PTB, LBW, especially among those with lower socioeconomic status.	Limitations: Large prospective study will further assess data; especially those studying SSRI use. Did not assess anxiety or other mood disorders. LOE: 5. Strengths: Large sample size and pooled data.
Joas and Mohler (2021) Cont: IV= Attachment and bonding (mom to infant). DV= Social competency of child at age 5.5	Postpartum Bonding Questionnaire 6 weeks post delivery. Offspring assessed with SOCOMP at 5.5 years old.	Spearman Rank Correlation	Retention rate by year 5.5 was 77.23%. Lower maternal bonding scores were positively related to children's social competency at 5.5 years.	Limitations: study may not be generalizable to the US. LOE: 6. Many variables since birth may distort data by having an impact on a child's social skills. To measure early attachment, the Mother self reported her bx which may also be distorted.
Levis et al., 2020 Cont: IV= positive EPDS score. DV= accuracy of score	EPDS scores, MINI status exams.	Quality Assessment of Diagnostic Accuracy Studies 2/ Gauss Hermite Quadrature. Assessed for covariant, heterogeneity.	Sensitivity and specificity is maximized with a cut off score of 11 (as opposed to the recommended 10).	LOE: 1. Strengths: Strong statistical analysis. Large sample size Limitations: Possible bias with MINI assessment; some studies had inconsistent results.

APPENDIX B

EDINBURGH POSTNATAL DEPRESSION SCALE (EPDS)

APPENDIX B: Edinberg Postnatal Depression Scale

Edinburgh Postnatal Depression Scale[1] (EPDS)

Name: _____ Address: _____

Your Date of Birth: _____ _____

Baby's Date of Birth: _____ Phone: _____

As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

Here is an example, already completed.

I have felt happy:

- ☐ Yes, all the time
- ☒ Yes, most of the time — This would mean: "I have felt happy most of the time" during the past week.
- ☐ No, not very often — Please complete the other questions in the same way.
- ☐ No, not at all

In the past 7 days:

1. I have been able to laugh and see the funny side of things
   - ☐ As much as I always could
   - ☐ Not quite so much now
   - ☐ Definitely not so much now
   - ☐ Not at all

2. I have looked forward with enjoyment to things
   - ☐ As much as I ever did
   - ☐ Rather less than I used to
   - ☐ Definitely less than I used to
   - ☐ Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
   - ☐ Yes, most of the time
   - ☐ Yes, some of the time
   - ☐ Not very often
   - ☐ No, never

4. I have been anxious or worried for no good reason
   - ☐ No, not at all
   - ☐ Hardly ever
   - ☐ Yes, sometimes
   - ☐ Yes, very often

*5 I have felt scared or panicky for no very good reason
   - ☐ Yes, quite a lot
   - ☐ Yes, sometimes
   - ☐ No, not much
   - ☐ No, not at all

*6. Things have been getting on top of me
   - ☐ Yes, most of the time I haven't been able to cope at all
   - ☐ Yes, sometimes I haven't been coping as well as usual
   - ☐ No, most of the time I have coped quite well
   - ☐ No, I have been coping as well as ever

*7 I have been so unhappy that I have had difficulty sleeping
   - ☐ Yes, most of the time
   - ☐ Yes, sometimes
   - ☐ Not very often
   - ☐ No, not at all

*8 I have felt sad or miserable
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Not very often
   - ☐ No, not at all

*9 I have been so unhappy that I have been crying
   - ☐ Yes, most of the time
   - ☐ Yes, quite often
   - ☐ Only occasionally
   - ☐ No, never

*10 The thought of harming myself has occurred to me
   - ☐ Yes, quite often
   - ☐ Sometimes
   - ☐ Hardly ever
   - ☐ Never

Administered/Reviewed by _____ Date _____

[1]Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786 .

[2]Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-199

Edinburgh Postnatal Depression Scale[1] (EPDS)

Postpartum depression is the most common complication of childbearing.[2] The 10-question Edinburgh Postnatal Depression Scale (EPDS) is a valuable and efficient way of identifying patients at risk for "perinatal" depression. The EPDS is easy to administer and has proven to be an effective screening tool.

Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity. The EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt ***during the previous week***. In doubtful cases it may be useful to repeat the tool after 2 weeks. The scale will not detect mothers with anxiety neuroses, phobias or personality disorders.

Women with postpartum depression need not feel alone. They may find useful information on the web sites of the National Women's Health Information Center <www.4women.gov> and from groups such as Postpartum Support International <www.chss.iup.edu/postpartum> and Depression after Delivery <www.depressionafterdelivery.com>.

SCORING

QUESTIONS 1, 2, & 4 (without an *)
Are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.

QUESTIONS 3, 5-10 (marked with an *)
Are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.

Maximum score: 30
Possible Depression: 10 or greater
Always look at item 10 (suicidal thoughts)

Instructions for using the Edinburgh Postnatal Depression Scale:

1. The mother is asked to check the response that comes closest to how she has been feeling in the previous 7 days.

2. All the items must be completed.

3. Care should be taken to avoid the possibility of the mother discussing her answers with others. (Answers come from the mother or pregnant woman.)

4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

[1]Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786.

[2]Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-199

APPENDIX C

SMART GOALS

Appendix C: SMART Goals

SMART Goal #1: 100% of clinic staff will be trained on the impact of PMADs and the new pediatric clinic screening protocol by January 2023.
Rationale: Staff engagement is needed to support successful screening and treatment outcomes. Data show that screening rates improve when teams feel engaged, competent, and a part of practice change (Murthy et al., 2021).

Description of strategies to be utilized:

- Clinic will partner with Healthy Mothers Healthy Babies, Montana (HMHB, MT) to provide staff training (will be done free of charge).
- In person training will be scheduled for clinic staff in January of 2023. Team members unable to attend the training will be scheduled for a 1:1 or group follow up.
- Team members will have an opportunity to provide feedback about the new screening protocol which will be considered for final process amendments before the official go live date.
- New protocol will be integrated into future onboarding/ orientation.

Data to be collected	Methods & Responsibilities	Planned Data Analysis
• Total number of staff receiving PMAD training.	• Clinic Inservice provided by HMBH, MT. Delivery methods to include handouts, power point, and case discussion (Cost: $0) • Lunch provided by pediatric clinic for care team members during in-service (Cost $150). • Follow up in-service for individuals not in attendance will be completed with the DNP student and clinic manager.	• If less than 100% success rate, analyze barriers to success. • Complete 1:1 follow up meetings until 100% rate is achieved.

SMART Goal #2: By February 2023, 100% of birthing individuals attending a 2 week, 2, 4, or 6 month well child check will be screened following the new protocol.
Rationale: EPDS screening protocol is valid, reliable, and widely encouraged by the American College of Obstetricians & Gynecologists, Council on Patient Safety in Women's Health Care, United States Preventive Services Task Force, Agency for Research Health & Quality, American Academy of Pediatrics, American Psychiatric Association, and the Health Resources and Services Administration (Lomonaco-Haycraft et al., 2018).

Description of strategies to be utilized:

- New protocol (figure 5) was designed with input from the care team and will be revised provided feedback from the in-service in January 2023.

<table>
<tr><td colspan="3">

- Address identified barriers (figure 4).

</td></tr>
<tr><td>Data to be collected
(see also: Figure 3)</td><td>Methods & Responsibilities</td><td>Planned Data Analysis</td></tr>
<tr><td>

Pre-Intervention:

- Number of total 2 week well child checks occurring x 6 weeks.
- From the above, number of pts screened using PHQ2.
- From the above, number of pts screened positive.
- From the above, number of patients with a documented referral.

Post Intervention:

- Total number of 2-week, 2 month, 4 month, and 6 month well child checks occurring x each PDSA cycle.
- From each of the above time intervals, total number of pts screened using the EPDS protocol.

</td><td>

- Student to complete chart reviews to gather de-identified data. Data collection to occur at 2-week intervals (for each of the three PDSA cycles).

</td><td>

- Total patients receiving screening.
- If less than 100% success rate, analyze barriers to success.

</td></tr>
<tr><td colspan="3">SMART Goal #3: By February 2023, 100% of birthing individuals screening positive on the EPDS will be referred for follow up support.
Rationale: Screening for PMADs is associated with an increase in mental health care use, rates increase further when an intentional referral is made by a trusted care provider (Lanuza & Butler, 2021). Clinic care providers identified lack of referral sources as a barrier to pre-intervention screening engagement; ensuring referral documentation and resources are available to providers will sustain engagement.</td></tr>
<tr><td colspan="3">Description of strategies to be utilized:

- Utilize new referral resources from HMHB, MT.
**New resources will include more robust medication management and psychotherapy to improve overall effect size of treatment.

</td></tr>
<tr><td>Data to be collected
(see also: Figure 3)</td><td>Methods & Responsibilities</td><td>Planned Data Analysis</td></tr>
<tr><td>

- Total number of pts screened positive of the EPDS at each appointment frequency (2-

</td><td>Student to complete chart reviews to gather de-identified data. Data</td><td>

- If a positive screen is not referred, assess trends and barriers.

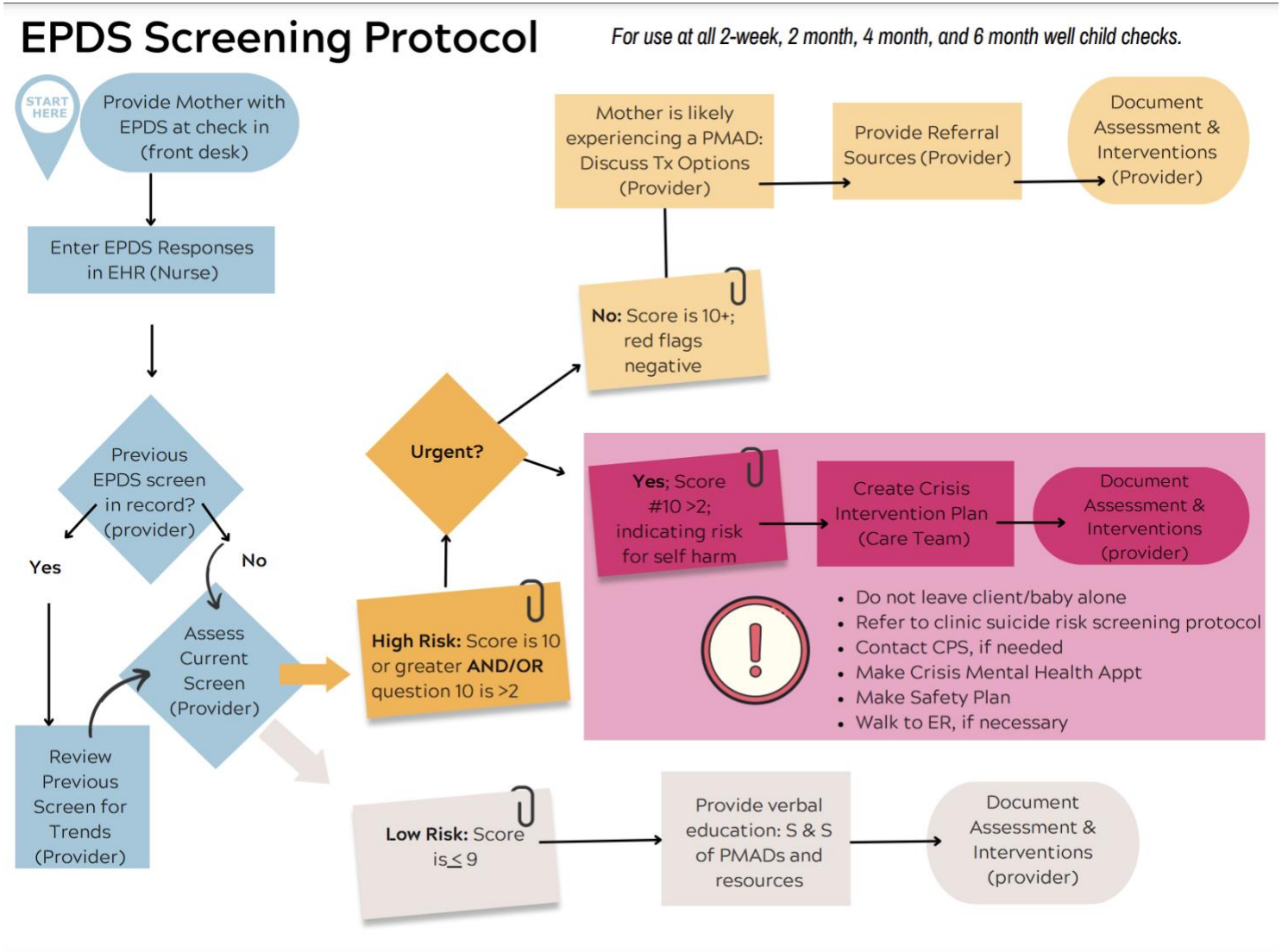
</td></tr>
</table>

week, 2-month, 4 month, and 6 month). • From the above, total number of patients with a documented referral.	collection to occur at 2-week intervals (for each of the three PDSA cycles).	
SMART Goal #4: Among the individuals scoring positive on the EPDS scale at a 2-week, 2 month, or 4 month appointment, 75% will have a lower EPDS score as compared to their referral score during the 6 month well child check appointment. *Rationale:* A 75% benchmark is identified because of the following factors: • If referred for psychotherapy, medications may take 4-6 weeks to reach therapeutic benefit (Stahl, 2021). • First line pharmacologic treatments for PMADs have small effect sizes of 0.3 which may require several medication trails before adequate clinical response (Hengartner & Plöderl 2018). • When medications are combined with psychotherapy, the effect size increases to 0.9 which provides hope for a larger clinical effect of 75%.		
Description of strategies to be utilized: o Ongoing PMAD education and screening.		
Data to be collected (see also: Figure 3)	**Methods & Responsibilities**	**Planned Data Analysis**
• Number of individuals referred for care at a 2 week, 2 month, or 4 month well child check. • EPDS score at time of referral • EPDS score at 6 month well child check. ***Due to the timeframe of this project, these data are not possible to gather but it remains a long-term goal.***	Pediatric Care Team	• Compare preintervention scores and post intervention scores. • Calculate average change in score across each group (2 week referral, 4 month referral, and 6 month referral).

APPENDIX D

EPDS SCREENING PROTOCOL

Appendix D: Figure 5- EPDS Screening Protocol



APPENDIX E

EPDS PROJECT PLANNING OUTLINE

Appendix E: Figure 3- EPDS Project Planning Outline