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**Optimizing Postpartum Care by Ongoing Care Coordination Initiatives (CCI) in screening and Management of Postpartum Depression (PPD) Among Clients in an OBGYN Practice:  
A Quality Improvement Project.**

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I have reviewed this manuscript and I approved it to be submitted in Duquesne Library repository.

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### Abstract

**Background:** Postpartum depression (PPD) is defined as physical, emotional, and behavioral changes that occur after the birth of a child. Postpartum depression is complex and a mix of physical, emotional, and behavioral changes (Cleveland Medical Clinic, 2018). Postpartum depression screening is of high importance at a comprehensive postpartum visit. The consequences of a patient suffering postpartum depression can be serious and early recognition and interventions improve outcomes for the patient as well as the infant. **Problem:** There is a lack of screening for PPD among postpartum clients and this period is critical for the mother and the infant (American College of Obstetricians and Gynecologists [ACOG], 2021). Postpartum depression is physical, emotional, and behavioral and often underdiagnosed as new mothers think their feelings are normal (Moraes et al., 2017). **Purpose:** The purpose of this quality improvement project is to improve and maintain the consistency of screening postpartum clients for early detection of PPD, and to provide appropriate referrals and continued follow-up care coordination initiatives to improve patient outcomes. **Setting:** This project took place in a private practice of obstetricians and gynecologists in central Georgia. Initial screening will be done at 2-4 weeks postpartum using the Edinburgh Postpartum Depression Screen (EPDS). Additional follow up will occur at 6-weeks postpartum. **Results:** The results revealed increased screening rates in 2021 and patients who were positive for PPD had better compliance and treatment rates compared to 2020. **Conclusion:** Successful postpartum screening programs are comprised of clinical pathways that screens postpartum patients at 2-weeks and 6-weeks postpartum for correct diagnosis and treatment of postpartum depression.

*Keywords:* Postpartum depression, Edinburgh Postnatal Depression Scale, "baby blues"

**Optimizing postpartum care by ongoing care coordination initiatives (CCI) in screening and management of postpartum depression (PPD) among clients in an OBGYN practice: A Quality Improvement Project.**

**Background and Significance**

Postpartum depression (PPD) is defined as physical, emotional, and behavioral changes that occur after the birth of a child (Moraes et al., 2017). These symptoms are a result of the chemical, social, and psychological changes that the body and mind experience with having a baby (Cleveland Medical Clinic, 2018). The postpartum period is commonly recognized as the six weeks following the birth of a child. Many researchers have referred to this period as the “fourth trimester” and it is considered a critical period for both the mother and the infant. During this time mothers are adapting physical, emotional, and psychological changes (ACOG, 2021). There are hormonal changes occurring, the mother is recovering from the physical labor of birth and learning to care for an infant. Additionally, mothers may suffer fatigue, lack of sleep, difficulty with breastfeeding, stress, and new onset or exacerbation of mental health disorders (ACOG, 2021).

Postpartum depression is often under diagnosed as the new mothers may think their feelings are normal following birth, often a term known as “baby blues.” The American College of Obstetricians and Gynecologists (ACOG) (2021) defines the term “baby blues” is used to describe feelings of anxiety, sadness, and anger (ACOG, 2021). The “baby blues” differs from PPD in that the “baby blues” are common and self-limiting typically lasting less than 2-weeks. Symptoms that linger later than 2-weeks are often associated with PPD (Learman, 2018).

Women who are most at risk for being diagnosed with PPD are those who suffer anxiety or depression prior to or during pregnancy, preterm births or infants that had to stay in the

neonatal intensive care unit (NNICU), had a traumatic birth experience, come from low socioeconomic backgrounds and have very little support, and finally clients who experience a stressful life event during pregnancy or in the early postpartum period (American College of Obstetricians and Gynecologists [ACOG], 2018).

### **Overview of Clinical Problem**

The Project Champion (PI) works in a women's health practice that cares for women both pregnant and non-pregnant. Currently, the practice of this project is not utilizing the best evidenced based practice recommendations, meaning not all providers in the practice are screening all postpartum patients. There is a strong need of structured PPD screening and appropriate referrals has been identified. It has been noticed that there is gap and inconsistencies in practice. To reduce this gap and maintain the consistency of safe and effective practice of postpartum management a quality improvement project was planned and implemented from June 7, 2021, to August 30, 2021.

### **Healthcare Need Being Addressed**

The needs identified to be addressed with this project were to create a screening process for postpartum mothers 2-weeks post delivery. This would begin with scheduling a postpartum depression screening appointment as part of their global visit. Additionally, implementing a screening process and treatment plans based on the score.

### **Literature Review**

Depression is a classified mental disorder that dates back to the 1800s and was known as the term melancholia. It was during that time that efforts to collect statistical data concerning the incidence were first made. In 1952 the Diagnostic and Statistical Manual of Mental Disorders (DSM) was introduced to classify mental disorders and postpartum depression was not initially

classified anywhere. Initially postpartum depression was a subclass of Major Depressive Disorder and was known as “Major Depressive Disorder, with Postpartum onset.” The most current version of the DSM-V classifies PPD as “Major Depressive Disorder, with Peripartum onset” (Payne & Maguire, 2019).

For a patient to meet the qualification of major depressive disorder there must be five or more of the following symptoms present: depressed mood, loss of interest or pleasure in activities, weight loss/gain of 5% or more in a month, insomnia, psychomotor agitation or retardation, fatigue, or decreased energy, feeling worthless, excessive/inappropriate guilt, inability to concentrate, recurrent thoughts of death, or suicidal/homicidal ideations. Furthermore, the symptom onset must occur during pregnancy or in the first four weeks post-delivery (Payne & Maguire, 2019).

Postpartum depression (PPD) is thought to be prevalent among 10-20% (Payne & Maguire, 2019) of new mothers and considered the most important psychiatric disorder affecting the lives of mothers, families, and children. There are factors that may influence these numbers such as culture and economic status. Additionally, there has been speculation that these numbers are underestimated globally as there may be differences in comprehensive postpartum care, screening processes, socio-economic environment, cultural differences, social differences, and the stigmas associated with mental health disorders. The current estimate is that as many as 50% of postpartum mothers may be undiagnosed (Payne & Maguire, 2019).

In researching the data from the 2012 Prenatal Risk Assessment and Monitoring Systems (PRAMS), the Centers for Disease Control and Prevention (CDC) reported that women of ethnic and racial minorities had a greater prevalence of PPD. White, non-Hispanic women had 8.6% prevalence while Black, non-Hispanic had 10.8% and Hispanic had 10.5%. (Ko et al., 2017). The

most current data provides numbers from 2016-2019 indicated that 12.4-14.6% of postpartum patients self-reported symptoms, however the data differentiating the racial disparities was not available (CDC, 2021).

### **Literature Synthesis**

A literature search was conducted using several databases accessed through Gumberg Library. Those databases include PubMed, ProQuest Research Library, the Cumulative Index to Nursing and Allied Health Literature (CINAHL) and the American College of Obstetricians and Gynecologists (ACOG). Each database was searched using terms such postpartum depression, postpartum depression screening, protocols, Edinburgh Postnatal Depression Screening (EPDS), and “baby blues.” Articles chosen were evidenced-based of high/good quality, full-text, and peer reviewed.

According to Waldrop et al. (2018) approximately 10% to 20% of new mothers experience postpartum depression. The effects of PPD have been shown to impair the ability of the mother to engage with her child on both emotional and cognitive levels. This places the child at greater risk for impaired development. Research has demonstrated that while mothers are receptive to screening the screening rates are still less than 50% (Waldrop et al., 2018). Furthermore, mother with PPD have more visits to emergency rooms and hospital stays for their infant as well as attending fewer of the well-child visits with the pediatrician in the first two years after the infant’s birth (Brummelte & Galea, 2016).

Clevesy et al. (2019) conducted a research project to improve health care providers knowledge of postpartum depression and implement a standardized screening tool and practice. It was widely understood that a problem existed among health care providers screening for postpartum depression as a standard of care. In 2011 the American College of Obstetricians and

Gynecologists (ACOG) surveyed 400 of its members and only 38.6% reported consistent use of a validated screening tool while 50.6% reported never having used a validated screening tool (Leddy et al., 2011).

Recognizing the gap in knowledge and data Clevesy et al. (2019) decided to implement changes in the postpartum depression screening of women in a women's health clinic in the southwestern United States. The clinic cared for mostly women of Hispanic and African American ethnicity and consisted of three obstetrician gynecologists (OBGYN) and three advanced practice registered nurses (APRN). The OBGYNs averaged 40 to 45 births per month and the facility was also a teaching facility for residents, medical students, and nurse practitioner students.

In preparing for the implementation researchers found in an electronic health record audit that 56% of the patient's charts had documentation of screening for postpartum depression but no use of a validated tool in the screening and 44% of the charts had no documentation at all of postpartum depression screening. The researchers then presented the health care providers with a single education in-service and recommendations regarding preventative postpartum depression screening and documentation. The measures were evaluated using pre- and post-education questionnaires and EHR chart reviews. Additionally, an EPDS dialogue box was created and placed into the EHR and flagged to remind providers when evaluating postpartum patients. In the project, implemented by Clevesy et al. (2019), the PPD screening documentation rates had increased to 92.7% from 56% (Clevesy et al., 2019).

Matsuoka et al. (2021) reported that most institutions screen for postpartum depression using the EPDS 2- and 4- weeks postpartum. However, much like other data searches there was no published data whether using the EPDS at 2-weeks postpartum is as useful as 4-weeks



postpartum. Researchers set out to investigate the relationships between EPDS scores at 2-weeks and 4-weeks postpartum and determine if the 2-week EPDS score helps facilitate early interventions in high-risk patients. A single-center retrospective observational study (Matsuoka et al., 2020) was utilized by the research team and data was collected from the medical records for 451 women who delivered between April 2017 and October 2019. The terms used for data search were: EPDS scores at 2 and 4 week post-partum, maternal age, gestational age, birth weight, number of prior deliveries, mode of delivery (spontaneous vaginal, instrumental vaginal, elected or emergency cesarean), amount of blood loss during delivery, use of assisted reproductive technology (in vitro fertilization, intracytoplasmic sperm injection), presence of psychiatric illness (e.g., anxiety, depression, bipolar disorder, schizophrenia, or other psychiatric diagnosis), antenatal complications (potential premature birth, fetal growth restriction, gestational diabetes mellitus, twin pregnancy), and complications at delivery (non-reassuring fetal status, premature membrane rupture, chorioamnionitis, arrest of labor, breech presentation, hypertensive disorder of pregnancy, postpartum hemorrhage).

The results yielded that of the 451 total patients, 21 completed the EPDS at 4-weeks only, 11 at 2-weeks only, and 85 did not complete either due to inability to pay. Additionally, of the 451 total study population only 334 were included in the final analysis as they completed the EPDS tool at 2-weeks and 4-weeks postpartum. Based on the scores patients were then divided into two categories of postpartum depression: high risk (score > 9) and low risk (< 9). There were 48 who had higher EPDS scores 2-weeks postpartum and 21 of those remained at high risk of postpartum depression. There were 48 patients of the 334 that had EPDS scores > 9 at 2-weeks postpartum. Of those, 21 total remained at high risk of postpartum depression and 27 had repeat EPDS scores < 9. The 286 remaining patients of the 334 total had EPDS scores < 9 at 2-

weeks postpartum. Of those 286, 9 patients exhibited scores  $> 9$  and fell into the high-risk classification. Overall, the study concluded that the EPDS scores at 2-weeks postpartum closely reflected the 4-week postpartum scores and therefore screening patients 2-weeks postpartum versus 4-weeks postpartum may facilitate early recognition and intervention (Matsuoka et al., 2020).

### **Comprehensive Postpartum Visit**

An important step in the global care of a pregnant patient is the comprehensive postpartum visit. Having a structured process to a postpartum visit that ensures that a patient's relevant conditions and concerns are discussed and addressed appropriately in a timely fashion (Paladine et al., 2019). Historically this visit has been scheduled 4-6 weeks after delivery, which traditionally reflected cultural traditions of convalescence of mother and infant for 40 days after birth. The current recommendations are that the comprehensive assessment should occur not later than 12-weeks after delivery and should include the following: A full physical, social, and psychological well-being assessment. Included in that domain should be mood and emotion, infant care, feedings, sexuality, sleep fatigue, contraceptive measures, desires, and thoughts on child spacing, management of chronic diseases, health maintenance, and physical recovery from birth (ACOG, 2021). These conditions are discussed below.

#### **Full Physical**

A full physical should be completed at the postpartum visit as many postpartum patients have medical complications. Common complications noted are persistent postpartum bleeding, endometritis, urinary incontinence, and thyroid disorders. Additionally, with patients who suffered hypertension, preeclampsia, or gestational diabetes, close follow-up is also warranted. Some postpartum conditions will be discussed further (Paladine et al., 2019).

### ***Postpartum Hemorrhage***

Postpartum hemorrhage is vaginal bleeding that is significant beyond the 24-hour mark of postpartum. Approximately 2% of postpartum patients experience this, and it is often due to retained placenta or infection. Any patient with persistent bleeding should be evaluated for postpartum hemorrhage and examined for a retained placenta, laceration, uterine atony, or a coagulation disorder. Treatment of these range from medication to surgical intervention and if this occurs can lead to a prolonged stay in the hospital which contributes to symptoms of depression (Paladine et al., 2019).

### ***Endometritis***

Endometritis is another postpartum condition that can occur. Women who had chorioamnionitis and prolonged rupture of membranes are most at risk. The symptoms are fever, tachycardia, uterine tenderness, and vaginal discharge. Treatment usually requires intravenous antibiotic therapy and if not treated in a timely manner, patients are at risk for sepsis (Paladine et al., 2019).

### ***Hypertensive Disorders***

Elevated blood pressure is a condition that affects up to 10% of pregnant patients. This includes chronic hypertension, gestational hypertension (pregnancy induced hypertension), and preeclampsia. Hypertensive disorders in pregnancy can lead to having to deliver the infant earlier than expected and require the infant to stay in the Neonatal Intensive Care Unit. Patients who have any of these conditions should have a follow-up visit with a blood pressure check within the first seven days after delivery (Paladine et al., 2019).

### ***Gestational Diabetes and Thyroid Disorders***

Two conditions that may affect pregnant patients are gestational diabetes and thyroid disorders. Pregnant patients are screened for gestational diabetes typically around 28-weeks gestation. Patients with a history of gestational diabetes may have glucose tolerance test earlier in the pregnancy. A patient diagnosed with this condition has a significant risk for developing type 2 diabetes, hypertension, and heart disease later in life by as much as 8 to 20-fold (Paladine et al., 2019).

Postpartum thyroiditis is a condition that affects around 10% of postpartum patients in the first year. Shifts in patients' thyroid levels can lead to feelings of anxiety and depression. Postpartum hyperthyroidism usually does not require treatment as it is transient. Patients being treated for thyroid diseases should be monitored more closely for fetal growth and development (Paladine et al., 2019).

### **Breastfeeding**

Breastfeeding should be discussed in the comprehensive postpartum visit. While not every postpartum patient decides to breastfeed their infant, it is beneficial for the infant as well as the mother. Breastfeeding reduces the risk of gastrointestinal tract infections and atopic eczema in the infant, and it can provide contraception for at least six months postpartum. Breastfeeding may come naturally to some mothers and infants while others have to learn the skill. Early practice and encouragement in the postpartum period are important for the success of this skill and some patients may require coaching from a lactation specialist. Mothers who need extra help in mastering the skill may feel as though they have failed their child and suffer feelings of depression due to feeling inadequate (Paladine et al., 2019).

### **Postpartum Depression Screening**

The consequences of a patient suffering postpartum depression can be serious, and early recognition and interventions improve outcomes for the patient as well as the infant. The most commonly used screening tool is the Edinburgh Postnatal Depression Scale (see Appendix A). Created in 1987 by James Cox, Jenifer Holden, and Ruth Sagovsky, it is a ten-question self-assessment to report feelings of sadness, depression, loss of interest, thoughts of guilt, and thoughts of suicide. Each question has four answers, and the patient chooses one. For each answer there is an assigned numerical value of 0-3 that differs with each question so that patients do not feel that there is a “right answer.” At completion, the total number of the patient’s answers are tallied (Cox et al., 1987). Administering the EPDS tool at 2-weeks postpartum improved the diagnosis rate and facilitated more appropriate and earlier treatments. Additionally, the EPDS has significantly increased the identification of high-risk patients when compared to routine care (Paladine et al., 2019).

### **Theoretical Frameworks**

#### **Johns Hopkins Evidence Based Practice Model**

The Johns Hopkins Evidence Based Practice Model (JHEBPM) (Appendix B) was chosen as the theoretical framework for this quality improvement project. The core of the JHEBPM is evidence and the source of evidence includes data both research and non-research. This data is used to inform practice, educate, and research. The strongest evidence used to inform decisions regarding nursing practice comes from research which answers specific questions pertaining to specific conditions. Therefore, outcomes may not always transfer to other clinical settings and patient populations. It is important that nurses remember when translating research evidence into practice to consider the research type, consistency of results, quantity, and quality

of supporting studies, and the relevance of findings as well as the risks and benefits of implementing the findings into clinical practice (Dang & Dearholt, 2018).

The Johns Hopkins Evidence Based Practice Model (JHEBPM) (Dang & Dearholt, 2018) is composed of three components that are interconnected: inquiry, practice, and learning. Inquiry, the first component, curiosity is peaked. This is a time to assess if current practice is a representation of the best evidence for a specific problem or patient population. Currently, the providers at the practice this project is based are not using the screening universally and consistently (Dang & Dearholt, 2018).

Practice is the process of translating what nurses know into what they do. The parts of this step are practice question, evidence, and translation (PET). This includes developing the practice question, finding the evidence to support, and translating it into practice (Dang & Dearholt, 2018).

Learning, the final component, determines the feasibility of the changes to practice. The changes were deemed feasible and action plan was created. The PI implemented a change in scheduling all postpartum patients a 2-week appointment for their initial PPD screening.

### **Institute for Healthcare Improvement's Model for Improvement**

The Institute for Healthcare Improvement's Model for Improvement ties in nicely with the JHEBPM for this project. The science of improvement is an applied science that emphasizes innovation, rapid cycle testing in the field, and spread in order to generate learning about what changes, in which contexts, produce improvements. It starts with asking three basic questions: What are we trying to accomplish? How will we know that a change is an improvement? What changes can we make that will result in improvement? — and then employs Plan-Do-Study-Act (PDSA) (Appendix C) cycles for small, rapid-cycle tests of change. Plan is a concise, focused

statement of intent with the testing. Do are the observations made during implementation. Study is what was learned and were goals met. Act determines if the implementation worked and if not, what could be done different (Booth et al., 2019). Using all of this information combined the PI created a logic model that is demonstrated below (Appendix D)

### **Beck's Theory of Postpartum Depression**

Additionally, the project was also guided by Cheryl Tatano Beck's middle range theory on postpartum depression published in 1993, titled "Teetering on the Edge". Clients who suffer PPD are passive individuals in this medical model and are under the influence of factors that are biological and suffer more from depressive episodes at particular periods in a lifespan. Providers among the postpartum clientele need to be diligent in understanding and recognizing postpartum depression so that patients can be educated and treated appropriately. Beck (2002) understood and aimed to explore postpartum depression beyond the symptoms and definitions of the DSM IV. Beck (2002) designed a qualitative study consisting of 12 women in a support group who met over an 18-month time frame. The women were interviewed and asked to describe their experiences. The most reported experience was feeling a loss of control. Women reported they felt as though they could not control their emotions, thought processes, and sometimes their actions. The theoretical assumption of these feelings is composed of four stages: (a) encountering terror, (b) dying to self, (c) struggling to survive, and (d) regaining control. When encountering terror women often report feeling as though they are trapped with no escaped due to anxiety and may often suffer obsessive thoughts and dying to self is no longer feeling like themselves. Additionally, they may report feeling robotic in their daily activities such as getting as waking up and going through the motions of feeling the infant and performing morning routines but feeling no joy. Sometimes this results in patients suffering thoughts of self harm or harm to others. In the

third stage, struggling to survive, patients report feeling as though they are barely making it through day-to-day activities and may report finding it difficult in participating in daily requirements of life.

Seeking care and treatment often results in feelings of shame or humiliation or feeling as though they are failing at being a mother. Finally, regaining control, is the final stage and often is a slow process. There will be good days and bad days and many patients will feel as though moments have been lost with their infant (Beck, 2002).

### **Logic Model**

One effective measure used to ensure the project's success was the creation of the Logic Model (Appendix D). This model is used for: Informing the strategy design, initiative, or program; the implementation of the project; evaluation plan; methods of communication of the findings; and improvements. Often referred to as a 'living document,' the Logic Model is meant to be reviewed and updated regularly (W.K. Kellogg, 2017).

### **Purpose**

The purpose of this quality improvement project is two -fold. First to improve and maintain the consistency of screening postpartum clients for early detection of PPD. Secondly, to provide appropriate referrals and continued follow-ups as care coordination initiatives to improve patient outcomes.

### **PICOT Question**

In recognizing that the practice of this project is not utilizing the best evidenced based practice recommendations the following clinical question was created: Among postpartum clients (P), would the CCI (I) and comprehensive postpartum visit compared to the current practice without CCI (C), improve early detection of postpartum depression using EPDS and



utilize appropriate referrals optimizes the health outcomes (O) of postnatal clients in 6-weeks (T)?

P: Post-partum clients.

I: CCI and comprehensive postpartum visit.

C: Current practice (on using EPDS inconsistently or not using EPDS and CCI by provider).

O: Improved health outcomes of postnatal clients in 6-weeks by early detection of PPD and initiate appropriate referrals for further management.

T: Ongoing assessment and care coordination in 2-weeks, 4-weeks, and 6-weeks postpartum.

### **Project Aims/Objectives**

For projects to be successful it is important to establish aims and objectives. The aims and objectives for this project are as follows:

**Aim #1:** Implementation of a comprehensive evaluation of mood and emotional well-being using EPDS.

#### **Objectives**

1. Apply initial screening 2-4 weeks postpartum using the EPDS and additional follow up 6-weeks postpartum.
2. Analyze the number of clients that utilize mental health consultation and follow-up post PPD screening implementation as per the following criteria:
  - Clients who have a score greater than 10 in EPDS will be considered a positive score and a treatment plan will be initiated.

- Clients placed on medication will generate an automatic 2-week follow up for evaluation of medication tolerance and compliance.
3. All postpartum clients will be given printed information to recognize signs and symptoms of PPD as well as self-care actions to aid in maintaining emotional well-being in the postpartum period.

**Aim #2:** Evaluation of CCI by regular monitoring of clients with high-risk conditions detected for PPD by referrals and follow-up with 2-, 4-, and 6-weeks post screening of implementation phase under Plan-Do-Study-Act (PDSA) (Appendix C).

### **Objectives**

1. Clients will have printed resources for worsening/improving signs and symptoms of PPD (Depression is Treatable), the Depression Self Action Plan and Managing Depression (printouts Appendix E, F, and G).
2. Use the elements of the IHI Model for Improvement (IHI) to develop, test, and implement changes in clients' PPD will be completed by PI and providers.
3. Evaluation of CCI and referrals to test the change (plan), carrying out the test (do), observing and learning from the consequences (study), and determining what modifications should be made to the test (act).
4. Monitor compliance with screening practice among providers and clients with use of electronic chart monitoring audits.

**Aim #3:** Measure the effectiveness of PPD screening using EPDS, CCI referrals, and follow-up with 2-, 4-, and 6-weeks post screening to sustain continuity of Quality Improvement.

### **Objectives**

1. 4-weeks after initiation of treatment plan clients will be given the EPDS again to compare to their original screening to measure improvement of worsening of symptoms.
2. Follow-up phone calls will be available if clients miss follow-up appointments as evidenced by telephone encounters documented in the client's chart.

### **Methodology**

#### **Setting and Population**

This Quality Improvement project took place in a private practice of obstetricians and gynecologists. The PI is an advanced practice nurse in the same setting. The practice consists of six Physicians and one Family Nurse Practitioner (FNP). These providers are responsible for caring for female patients who have gynecological conditions as well as those who are pregnant. This project focused on patients who are postpartum. In 2020 this practice had a total of 306 postpartum encounters documented. The clients involved in the quality improvement project were clients who delivered May 24, 2021, and August 17, 2021. This was so that PPD screening was able to start June 7, 2021. A total of 65 clients participated in the project by completing the EPDS screening tool and allowing the PI to follow their care.

#### **Intervention and Implementation**

The intervention was that all postpartum clients be evaluated initially 2-weeks postpartum with the FNP and then again 4-weeks later, which was their routine 6-week postpartum follow-up. This was a two-step process in which on their initial postpartum the client will complete the EPDS tool. A score of <10 required no intervention but was followed up. Scores 10 or greater generated a treatment plan and if > 12 received a referral to mental health services. Any clients referred were asked to complete the EPDS questionnaire again after 4-6

weeks of their treatment plan. All the postpartum clients were also scheduled a 6-week checkup as the standard of care, and this appointment was the second step of the quality improvement and was to re-evaluate postpartum clients to compare their second score to the first. This was especially important for clients placed on medication regimen for depression.

### **Data Management**

The practice where this improvement project occurred had no data officially organized for the compliance of screening postpartum patients. However, it was data that could be accessed and organized. The plan was to access charts of patients who delivered between May 24, 2020, and August 31, 2020, and document how many have postpartum depression screening documented or have a diagnosis code of postpartum depression. Those numbers were then used once the implementation phase was complete to compare the number of patients diagnosed with postpartum depression during the project implementation.

In current practice every patient seen in this practice is scheduled an appointment with the financial department around 20-weeks of gestation. At this appointment, the financial advisor explains in detail what the insurance covers and then gives the patient a rough estimate of their financial responsibility remaining. This figure is calculated based on the standard care of a pregnant patient and assumes that there will be no emergency or work-in visits. In addition to the financial review, the patient also schedules out the remaining 20-weeks of their routine obstetric visits and postpartum visits. The PI has discussed with the scheduling department that all postpartum patients need an appointment 2- or 3-weeks postpartum to be screened for postpartum depression.

Traditionally only patients who had cesarean sections were seen 2-weeks postpartum and those who delivered vaginally were seen 6-weeks postpartum (American College of

Obstetricians and Gynecologists [ACOG], 2021). This project initiated this change in order to ensure all postpartum patients are screened. The data for this project focused on patients screened June 7, 2021, through August 31, 2021.

Once a patient arrives for their postpartum visit they are placed in the room and given the EPDS tool to complete. Patients completed this alone and in private. Scoring of the patients' tool were completed according to the scoring system and patients with a score greater than 10 were considered positive. Tracking of patients who elicited a positive score and those who were placed on oral medication were followed up 2-weeks later to ensure tolerance of the medication.

The PI collected data to determine the number of patients who initially screened negative and then return later for symptoms. Evaluating the changes between the initial screening and the time of seeking care for the symptoms were instrumental in remaining current and involved in global care of the postpartum patient. All patients were screened 2-3 weeks postpartum with follow-up screening per the project outlines. There are medical conditions and events that can predispose a postpartum patient to depression. A patient scoring less than 10 initially does not ensure that postpartum depression will never be an issue.

Once a treatment plan was initiated, patients were given the EPDS tool again 4-weeks later. The scores were compared to collect data of the changes whether positive or negative. The data collected here was valuable in learning what treatment plans were used the most and allowed providers to use this in establishing collaboration with other providers (i.e., psychiatric services).

For patients who missed their appointments, whether the initial screen or follow-up, staff completed phone calls. There was a form with conversation prompts to help guide the discussion and this telephone encounter was documented in the chart. The data that was evaluated with the

phone call for missed appointments were barriers to making it to the appointment as scheduled as well checking on the overall wellbeing of the patient.

### **Analysis and Results**

The EPDS (Appendix A) tool was used to evaluate each postpartum patient for PPD. The tool consists of ten questions that patients answer concerning their mood, anxiety, sadness, sleep, and anger. Each question has a possibility of four options that are assigned a numerical value of 0-3 points with a maximum score of 30 points. The answers are not the same for every question so that patients do not feel obligated to choose a “right answer.” Charts from June 7, 2020, to August 30, 2020, were audited for patients screened and compared to the number of patients screened during the same time frame of 2021, the implementation phase of this project.

Based on the audit report from June 7, 2020, until August 30, 2020, 83 infants were delivered (Appendix H). Of that 83, only 32 patients were screened using the EPDS with seven of those 32 having a positive score which is illustrated on a line chart (Appendix I). Of those seven patients, five chose pharmaceutical treatments and two chose no treatments. Additionally, three had a documented history of a mental health condition (i.e., anxiety/depression), one had a comorbidity during pregnancy (i.e., diabetes, hypertension), and only one had been screened again to measure improvement. The age ranges (Appendix J) were spread as follows: < 20 (2.41%), 21-24 (10.84%), 25-29 (32.53%), 30-34 (33.73%), 35-39 (16.87%), and >40 (3.61%). The ethnicities (Appendix I) notated were as follows: American Indian/Alaskan Native (0%), Black or African American (36.14%), Asian (2.41%), Native American/Pacific Islander (0%), Hispanic/Latino (0%), White (59.04%), Other (2.41%), and did not report (0%).

Comparing the data to the year 2021, 79 infants were delivered with 65 patients having a documented screening for PPD using the EPDS tool (Appendix H). A total of 18 patients out of

those 65 had a positive score, which is illustrated on a line chart (Appendix I), with seven having a documented history of a mental health condition and one a comorbidity. Among patients with a positive score patients were extensively educated on the treatment options and of the 18 who were positive 13 chose medication, three requested a mental health referral, and two opted for no treatment. The age ranges (Appendix K) were spread as follows: < 20 (7.59%), 21-24 (24.05%), 25-29 (31.65%), 30-34 (25.32%), 35-39 (10.13%), and >40 (1.27%). The ethnicities notated were as follows: American Indian/Alaskan Native (0%), Black or African American (45.57%), Asian (1.27%), Native American/Pacific Islander (0%), Hispanic/Latino (1.27%), White (50.63%), Other (1.27%), and did not report (0%).

### **Thematic Analysis**

A thematic analysis was also conducted by the PI to get the qualitative data of the clients. In meeting with postpartum patients to discuss PPD and evaluate the patients being screened, the PI received feedback from many patients who were grateful for the diligence in screening. Two case studies are listed below to demonstrate this qualitative data. These case studies are discussed below to describe the complex phenomenon of PPD and their personal experience.

#### **Case Study I**

This patient was a 33-year-old female who was seen at the practice in November 2020 for her routine annual. She was trying to have all of her preventative screenings complete before the end of the year for insurance purposes. At her annual her pregnancy test was positive. This was not a planned pregnancy and at that time her and her husband were contemplating a divorce. They currently had 2 children, one of which was diagnosed as Autistic. The patient had an underlying diagnosis of anxiety and depression, and upon finding out she was pregnant decided to stop all of her medications. At approximately 12-weeks gestation she made an appointment

with our office because she felt as though she was declining mentally. The staff placed this patient on the schedule of the PI even though she was not postpartum knowing that the PI would follow her mental health throughout her pregnancy and postpartum period. Upon greeting the patient, the PI noticed immediately that the patient was in tears and her affect was flat. The patient voiced many concerns being off her medication and felt like there might not be any way to improve this until delivery. The PI then explained in detail the different treatment options available that would be safe in pregnancy.

The patient continued her therapy throughout her pregnancy and at her official postpartum visit she told the PI that her first visit saved her. She knew she was in a deep depression and that she was struggling to see the good in life again. Once her medication was reestablished and at a therapeutic range the patient was noted to be pleasant, engaging, smiling, and laughing at her visits. She and her husband decided to reconcile and seek marriage counseling. She delivered a beautiful baby boy and reports her postpartum period as happy and well bonded with infant.

### **Case Study II**

The case study was a mom in her Mid-30s. She was in a loving relationship and happy about her pregnancy however she had a history of surviving domestic abuse. In her younger 20s she had been married and abused throughout that often resulted in her having to physically defend herself. As a result, she suffered night terrors and states the terrors were so vivid she often still woke up physically assaulting her current partner. Her current partner understood her history and was supportive in her rehabilitation and was well adept and managing the physical outbursts in her sleep. A year into the relationship with her current partner she discovered she was pregnant. The terrors had improved with therapy and medication, but her anxiety was



heightening after the birth of the baby. She reported fear and anxiety of causing harm to her infant in her sleep without being aware she was doing so. She and her partner had placed the infant in a bassinet, and it was placed on the opposite side of the bed from which she slept. This was so that if she had a terror and was reaching for the infant she would have to crawl over her partner, and he would be alerted. This fear and anxiety was negatively affecting her maternal/infant bonding as well as her sleep and her partners' sleep. The patient requested a referral with a therapist for which she had a history. The PI and the patient additionally created a plan for keeping the infant safe. At her follow-up she thanked the PI for being knowledgeable in PPD.

### **Outcomes Achieved**

The aims of this project were achieved during the implementation phase. The first aim was designed to implement the use of the EPDS tool. Achieving this outcome began with the scheduling department. As mentioned earlier once a patient reaches a certain gestational all of their appointments are scheduled up until their estimated due date. Additionally, their postpartum visits are also scheduled. Working with the scheduling every patient was scheduled a PPD screening appointment 2-weeks after their estimated due date or scheduled cesarean section. Each of the appointments was scheduled with the PI.

The second aim was the partially accomplished. The goal of this aim was to evaluate CCIs of patients who are at increased risk of PPD. This was partially met as patients were referred to mental health facilities however in the area this practice is located finding therapy for PPD was difficult. The majority of mental health services did not routinely counsel and manage postpartum patients. Additionally, even though the patients were given all the printed information and self-care action plans there were many patients who did not complete the

follow-up care as recommended. Phone calls were made to these patients to check on their overall wellbeing and documented.

Finally, the third aim of the project focused on the efficacy of screening for PPD using the EPDS tool, CCI, and referrals and the follow-up care while also evaluating the sustainability of the project implementation. This aim was met as all patients who did not attend their follow-up appointments were contacted by phone. Once contacted the PI would assess the patients' overall wellbeing, sleep, and emotional state based on self-reporting. For patients who were placed on medication or referred to a therapist, the PI assessed compliance.

The expected outcomes resulted in the following from June 7, 2021, to August 31, 2021:

79 infants were birthed.

Of those 79 postpartum patients, 65 (82%) had an EPDS on file at 2-weeks postpartum

18 (27%) of those 65 patients had a positive score.

5 (27%) of those 18 patients were rescreened

Additionally, there was:

100% adoption of new practice in PPD screening of clients with the EPDS tool.

A sustainable plan for the providers based on PDSA to maintain the consistency in using the EPDS questionnaire for postpartum patients and making appropriate referrals.

### **Ethical Consideration**

When screening patients for PPD some ethical considerations to keep in mind are autonomy, beneficence, and utility. Autonomy is defined as the patient's right to make informed decisions regarding their own health and health care. The five components of respecting a patient's autonomy are honesty, respecting their privacy, protect any information that is confidential, obtain consent, and provide support when asked for making decisions (Gilbert et

al., 2017). Part of being honest is that any provider who screens postpartum patients using the EPDS tool pays close attention to question 10. When a patient expresses thoughts or plans of self-harm or harm to others there is a legal obligation to have this patient assessed.

Beneficence is the obligation of a provider to do no harm and to practice healthcare in a manner that benefits the patient. There are three key components to this: prevent evil or harm, remove evil or harm, and promote good. Beneficence ties in nicely with utility. Utility the provider's ability to maximize the benefits while minimizing the burden or harm (Gilbert et al., 2017).

Additionally, Institutional Review Board (IRB) approval was obtained under exempt status. This was accomplished by submitting the project proposal. The board determined as a quality improvement project the exempt status was met. Screening for PPD is considered part of a clients' global care in pregnancy. There is no need for permission to review the charts as the PI is the primary provider. Additionally, the clients' personal information will not be shared nor will their individual screening tools.

### **Barriers**

Some barriers identified were more the stigmas attached to be diagnosed with depression. Many of the mothers who completed their assessment and had a positive score or knew coming into their appointment they wanted to discuss this felt as though they were a bad mother for having episodes of depression, sadness, or crying. Additionally, it was difficult to find therapy and psychiatry for patient referrals. Lastly, non-compliance was an issue. There were patients who began to feel better that did not start medication, or they may have started medication and felt better and then never completed follow-up care.

**Limitations**

Limitations of this project identified were COVID-19 pandemic, Physicians not following the repeat screening for positive scores, and patient compliance. For the 2020 data it is possible that the numbers may be inaccurate as many patients did not keep appointments, they felt they didn't need due to the pandemic. Additionally, patients seen by the PI for the initial screen were seen by their primary OB for their 6-week follow-up. The Physicians in the practice requested that 6-week follow-up visits be scheduled with the Physician. Finally, patients who began to feel better would often not complete all follow-up care.

**Interpretation and Sustainability**

Postpartum depression has potential serious and adverse effects on a mother and infant. Any symptoms of postpartum depression warrant immediate attention from a healthcare provider. The postpartum period is a time of repeated contact between a postpartum patient and healthcare provider, and this allows for ample time to develop trust. Finally, screening tools such as the EPDS tool are readily available and easy to access online (Morehead, 2020).

Although the follow-up screening was not met as desired, it was noted that 4 of those 5 prescreened did have an improvement in their scores. As part of the PDSA cycle the PI will continue to address the gaps in rescreening.

**Future Recommendations**

Recommendations for the sustainability of screening postpartum patients for PPD are focused on prompt diagnosis and treatment of PPD, retention of the screening protocols implemented during this project, and to evaluate the practice after a year. Ultimately providers among postpartum patients should use EPDS as best practice tool.

### **Conclusion**

In conclusion the goal of postpartum depression screening is that all postpartum patients should be made aware and counseled on the signs and symptoms of postpartum depression. This should occur with every pregnancy whether it is a patients first pregnancy or not as PPD may occur with some pregnancies and not others. Providers should be aware of risk factors for PPD and should have established screening and treatment protocols to screen postpartum patients at least 2-weeks postpartum (Morehead, 2020). Guideline recommendations and useful resources are available from the American College of Obstetricians and Gynecologists. Successful postpartum screening programs are comprised of clinical pathways that screens postpartum patients at 2-weeks and 6-weeks postpartum for correct diagnosis and treatment of postpartum depression.

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## Appendix A

## Edinburgh Postnatal Depression Screening Tool

Edinburgh Postnatal Depression Scale<sup>1</sup> (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:

- L Yes, all the time  
 B 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.  
 C No, not at all

In the past 7 days:

- |   |   |
|---|---|
| <p>1. I have been able to laugh and see the funny side of things</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> As much as I always could</li> <li><input type="checkbox"/> Not quite so much now</li> <li><input type="checkbox"/> Definitely not so much now</li> <li><input type="checkbox"/> Not at all</li> </ul> <p>2. I have looked forward with enjoyment to things</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> As much as I ever did</li> <li><input type="checkbox"/> Rather less than I used to</li> <li><input type="checkbox"/> Definitely less than I used to</li> <li><input type="checkbox"/> Hardly at all</li> </ul> <p>*3. I have blamed myself unnecessarily when things went wrong</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, most of the time</li> <li><input type="checkbox"/> Yes, some of the time</li> <li><input type="checkbox"/> Not very often</li> <li><input type="checkbox"/> No, never</li> </ul> <p>4. I have been anxious or worried for no good reason</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> No, not at all</li> <li><input type="checkbox"/> Hardly ever</li> <li><input type="checkbox"/> Yes, sometimes</li> <li><input type="checkbox"/> Yes, very often</li> </ul> <p>*5. I have felt scared or panicky for no very good reason</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, quite a lot</li> <li><input type="checkbox"/> Yes, sometimes</li> <li><input type="checkbox"/> No, not much</li> <li><input type="checkbox"/> No, not at all</li> </ul> | <p>*6. Things have been getting on top of me</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, most of the time I haven't been able to cope at all</li> <li><input type="checkbox"/> Yes, sometimes I haven't been coping as well as usual</li> <li><input type="checkbox"/> No, most of the time I have coped quite well</li> <li><input type="checkbox"/> No, I have been coping as well as ever</li> </ul> <p>*7. I have been so unhappy that I have had difficulty sleeping</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, most of the time</li> <li><input type="checkbox"/> Yes, sometimes</li> <li><input type="checkbox"/> Not very often</li> <li><input type="checkbox"/> No, not at all</li> </ul> <p>*8. I have felt sad or miserable</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, most of the time</li> <li><input type="checkbox"/> Yes, quite often</li> <li><input type="checkbox"/> Not very often</li> <li><input type="checkbox"/> No, not at all</li> </ul> <p>*9. I have been so unhappy that I have been crying</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, most of the time</li> <li><input type="checkbox"/> Yes, quite often</li> <li><input type="checkbox"/> Only occasionally</li> <li><input type="checkbox"/> No, never</li> </ul> <p>*10. The thought of harming myself has occurred to me</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Yes, quite often</li> <li><input type="checkbox"/> Sometimes</li> <li><input type="checkbox"/> Hardly ever</li> <li><input type="checkbox"/> Never</li> </ul> |
|---|---|

Administered/Reviewed by \_\_\_\_\_ Date \_\_\_\_\_

<sup>1</sup>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 .

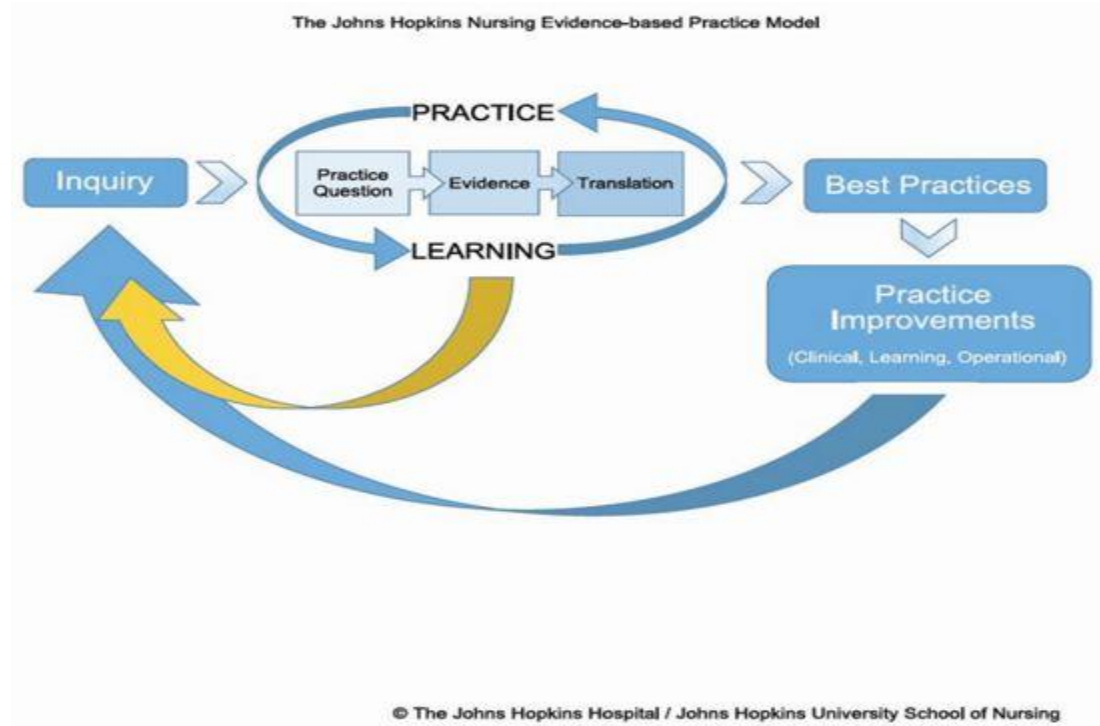
<sup>2</sup>Source: K. L. Wisner, B. L. Parry, C.M. Plontek, Postpartum Depression *N Engl J Med* vol. 347, No 3, July 18, 2002, 194-199

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*Note:* From 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.

## Appendix B

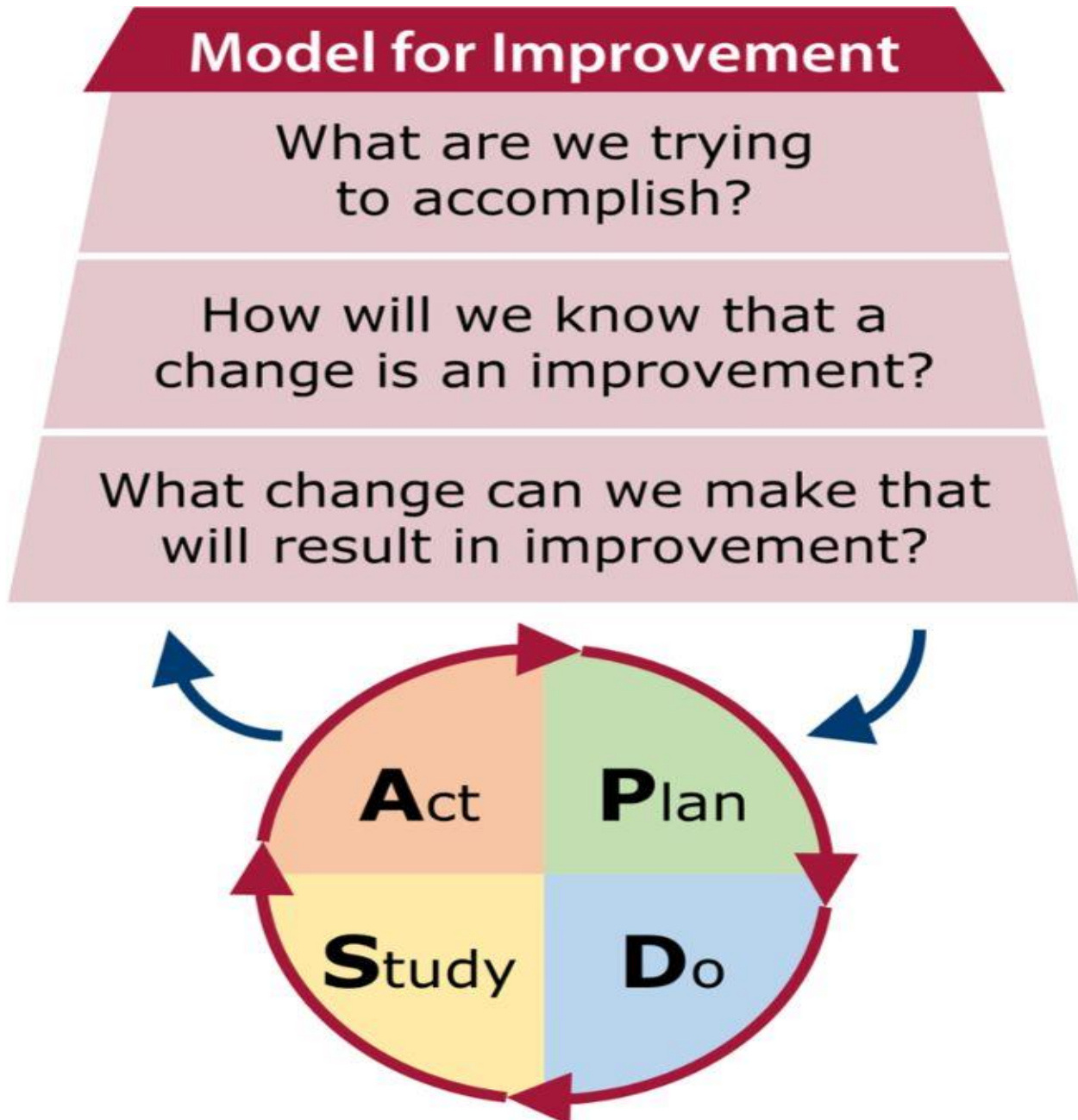
### Johns Hopkins Evidenced Based Practice Model



*Note:* From Dang, D., & Dearholt, S. L. (2018). Johns Hopkins nursing evidence-based practice third edition: Model and guidelines (3rd ed.). Sigma Theta Tau International.

## Appendix C

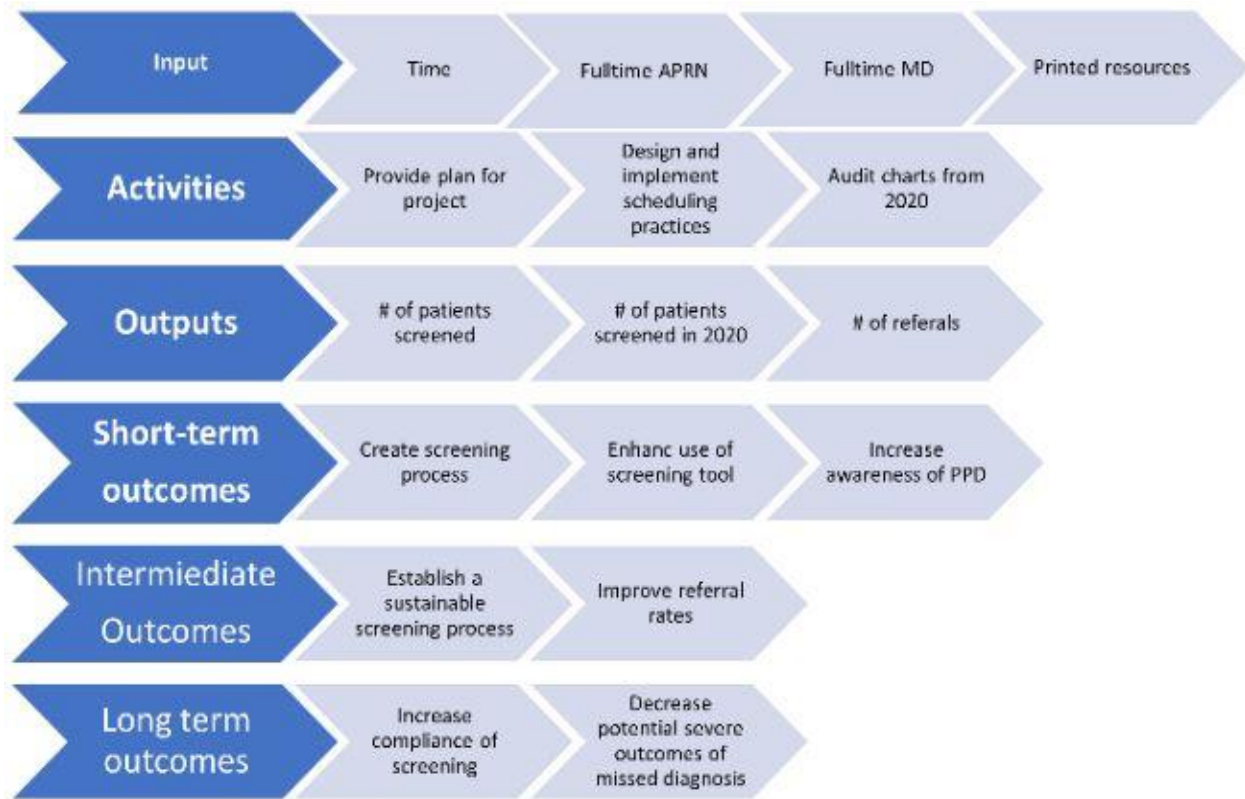
## IHI Model for Improvement: PDSA Cycle



Note: From Institute for Health Improvement. (n.d.). IHI Model for Improvement.

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## Appendix D Logic Model



Note: *From* W.K. Kellogg Foundation. (2017). The step-by-step guide to evaluation.



<https://www.wkkf.org/resource-directory/resources/2017/11/the-step-by-step-guide-to-evaluation--how-to-become-savvy-evaluation-consumers>

## Appendix E


## Depression is Treatable

*Depression is Treatable!*


**Managing Your Depression:**  
Things you can do to help yourself


- 1. Stay physically active.**





*Exercise, stretch, go for a walk or a swim!*
- 2. Make time for pleasurable activities.**




*Do your favorite hobby*




*Play a video or Listen to music*
- 3. Spend time with people who can support you.**


*Hugs help*



*Talk with a friend*
- 4. Practice relaxing.**




*When your baby is napping, rest and put your feet up*




*Try taking a bath when you feel tense*
- 5. Simple goals and small steps.**

*Set reasonable goals you can attain*




*Don't try to solve the big problems all at one*


*Break them up into smaller steps*


- 6. Eat balanced nutritious meals.**


*Include fruits and vegetables*



*Cut down on junk food*



*Avoid alcohol*



Note: Adapted from: American Academy of Family Physicians. (2016). Depression self-care action plan [PDF]. [www.aafp.org](http://www.aafp.org).

[https://www.aafp.org/dam/AAFP/documents/patient\\_care/nrn/depression-self-care-action-plan.pdf](https://www.aafp.org/dam/AAFP/documents/patient_care/nrn/depression-self-care-action-plan.pdf).

Appendix F

Depression Self-Care Action Plan



Depression Self-Care Action Plan

Patient \_\_\_\_\_  
 Physician/NP/PA \_\_\_\_\_  
 Clinic \_\_\_\_\_  
 Phone Number \_\_\_\_\_



Depression is treatable!

**Choose one area and add other areas as you begin to feel better.**



**1. Stay active.**  
 • Make time every day to do some physical activity such as walking for 10 or 20 minutes or dancing to a favorite song.  
 Every day during the next week, I will spend at least \_\_\_\_\_ minutes doing \_\_\_\_\_



**2. Do something that you think is fun each day.**  
 • Even though you may need to work a little more at having fun, try doing something that has always been fun such as a hobby or listening to music or watching a favorite video or TV show.  
 Every day during the next week, I will spend at least \_\_\_\_\_ minutes doing \_\_\_\_\_



**3. Spend time with people who help or support you.**  
 • When you are feeling down, it is easy to avoid people, but you should not be alone all the time. Choose people who you can talk to or who can do your activities with you. Talk to them about how you feel. If you can't talk about it, that's okay.  
 During the week I will make contact for at least \_\_\_\_\_ minutes with \_\_\_\_\_ (name), doing or talking about \_\_\_\_\_ (name), doing or talking about \_\_\_\_\_



**4. Relaxing**  
 • For many people with depression, it is hard to stop feeling sad or having unhappy thoughts. Physical activity can help and so can learning to relax. Things like slow deep breathing, saying comforting quiet things to yourself, taking a warm bath, or sitting and concentrating on relaxing one leg and one arm at a time can help.  
 Every day during the next week, I will practice relaxing at least \_\_\_\_\_ times for at least \_\_\_\_\_ minutes each time.



**5. Set simple goals.**  
 • Do not expect too much too soon. Do simple things like reading only a few pages of a magazine, or make one bed or fix a cup of tea or cocoa. Delay big decisions until you are feeling better. Give yourself credit for each thing you do and break work into small steps.

What I want to do is \_\_\_\_\_  
 Step 1: \_\_\_\_\_  
 Step 2: \_\_\_\_\_

How likely are you to do the above things during the next week?  
 Very likely      Maybe      Unsure      Not very likely

Adapted from Ted Amann, RN C..

Note: Adapted from: American Academy of Family Physicians. (2016). Depression self-care action plan [PDF]. [www.aafp.org](http://www.aafp.org).

[https://www.aafp.org/dam/AAFP/documents/patient\\_care/nrn/depression-self-care-action-plan.pdf](https://www.aafp.org/dam/AAFP/documents/patient_care/nrn/depression-self-care-action-plan.pdf)

## Appendix G

### Living with someone with depression?

Depression  
**Let's talk**

# Living with someone with depression?

Living with someone with depression can be difficult. Here are some tips on what you can do to help someone you live with who is depressed, while taking care of yourself at the same time.

#### What is depression?

- Depression is an illness and not a character weakness.
- Depression can be treated. What treatment is best and how long the depression lasts depend on the severity of the depression.
- The support of carers, friends and family facilitates recovery from depression. Patience and perseverance is needed, as recovery can take time.
- Stress can make depression worse.

#### What you can do for people who are depressed

- Make it clear that you want to help, listen without judgement, and offer support.
- Find out more about depression.



**REMEMBER:**

When you live with someone with depression, you can help them recover, but you need to take care of yourself too.

- Encourage them to seek professional help when available. Offer to accompany them to appointments.
- If medication is prescribed, help them to take it as prescribed. Be patient; it usually takes a few weeks to feel better.
- Help them with everyday tasks and to have regular eating and sleeping patterns.
- Encourage regular exercise and social activities.
- Encourage them to focus on the positive, rather than the negative.
- If they are thinking about self-harm, or have already intentionally harmed themselves, do not leave them alone. Seek further help from the emergency services or a health-care professional. In the meantime, remove items such as medications, sharp objects and firearms.
- Take care of yourself too. Try to find ways to relax and continue doing things you enjoy.


LetsTalk

[www.who.int/depression/en](http://www.who.int/depression/en)


World Health Organization

Note: Adapted from: American Academy of Family Physicians. (2016). Depression self-care action plan [PDF]. [www.aafp.org](http://www.aafp.org).

[https://www.aafp.org/dam/AAFP/documents/patient\\_care/nrn/depression-self-care-action-plan.pdf](https://www.aafp.org/dam/AAFP/documents/patient_care/nrn/depression-self-care-action-plan.pdf).



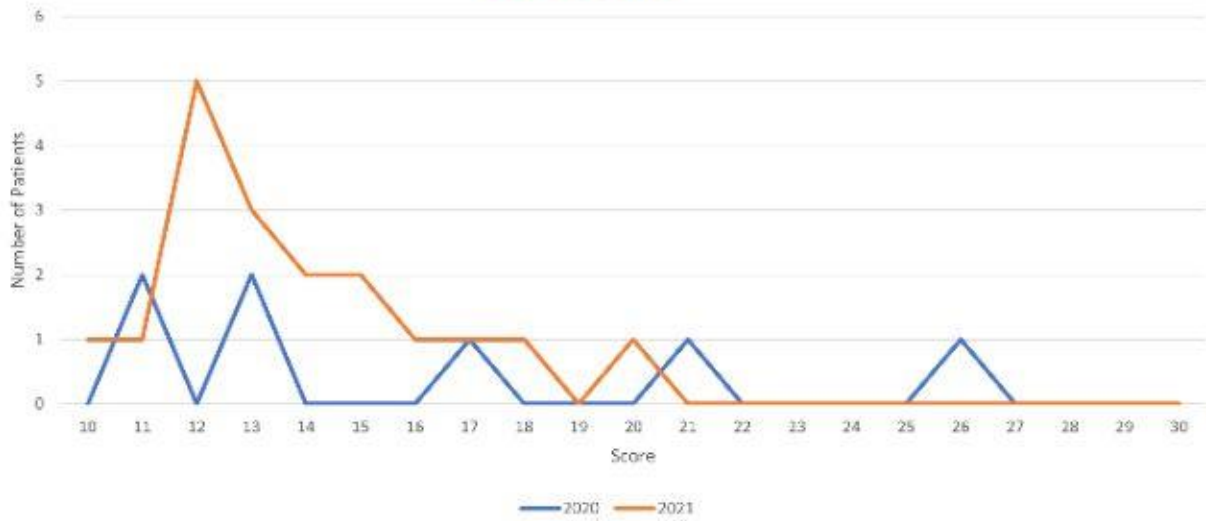
**Appendix H****EPDS Score Analysis**

	<b>2020</b>	<b>2021</b>
# of births	83	79
EPDS on file	32	65
Positive Score	7	18
Hx of mental health	3	7
Co-morbidities	1	1
	<b>2020</b>	<b>2021</b>
# of births	83	79
Positive EPDS	7	18
Repeat EPDS	1	5
Pharmaceutical Tx	2	13
Referral	0	3
No treatment	5	2

### Appendix I

### Score Description of EPDS

Maximum 30/Minimum 0 Score N=18  
(EPDS Positive)



**Appendix J****Demographics (2020): Characteristics of Population N=83**

<b>Age</b>	<b>n</b>	<b>%</b>
<20	2	2.41
21-24	9	10.84
25-29	27	32.53
30-34	28	33.73
35-39	14	16.87
>40	3	3.61
American Indian/Alaskan Native	0	0
Black or African American	30	36.14
Asian	2	2.41
Native American/Pacific Islander	0	0
Hispanic/Latino	0	0
White	49	59.04
Other	2	2.41
Did not report	0	0

**Appendix K****Demographics (2021): Characteristics of Population N=79**

<b>Age</b>	<b>n</b>	<b>%</b>
<20	6	7.59
21-24	19	24.05
25-29	25	31.65
30-34	20	25.32
35-39	8	10.13
>40	1	1.27
American Indian/Alaskan Native	0	0
Black or African American	36	45.57
Asian	1	1.27
Native American/Pacific Islander	0	0
Hispanic/Latino	1	1.27
White	40	50.63
Other	1	1.27
Did not report	0	0