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Effectiveness of Provider Education to Improve Screening, Diagnosis, and Management of Postpartum Depression

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GW Nursing

DOCTOR OF NURSING PRACTICE PROGRAM

A DNP PROJECT

Effectiveness of Provider Education to Improve Screening, Diagnosis, and Management of Postpartum Depression

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Abstract

Background: Postpartum depression (PPD) effects approximately 15% of new mothers after the birth of their child which results in feelings of anger, fear and being overwhelmed. In the practice setting for this project there were low rates of PPD screening, leading to missed diagnoses and inadequate management of PPD.

Purpose: The purpose of this project was to implement and evaluate the effectiveness of an education program to increase providers' perceived knowledge and improve screening, diagnosis and management of PPD for a multicultural patient population at an urban obstetrics practice.

Methods: This pre-post design project evaluated the effectiveness of an educational program for obstetric providers to improve PPD screening rates using the Edinburgh Postnatal Depression Screening (EPDS), diagnosis, and management (behavioral health referrals, medication initiation and follow-up) among patients 2 months before (N=132) and after (N=117) the education program. Provider (N=15) self-assessment of perceived knowledge and awareness of PPD screening, diagnosis, and management were also evaluated before and after the education program.

Results/Findings: Significant improvement in EPDS screening rates (X^2(1,N=249)=8.684, p=.003) and follow-up visits for patients diagnosed with PPD (X^2(1,N=55)=4.441, p=.035) were demonstrated between patients 2 months before and after the education program. Providers who participated in the education significantly increased post-education knowledge ratings of PPD management (t(14)=-3.742, p=.002), referrals to mental health professionals (t(14)=-8.497, p=.0001), and prescribing (t(14)=-5.00, p=.0001).

Conclusion: Providing education for obstetrical providers pertaining to PPD resulted in improvement in provider perceived knowledge and PPD screening, diagnosis and follow-up for patients in this organization.

Introduction

Postpartum depression (PPD) affects as many as 15% of new mothers during the first year after delivery (Carberg, 2021). Due to the social stigma of depression after delivery, many women go untreated and without help during this time. PPD can have detrimental consequences for mother and child such as chronic depression or anxiety for mother and behavioral issues for children. A national survey reported, as many as 1 in 8 or 13% of postpartum women in the U.S. are not routinely screened for depression during postpartum follow-up visits (Kuehn, 2020). In the practice setting for this project 45% of patients were not routinely screened for PPD at 6 week postpartum visits, which is a higher percentage of women not receiving this important screening compared to the national percentage. Currently, in the practice where this project was implemented, there is no additional training offered for providers for recognition of postpartum depression symptoms, screening and management. This Quality Improvement (QI) project developed, implemented and evaluated an education program to improve obstetrical providers' perceived knowledge, awareness and practice relating to PPD screening, diagnosis and management and in turn demonstrate if improved provider knowledge translates to improvement in patient outcomes related to screening, diagnosis, and management of PPD.

Background and Significance

Postpartum depression is as old as the human race itself. In 460 B.C., Hippocrates wrote about "puerperal fever" describing symptoms such as "agitation, delirium and attacks of mania" (Penn Medicine News, 2016). It has manifested in many forms over the centuries and the medical community's reaction to it morphed from the new mother practicing witchcraft, to a disease due to the lochial discharge after birth, to an issue with pre-pregnancy suppressed homosexual urges and others (Sparks, 2013). A common fear prior to our more modern age was

that if a woman admitted to having postpartum depression, she would be forced into an institution and deemed unfit as a mother, ultimately losing her child (Pitt, 1986). Postpartum depression is still seen as abnormal in the modern culture due to the large emphasis on the "happiness" that is expected to be experienced after the delivery of a baby.

Current statistics reveal that postpartum depression diagnosis affects approximately one in seven women during the first year after delivery. A woman with a history of PPD is 10-50% more likely to experience it again (Carberg, 2021). It is well documented that there are developmental risks for the child of a mother with postpartum depression. These risks for a child's development include: delayed cognitive and language development, disorganized or insecure attachment, higher rates of behavioral problems and lifelong struggles with their own depression or anxiety (Garza, 2018). Additionally, there is a 1-2 in 1,000 chance that postpartum depression can develop into postpartum psychosis. Postpartum psychosis is a very severe and potentially deadly condition where the woman experiences hallucinations, paranoia and suicidal or homicidal thoughts, as many as 10% of women who develop postpartum psychosis will successfully commit suicide (Carberg, 2021).

Postpartum depression is a severity spectrum disorder that can affect women of all races, socioeconomic statuses and ages, however, there are known risk factors (Beck, 2001). It is imperative to screen appropriately and often for perinatal depression during pregnancy, as well as to perform a comprehensive clinical assessment in the postpartum period (The American College of Obstetricians and Gynecologists [ACOG], 2018). Due to the long term effects on child development, The American Academy of Pediatrics (AAP) released recommendations for routine screening for postpartum depression during well-child visits at one, two, four and six months (Dinh & Ross, 2018). Postpartum depression (PPD) is defined as a major depressive

disorder with onset of at least one month after birth and can occur in about 15% of new mothers (Pearlstein, Howard, Salisbury & Ziotnick, 2009). Having a baby is considered one of the most "joyous" times in a person's life and often, there is a stigma surrounding the admittance of postpartum depression symptoms. The new mother may feel like a failure because she is feeling overwhelmed, angry, sad, or even fearful (Gur, 2018). Preparing for the postpartum period in pregnancy can give new parents the confidence needed to feel adequate when bringing home their new baby. In addition to the personal factors of a woman coming forward with admittance of PPD symptoms, there are no standard guidelines for prenatal education, early screening or even which screening instrument to use for postpartum depression (Knights, Salvatore, Simpkins, Hunter & Khandewal, 2016).

The importance of prompt treatment for PPD is imperative for maternal and child benefit as PPD can leave lasting negative effects on a woman and child. Long lasting effects have been found in personal maternal growth, child development and mother-child interactions (Slomian, Honvo, Emonts, Reginster & Bruyere, 2017). These implications include poor physical and mental health for the mother as well as inappropriate emotional, social and behavioral development for the child. Additionally, mother-child interactions are negatively impacted such as a shortened time or no breastfeeding and inappropriate or poor bonding between mother and child. It is imperative that clinicians have firm understanding in the areas of symptom presentation, diagnoses and management of PPD in addition to the utilization of screening tools as the evidence shows that earlier detection and diagnosis of PPD can improve outcomes due to the patient receiving prompt and appropriate management for her symptoms (Gjerdingen & Yawn, 2007; Martin, Norris & Martin, 2020; Slomian et al., 2017). The screening tools available for screening for perinatal and postpartum depression are Edinburg Postpartum

Depression Scale (EPDS), the Postpartum Depression Screening Scale (PDSS) and the Pregnancy Risk Questionnaire (PRQ) (Ukatu, Clare & Brulja, 2017). The sensitivities and specificities of these tests vary greatly with multiple confounding factors affecting the results. These factors include timing of tests, categories of questions and methodology used to administer the tests (Ukatu, Clare & Brulja, 2017). According to a systematic review, the EPDS has a reported sensitivity of 22.2%-96% (Ukatu, Clare & Brulja, 2017) while a small study based in Brazil showed that the EPDS had a sensitivity of 82.6% and specificity of 65.4% (Santos, Matijasevich, Tavares, Barros, Botelho, Lapolli, Magalhaes, Barbosa & Barros, 2007).

Utilization of the Edinburgh Postnatal Depression Scale (EPDS) alone for postpartum screening may not be enough to capture the full clinical presentation of PPD (Watt, Sword, Krueger, Sheehan & Ontario 2002). There are many areas and predisposing risk factors that women's health providers must be aware of in regards to recognizing and categorizing those patients in need of behavioral health referral, medication therapy initiation and close follow-up. Education during pregnancy regarding postpartum depression for pregnant women and their partners is lacking in childbirth education classes (Zauderer, 2009). This is due to, in part, the lack of provider education during medical training regarding mental illness (Wisner, Logsdon & Shanahan, 2008; Zauderer, 2009). The rates of postpartum depression diagnosed by obstetric and primary healthcare providers are low due to physician discomfort in their ability to accurately recognize the signs and symptoms of postpartum depression (Gjerdungen & Yawn, 2007). Previous studies have shown that education can significantly increase postpartum depression screening, diagnoses and management rates (Clevesy, Gatlin, Cheese & Strebel, 2019; Legere, Wallace, Bowen, McQueen, Montgomery & Evans, 2017; Horowitz, Murphy, Gregory & Wojclk, 2009; Schaar & Hall, 2013). Providing educational materials to providers

and staff stressing the importance of screening for postpartum depression resulted in a direct increase in the rates of screening in these studies. The education materials that were associated with increased rates of PPD screening varied from informational pamphlets to online training materials with question and answer learning activities.

Needs Assessment

The practice for this QI project is located in an urban area in the Northeastern region of the U.S. and is comprised of a large central office and four satellite offices. There are approximately 2,500 deliveries per year which are attended by physicians, laborists and midwives. The patients in the clinic are seen and evaluated by physicians, midwives and nurse practitioners. The screening rates for perinatal and postpartum depression at this practice are 60% at initial visit, less than 10% at third trimester visit (typically at 28 weeks' gestation) and 55% at the postpartum visit at six weeks (Mielke, 2021).

This organization is very strong in many aspects while lacking in others. The drive of the department to improve patient care was a natural facilitator for this QI project. Given providers' desire to improve their knowledge and a recognized need to improve PPD screening rates, these providers were motivated to participate in the continuing education and supportive of this QI project. Currently, there are monthly Grand Rounds covering various topics and attendance at these events is mostly full. As with any positives, there were barriers to this project. The largest barrier to this project was the lack of communication between the leadership team and the providers. This barrier was one that proved to be a tough obstacle and continued check-ins during the project were enforced to ensure that the project moved forward at an appropriate pace. Another barrier was the inability to participate in community outreach programs during at this time. The full SWOT Analysis is depicted in Appendix A.

Problem Statement

Lack of clear policies and continuing education offerings may be contributing to low rates of PPD screening, diagnosis, referral and treatment in an obstetric practice. Currently, no training on PPD symptoms, screening and management is offered for providers at this practice.

Aims and Objectives

This QI project was aimed to develop and implement a postpartum depression education program for providers in the practice to improve their knowledge base regarding recognition of symptoms, screening and management of PPD; and to increase the number of screenings, diagnoses and referrals of PPD for patients. The specific aims were:

1. Develop and implement a postpartum depression education program that will be completed by obstetrical providers
2. Improve obstetrical providers' perceived knowledge, practice and awareness of PPD screening, diagnosis and management after completing the education program.
3. Increase patient's PPD screening rates with Edinburgh Postnatal Depression Scale screening tool at two-week and six-week postpartum visits
4. Increase PPD diagnosis among postpartum patients in the practice after implementation of the education program
5. Improve the management (specialty referrals, medication initiation and follow-up appointments) of PPD among postpartum patients following implementation of the education program

Review of Literature

Search Strategy

The literature was searched using the CINAHL and PubMed databases through Himmelfarb Health Sciences Library website of The George Washington University. The search details for CINAHL database included: (postpartum depression OR postnatal depression OR PPD OR PND) AND (providers of healthcare OR physicians OR advanced practice nurse) AND (screening OR assessment OR test OR diagnosis) AND (evidence based practice OR EBP OR best practice) AND (training OR assessment OR learning). This search strategy yielded four articles. The search criteria in PubMed included the MeSH terms: (postpartum depression OR postnatal depression OR PPD) AND (screening OR screen OR diagnose OR diagnosis) AND (healthcare provider OR obstetrician OR physician OR provider OR midwife) AND (training OR learning). This search yielded 28 articles. The articles from both databases had the Preferred Reporting Items for Systematic review and Meta-Analyses (PRISMA) approach applied to narrow down the articles to yield only the most superior (Moher, Shamseer & Clark et al., 2015). In the identification phase of the PRISMA approach, 32 articles were identified through database searching and an additional five articles were found via another source, giving a total of n = 37. Of the 37 articles, there were 33 remaining after all duplicates were removed. During the screening process, 21 articles were excluded for failure to meet appropriate and adequate search criteria. This left 12 full-text articles to be assessed for eligibility. Four of the 12 articles were excluded due to results of postpartum depression screening methods were not reported in the articles. This left eight remaining articles to be included in the synthesis. Eight articles identified through the PRISMA approach were included in the literature review. The inclusion

criteria for the articles included systematic reviews, randomized control trials, experimental, quasi-experimental and non-experimental studies focused on improvement of PPD screening and diagnosis in postpartum patients following education of postpartum depression published in the last 15 years and English language. The exclusion criteria included research articles that focused on generalized depression, specialty other than OBGYN and male gendered patients.

Quality Appraisal Tool

The quality appraisal tool used for this systematic review was the Johns Hopkins Evidence and Quality Appraisal (Dang & Dearbolt, 2018). The guide by Johns Hopkins discussed the levels of evidence as I-V for each classification of study such as randomized control trial, quasi-experimental study, nonexperimental study, expert opinion or experiential evidence. Additionally, the evidence was rated for quality: high, good, or low quality evidence. See Appendix C for Johns Hopkins Evidence and Quality Appraisal Guide.

Literature Review

The articles reviewed for this proposal included one systematic review, one randomized controlled trial, one experimental study, one non-experimental study and four quasi-experimental studies. Two of the studies and the systematic review examined the relationship between a healthcare provider education or training program on postpartum depression and rates of PPD screening. These studies by Schaar & Hall (2013) and Clevesy, Gatlin, Cheese, & Strebel (2019) implemented a provider education program to teach about the importance of postpartum depression screening. The results of these studies found a significant increase in PPD screening rates among the postpartum patients after the providers completed the education programs. In the Schaar & Hall (2013) study, five of nine OBGYN practices increased their postpartum patient PPD screening rates to 100% after the intervention and in the Clevesy et al. (2019) study,

the practice increased PPD screening from 56% to 92.7% of all postpartum patients. Each study concluded (with limitation of inability to generalize) that the provider education intervention was responsible for the improvement in PPD screening rates.

Yawn et al. (2012) demonstrated a significant increase in the rates of PPD diagnosis and initiation of medication therapy for 14 practices that participated in an intervention offering PPD in-service training for their staff. This training included information on PPD signs and symptoms, clinical assessment and scoring of the PPD screening tools. The patients in the practices included in the intervention group were more likely to receive a PPD diagnosis and more likely to have initiation of talk therapy. Additionally, it was found through this study that there was a significant drop in the PHQ-9 depression scoring by 12 months postpartum for the patients that were seen at practices involved in the intervention group (Yawn et al., 2012).

Two studies explored the relationship between staff education of PPD symptoms and PPD diagnosis rates (Morrell et al., 2009; Tome et al, 2011). The Morrell et al. (2009) study employed an intervention of postpartum education training for health visitors (which were defined in the study as mental health counselors who visited the patients at home during the postpartum period) of postpartum women with the focus being recognition of PPD symptoms and use of the EPDS. The goals of this study were to decrease the number of women scoring higher than 12 on the EPDS after being screened by health visitors; the intervention group was the health visitors receiving a postpartum depression education program. The results yielded a significant decrease in the >12 scoring at 6 months and 12 months postpartum for the intervention group. The Tome et al. (2011) authors led a nursing education training across 16 women's health clinics which trained nurses on PPD symptoms. The study participants then provided care either from the intervention group (PPD education) or the control group (treatment

as usual [TAU]) for 93 women. The results for this quasi-experimental study yielded significant decrease in PPD rates at 12 months among the women in the intervention group.

McLachlan et al. (2011) observed the rates of self-reported "comfort" of 25 midwives in the areas of recognizing, diagnosing and managing psychosocial issues related to PPD and transition to motherhood. The midwives were given a pre-survey to gauge their comfort level in these areas, then attended an education program about mental health issues over a seven month time period. After this education program was completed, a post-survey was administered to the midwives. The participants' responses confirmed a significant improvement in recognition of psychosocial issues in patients and ability to support women in the postpartum period.

Wisner et al., (2008) discussed a web based delivery system for postpartum depression education and the reception of this by those utilizing the system. A website, MedEdPPD, was created to be used by healthcare providers for continuing education regarding postpartum depression and as a referral source for the patients. The continuing education material for healthcare personnel included "interactive case studies, classic papers and current literature and provider tools" (Wisner et al., 2008). The website in its first month reached approximately 17,000 views per day and had positive feedback on the surveys administered to the site visitors. The survey had an overall rating of 3.2 out of 4 for all categories including: reliability of information, ease of use and continuing education material.

The final article by Legere et al. (2017) was a systematic review of literature yielding 12 articles for review. The evidence in this systematic review highlighted the gap in provider education regarding mental health during pregnancy. According to Legere et al. (2017), consistently, it was found that providers identified the desire for further education in perinatal

mental health with an emphasis on identification of symptoms and improvement in outcomes. See Appendix B for Evidence Table.

Evidence Based Practice Translation Model

The Evidence Based Practice (EBP) model chosen for this initiative is the Iowa Model of Evidence Based Practice-Revised. This model is the revised version of the original 1994 model to guide the change in clinical practice. This model is found to be most beneficial as it is easy to follow, has multiple options to guide decision making if not enough research available, strong emphasis on pilot studies prior to change throughout and evaluation of the change (Titler et al., 2001). The changes to this model were in response to the changes in healthcare like emergence of implementation science and emphasis on patient engagement (Buckwalter et al., 2017). The steps of the IOWA Model for Evidence Based Practice are as follows (Brown, 2014):

1. Identify the trigger
2. State the question
3. Determine priority of the problem
4. If problem is not a priority- choose different issue; if it is a priority then move to step 5
5. Form a team
6. Gather research by assembling, appraising a body of evidence
7. Critique and synthesize research- decide if there is enough research to implement change
8. Implement change in a pilot program
9. Evaluate results and decide if change is appropriate for adoption in practice
10. Integrate and sustain the practice change
11. Disseminate the results

Implementation Process of Evidence Based Initiative

Triggering Opportunity. Postpartum depression is a significant but silent issue for approximately 15% of new mothers (Carberg, 2021). Often, there is minimal discussion regarding postpartum depression during a typical pregnancy aside from depression screening at the initial visit and in the third trimester. The triggering issue for this initiative was the need to improve the screening rates, diagnosis, and appropriate management of PPD at the obstetrics practice.

Research Question. Does implementation of a PPD education program increase obstetric providers' perceived knowledge, awareness and practice regarding screening, diagnosis, and management of PPD?

Forming a Team. The initiative must have involvement of multiple stakeholders for success. An interdisciplinary team of management and clinical staff is assembled in order to bring all recourses necessary for successful implementation of the project.

- CNM acting as Quality Improvement Leader, lead the initiative and served as a liaison between stakeholders and the educator to organize education for staff regarding postpartum depression
- Medical assistants provided postpartum questionnaire to patients for EPDS screening
- Librarian to assist in literature evidence collection
- OBGYN Director and OBGYN Chief for additional resources as needed

Assembling, Appraising and Synthesizing Body of Evidence. A literature review was completed previously. The evidence was gathered using Himmelfarb Health Sciences Library Website's database contracts with PubMed and CINHAL. A librarian was consulted for

appropriate search criteria and measures. The Johns Hopkins Nursing Evidence-Based Practice Evidence Level and Quality Guide was used to appraise the literature. See Appendix C for full details. This evidence is fully detailed in the review of the literature section of this project proposal.

Design and Pilot the Practice Change. The review of the literature revealed that there was a need for improvement of provider assessment of PPD among patients given the identifiable risk factors for this mental health issue. Given the strength of evidence on this topic, the next step was the development of an educational program by the DNP student. Piloting the change on a small scale was performed in this project in order to determine the effectiveness of a large scale change initiative with minimal risk (financial, time etc.) to the practice (Brown, 2014). After review and waiver from the George Washington University Institutional Review Board and the stakeholders involved in the process and identification of the evaluation tools, the educational program was implemented.

Providers meeting inclusion criteria at the practice were contacted via email to sign up for the education program; an information sheet explaining the project was attached. For a two month period prior and two months after implementation of the education, auditing of the postpartum patient charts occurred to collect data on: PPD diagnosis, EPDS screening, documentation and scores, referrals to behavioral health, medication initiation and follow up visit documentation. The providers were administered a pre-assessment survey regarding PPD prior to completion of the education program and a post-assessment survey after completing the education.

Methods

Setting

The populations studied were the postpartum patients and OBGYN providers at an OBGYN practice in an urban setting in the northeastern US. These providers have a large multicultural obstetric patient panel with approximately 2,500 deliveries per year. These patients have a very diverse demographic background to include Hispanic/Latinx, African American, Albanian, Indian and Middle European ethnicities. The organization has one main site out of which the majority of the providers work and three smaller satellite sites staffed by one to three other providers. This project was initiated during late summer/early fall which has historically been a busy time of the year for deliveries. The practice is unique in the region as the only practice offering a midwifery service and care team model of patient care.

Study Aims/Analysis Plan

This study had four aims: 1) improve obstetrical providers' perceived knowledge, practice and awareness related to PPD screening, diagnosis and management, 2) increase PPD patient screening rates with Edinburgh Postnatal Depression Scale screening tool at postpartum visits after implementation of the education program, 3) increase PPD diagnosis among patients in the practice after the implementation of the education program and 4) improve the management (specialty referrals, medication initiation and follow-up appointments) of PPD in postpartum patients following the implementation of the education program. Each of these aims were to be analyzed with a specific analysis plan.

For the first aim, a baseline assessment of providers' perceived knowledge and awareness was measured through the administration of two separate questionnaires. The providers' perceived knowledge was measured using a Likert scale style questionnaire with a sliding scale

to rate six questions according to knowledge level of various aspects of postpartum depression. The providers' awareness of the Affordable Care Act standards for obstetrical providers was measured using an adapted questionnaire from the Agency for Healthcare Research and Quality (Agency for Healthcare and Research Quality [AHRQ], 2015). A post education assessment was then administered to the providers using the same survey questions to measure their perceived knowledge and awareness.

For the second aim, electronic health records (EHR) were audited to measure the number of patients who completed Edinburgh Postnatal Depression Screening during the the two month pre-education and two month post education timeframe. Similarly, for the third and fourth aims, patient charts of the participating providers were audited to measure rates of postpartum depression diagnosis and appropriate management (rates of referrals, medication initiation rates and follow up appointments scheduled) to compare data from the two months before and after implementation of the education program.

Alignment of Aims and Outcomes

The first aim to improve obstetrical providers' perceived knowledge, practice and awareness related to PPD screening diagnosis and management was measured through two surveys. These self-assessments measured provider awareness and practice of ACA PPD screening in clinical practice and self-assessed perceived knowledge of PPD. The surveys were administered to the providers pre and post completion of PPD education to compare information regarding impact of education on providers' awareness and perceived knowledge.

The second aim was to increase the screening rates for PPD with the Edinburgh Postnatal Depression Screening scale at patients' postpartum visits. This was measured through chart audits to determine the number of EPDS screenings for postpartum patients in comparison to all

of the postpartum patients seen in the office for the two months before and two months after implementation of the provider PPD education program. To further evaluate this aim and the effectiveness of the education, data were collected from the EHR for the two months before and after the education session as to whether the provider reviewed the EPDS score with the patient and recorded this in the visit notes.

The third aim focused on increasing rates of PPD diagnosis in postpartum patients after introduction of the education program. This was measured by reviewing the number of PPD diagnoses documented in the EHR during patient postpartum visits two months before and after the education program was administered to the providers. It was postulated that measuring this aim would show if the provider comprehended the information from the education program and could apply it with critical thinking to each patient to make accurate and appropriate diagnoses.

The fourth aim was to improve the management of PPD to include appropriate referral to behavioral health partners, medication initiation and follow up appointments booked with obstetrical providers to track patient progress. EHR chart audits were conducted for the two months before and after the education to compare the rates of these management criteria as to whether there was an improvement in appropriate management of PPD among postpartum patients in the practice.

Program Development

The provider education program was developed through a literature review of postpartum depression symptoms, criteria for diagnosis, screening and management. The evidence-based program was designed to educate obstetrical providers on postpartum depression while using resources from the national, state and local community. The information for this education program and the survey questions was also based on evidence from the American College of

Obstetricians and Gynecologists (ACOG, 2021), the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN, 2021), and the Council on Patient Safety in Women's Healthcare (2021). The education program reflected the ACOG Committee Opinion Number 757 regarding appropriate screening guidelines for PPD (2021), the screening and management of PPD according to the AWHONN Compendium for PPD (2021) and treatment from the Council on Patient Safety in Women's Healthcare (2021). According to ACOG guidelines, screening for postpartum depression should occur once in pregnancy and again at some point in the postpartum period (2021). The treatment guidelines discussed in the Council on Patient Safety in Women's Healthcare included appropriate referrals to behavioral health resources such as mental health services within an organization and Massachusetts Child Psychiatry Access Program (McPAP) for moms (2021). McPAP for moms is an invaluable resource which allows a provider to make contact directly with a psychiatrist to develop an appropriate treatment plan to include medication initiate and follow up with a mental health professional ("McPAP for moms-overview, vision, history, n.d.). Content was prepared in a narrated Powerpoint fashion including a printed handout of condensed information also available to providers to use as a pocket guide. The narrated Powerpoint was self-paced and allowed the provider the ability to review content on multiple occasions.

Data Collection Tools

At the beginning of the project, patient data from the EHR was collected over an eight week period to compile a pre-education data set including information on EPDS screenings, PPD diagnosis, referrals, medication initiation, and follow-up appointments scheduled. Prior to release of the education Powerpoint, the providers filled out an anonymous assessment of their perceived knowledge and awareness of PPD. The assessments were administered in paper

format and collected immediately. After collection of the assessments, the education program was released to the participants. At seven days post education, a self-assessment was administered in paper format to the providers and immediately collected. Additionally, eight weeks of patient EHR data was collected to create a post education data set.

The self-assessment surveys administered to the providers were compiled by the DNP project student and the survey questions were informed by evidence-based sources. The first questions on the survey, to assess awareness of PPD, were adapted from the Agency for Healthcare Research and Quality Affordable Care Act Postpartum Depression Screening for Clinical Providers (Agency for Healthcare and Research Quality [AHRQ], 2015) and on the Affordable Care Act (ACA) preventative PPD perinatal care services found in Section 2952 of the law (Rhodes & Segre, 2014). This survey included five yes/no questions and the questions were adapted from the legislation site for the Affordable Care Act in Massachusetts regarding the expectation for obstetrical providers' roles in postpartum depression. The second assessment tool consisted of six questions to measure the participants' perceived knowledge of PPD rated on a Likert scale of 0-4 (0- not knowledgeable, 1- slightly knowledgeable, 2- somewhat knowledgeable, 3- moderately knowledgeable and 4- very knowledgeable). See Appendix E for full details.

Project Timeline

The project began on Monday August 30, 2021. The project was split into three phases. The first phase included seven days to notify the participants regarding the education. There was a two month period before the education program for collection of aggregated data at the practice on the total number of patients screened with the EPDS, diagnosed with postpartum depression, and managed (defined as referred to behavioral health, medication initiation and follow up

appointment booked) for postpartum depression. The education pre-assessment was administered to the participants on the final day of data collection in phase one. Phase two began with the initiation of the self-paced educational program provided to the participants. Two email reminders were sent to participants to complete the educational program during the first week of the education program. Phase three was a post-assessment sent to the providers for completion. This was followed by a two month period of gathering aggregated EHR patient data from the practice, which concluded on January 5, 2022. After all aggregated data from the EHR patient chart audit and the provider participants' survey data was gathered, statistical analysis was performed. See Appendix F for Gantt Chart.

Software Utilized

All data was collected from the participants immediately prior to and after completion of the seven day education review. Participants completed perceived knowledge and awareness assessments on paper. The completed self-assessments were collected and hand scored by the DNP project team leader, the data then entered into a password protected RedCAP database. For the patient data, daily schedules were reviewed from the EHR and patient charts with the visit nomer "postpartum visit" were audited. The auditing of these charts involved entering the record and reviewing the provider documentation from the visit. The data collected from this review included: 1) was the patient screened for PPD with the EPDS? 2) did the provider note the score of the EPDS in their documentation? 3) was PPD diagnosed? In the patient charts where PPD was diagnosed, additional data of: 1) was the patient referred to behavioral health? 2) was medication therapy initiated? And 3) was a follow up visit with OB provider booked? Were also collected. The data was exported to an Excel spreadsheet with no participant identifiers. The

Excel data was then exported for analysis to Statistical Package for Social Sciences (SPSS) software.

Data Entry Accuracy

After each group of entry from pre and post education, the data was reviewed by the DNP project student for accuracy. There were no missing data as the participants had all turned in the assessments directly to the DNP project student. There were no outliers. The data was checked for accuracy by pulling the daily statistics for postpartum visits to compare number of daily visits with the nomer "postpartum visit" to the collected encounters in RedCAP.

Recruitment of Participants

Recruitment of participants was performed via an email sent to providers meeting inclusion criteria. The inclusion criteria for the project participants were: 1) advanced practice clinician, 2) prescriptive authority, 3) current practice includes obstetric patients, 4) full time, part time or per diem employment with the organization. Exclusion criteria included: 1) uro-gynecology providers, 2) nurses, 3) providers serving only gynecologic patients. The email included an information sheet describing the project sent to the obstetric providers. Completion of the pre and post surveys and the education program served as evidence of consent to participate in the project. To keep the provider responses anonymous, signatures on consent forms were not collected.

Results

Characteristics of Provider Participants

The characteristics of the provider participants (n=8) were as follows: women's health nurse practitioners (n=4), family nurse practitioner (n=1) and certified nurse midwives (n=3). All of the participants were female and met all other inclusion criteria.

Data Analysis

Provider Survey. There were 8 providers who completed the pre and post training surveys rating knowledge of PPD symptoms, diagnostic criteria, management, EPDS scoring, referral and prescribing on a 5 point Likert scale that was coded as: 0=Not Knowledgeable, 1=Slightly Knowledgeable, 2=Somewhat Knowledgeable, 3=Moderately Knowledgeable, 4=Very Knowledgeable. Mean ratings for the providers' pre and post survey ratings are shown in Table 1. Independent samples t-test were conducted since de-identified data was collected from the providers and pre and post responses were not matched. The t-test analysis showed that providers who participated in the education significantly increased their post-education knowledge ratings of PPD management ($t(14)=-3.742$, p=.002), referrals to mental health professionals ($t(14)=-8.497$, p=.0001), and prescribing ($t(14)=-5.00$, p=.0001) compared with pre-education ratings (See Table 1). While not statistically significant, trends show that providers had higher mean post-education ratings for knowledge of PPD symptoms, diagnostic criteria, and EPDS scoring compared with pre-training ratings (Table 1).

Chi-square tests of independence showed there were no significant differences in the proportion of the providers who answered yes to questions about routine screening, ACA preventive services, ACA provider role, mental health referrals, and confirmation of mental health appointment in the pre compared with post training survey responses (Table 2).

Patient Outcomes. A chart review of 132 patients in the pre-education and 117 patients in the post education periods yielded a total sample of 249 postpartum patients. In both the pre and post education patient groups, the majority of EPDS screenings were completed by patients who were 6 weeks postpartum. In the pre-education group, 23% (31of 132) of patients received EPDS screening at 2 weeks postpartum and 73% (97 of 132) of patients received EPDS screening at 6

weeks postpartum. In the post-education group 21% (25 of 117) of patients received EPDS screening at 2 weeks and 76% (90 of 117) received screening at 6 weeks postpartum.

There were 28.8% of patients diagnosed with PPD in the pre-training time period and 14.4% of patients diagnosed with PPD in the post-training time period (See Table 3). Though not significant, a slightly higher percentage of patients diagnosed with PPD were prescribed medications in the post (47.1%) compared with pre (44.7%) time period (Table 3). Interestingly, trends showed that a non-significant smaller percentage of PPD patients received a referral in the post (23.5%) compared to pre (39.5%) training time period (Table 3).

Chi-square tests of independence were conducted to determine if a significantly higher proportion of patients received EPDS screening and were diagnosed with PPD in the post compared with the pre-training time period. Significantly more patients completed EPDS screening in the post compared with the pre-training time periods (X^2(1,N=249)=8.684, p=.003) and significantly more patients had EPDS screening noted by the provider in the post compared with pre-training time period (X^2(1,N=249)=7.191, p=.007) (See Table 3). Interestingly, a significantly smaller proportion of patients were diagnosed with PPD in the post-training compared with pre-training time period (X^2(1,N=249)=7.327, p=.007) (Table 3).

Chi-square tests of independence also showed that for patients diagnosed with PPD (N=55), a significantly higher proportion had a follow-up appointment scheduled with their OB provider in the post compared with pre-training time period (X^2(1,N=55)=4.441, p=.035). There were no significant differences in the proportion of patients who received a referral (X^2(1,N=55)=1.321, p=.250) or who had medication prescribed (X^2(1,N=55)=.026, p=.873) among patients diagnosed with PPD in the pre compared with post training time period (Table 4).

Discussion

The results of this project showed a significant improvement in provider's ratings of perceived knowledge in multiple areas related to PPD (management, referrals and prescribing). Additionally, patient outcomes improved as more patients were screened with the EPDS, documentation of discussion of EPDS score and diagnosis of PPD showed significant increases after the education program. It is also of note, that the patients diagnosed with PPD had a significant improvement in follow up appointments booked after their diagnosis.

The previous review of literature guided the process for the development of an education program for this project. The evidence from Schaar & Hall (2013) and Clevesy, Gatlin Cheese & Strebel (2019) demonstrated a significant increase in PPD screening rates in practices where providers were educated on PPD screening. The results of the DNP project were similar to the literature results in that significantly more patients were screened for PPD at their postpartum visit and the screening was documented in the EHR. Another similarity between the project results and literature review was the significant change of provider perceived knowledge in management, referral and prescription of medication for PPD after the education program. These findings were consistent with the small study of 25 midwives in Australia by McLachlan et al. (2011) wherein the self-reported "comfort" in ability to support patients (with appropriate referral and medication therapy) significantly increased in the participants after an education program on PPD. Additionally, the Yawn et al. (2012) study supported the DNP project results in that there was an increase in PPD diagnosis rates after the education program. Conversely, the literature demonstrated a consensus that provider and staff education on PPD improved medication and talk therapy initiation (Yawn et al., 2012) which was not evident in the DNP

project. The results from the DNP project were not statistically significant for behavioral health referrals or medication initiation.

Limitations. This project was limited by the small provider sample size. The provider sample size was very small with an N of 8 participants. This was 61% of the providers in the department. Due to this size, the statistical analysis was difficult. Additionally, the results for pre and post intervention were not paired with the same provides so the improvement was only analyzed as an overall improvement rather than specific provider improvement. Another limitation was the varying sample characteristics. There were fewer PPD diagnoses in the post education data collection. This could be due to the timing of the patient data collection, rather than the provider knowledge of PPD symptoms and appropriate diagnosis criteria. Additionally, there were more patient data in the pre education collection. The overall number of postpartum patients in the pre and post education data collection was not reflective of the amount of patients who actually delivered during that timeframe. There were instances of patient last minute cancel or no show to their postpartum visits. The last limitation was the short time frame of the project which does not allow to analyze the long term impacts of the education program in this practice.

Implications for Practice. The DNP project supported the hypothesis that the providers in this practice can improve patient care after education on a particular topic. The project outcomes that improved were provider perceived knowledge of management of PPD, referral to mental healthcare providers and prescribing medication for PPD. This overall improves patient care and satisfaction within this organization. As of present times, there is minimal evidence for national screening rates for postpartum depression. The rate of PPD screening in this organization prior to the education program was 72% at the six week postpartum visit. After the training, there was a significant increase in postpartum patients screened at 87.2% at the six week visit. This

increase can be attributed to improving provider knowledge to the importance of screening for PPD which is supported in the literature from Schaar & Hall (2013) and Clevesy, Gatlin Cheese & Strebel (2019).

Implications for Healthcare Policy. This education program was derived from information and evidence from multiple governing bodies of obstetrics and gynecology as well as government Afford Care Act sources. These bodies are considered the standard of care in healthcare policy and procedure. However, the policies in these governing bodies regarding appropriate screening guidelines have been vague which can allow for screenings to be omitted from visits. ACOG released a revision to their Committee Opinion No. 630 with Committee Opinion No. 757 which "reflect[ed] a limited, focused change in the language and supporting evidence regarding prevalence, benefits of screening and screening tools" (2018). The evidence for prompt screening for PPD improving patient outcomes is strong, therefore a department wide policy change of requiring every postpartum patient to receive the screening for PPD is reasonable. Stronger guidelines in this organization paired with education regarding the importance of screening would have a positive effect on standardization of screening postpartum patients for PPD. The positive improvement of provider perceived knowledge and awareness show that the education program is an integral piece of ongoing provider education regarding important healthcare policies.

Implications for Executive Leadership. As a stakeholder in this project, the executive leadership team has been very involved with creating an environment that supports learning and self-improvement of the providers and staff. This project showed that when given access to education materials that allow for self and patient improvement, the providers demonstrated a positive response. Though not significant, there was improvement in referral to behavioral

health within the organization. This demonstrates that the organization as a whole has a strong network of resources available to optimize patient care. Future development of this relationship between behavioral health and OBGYN could include employment of a behavioral health partner in the OBGYN department for ease of access and referrals for the patients.

Implications for Quality and Safety. As the literature suggests, postpartum depression is a significant and silent disease process that requires an educated provider to perceive the clinical manifestations. There is also evidence to support that untreated mental illness in postpartum mothers can have lasting negative implications on their children. As discussed in the Slomian et al (2017) article, untreated PPD causes a hostile environment for mother and child which hampers development of both individuals. The earlier that PPD can be recognized and treated, the less negative and long lasting effects on mother and child. By providing education to the providers in this organization, the patients receive more prompt, competent and appropriate care. These measures improve patient care quality and safety overall.

Plans for Sustainability and Future Scholarship

This project was well received and supported by the organization. The participating providers gave feedback regarding their desire to have more in-service training around postpartum depression topics. Future recommendations for this project would be to standardize the education program. This could include having annual trainings on PPD and a more detailed trainings for all new hire providers. This provider education project demonstrated significant improvements in patient screening for PPD and the project could serve as a model for provider training and patient outcome tracking that could be implemented at other OBGYN practices. Also, this education program could be implemented across the organization in the satellite offices. Another future goal could be implementing this training with the focus being on training

nurses to recognize and screen for PPD. This is important that all the nursing staff are educated on PPD as the nurses may get the initial phone call and triage for a patient with concerns of PPD.

Conclusion

In conclusion, this project is an example of how education can improve provider and patient outcomes. This project demonstrates evidence to make education on PPD a standard of care for providers practicing in the OBGYN setting. Education can be provided to providers regarding PPD symptoms, screening and management on a continuing basis. The project highlighted that having a systematic approach to education allowed for improvement in providers' perceived knowledge and awareness as well as patient outcomes for appropriate management of PPD. With continued improvement in education processes, patient outcomes and satisfaction in their care can also improve.

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Appendix A: SWOT Analysis

Table 1- *SWOT Analysis*

Strengths • Active CNM service • Easy access to continuing education within the organization • Large organization with significant financial backing	**Weaknesses** • High turnover rate of leadership team • Low staffing of obstetrical providers
Opportunities • Expansion of virtual healthcare services • Only organization that offers a midwifery service	**Threats** • Competitors in the area offer more advanced services with their hospital affiliate. • Inability to participate in community outreach at this time

Appendix B: Evidence Table for Literature Review

Table 2: Evidence Table for Literature Review

Article #	Author & Date	Evidence Type	Sample, Sample Size, Setting	Study findings that help answer the EBP Question	Observable Measures	Limitations	Evidence Level & Quality
1	Schaar, G., & Hall, M. (2013). A Nurse-led Initiative to Improve Obstetricians' Screening for Postpartum Depression. *Nursing For Women's Health*, *17*(4), 306-316.	Quasi-experimental	9 OBGYN practices; 22 OBGYN providers	Increase in PPD screening rates after education regarding importance of PPD screening	Screening rates for PPD using EPDS varied from 39-100% of postpartum patients	1- Inappropriate or missing logs of PPD screening 2- Possible inaccurate number of PPD visits Distribution failure of EPDS forms to patients by office staff	Level II Good quality
2	Wisner, K., Logsdon, M., & Shanahan, B. (2008). Web-based education for postpartum depression: conceptual development and impact. *Archives Of Women's Mental Health*, *11*(5-6), 377-385. doi: 10.1007/s00737-008-0030-9	Non-experimental	17,000 visitors to website daily; 894 registered viewers	Web based education delivery is optimal for healthcare providers and for patients	Satisfaction scores by viewrs are >3.2 (out of 4) by viewers for each offered course on the site	Financial inability for some patients to access the site/content	Level III Good quality
3	Clevesy, M., Gatlin, T., Cheese, C., & Strebel, K. (2019). A Project to Improve Postpartum Depression Screening Practices Among Providers in a Community Women's Health Care Clinic. *Nursing For Women's Health*, *23*(1), 21-30. doi: 10.1016/j.nwh.2018.11.005	Quasi-experimental	Small women's health clinic in southwestern US, has approx. 40-45 births per month	Increase in PPD screening rates following an educational in-service and	PPD screening rates increased from 56% to 92.7%	1- Unable to generalize outside of this specific population 2- Assessment of self-reported knowledge rather than actual knowledge Absence of behavioral health partners	Level II Good quality
4	Yawn, B., Dietrich, A., Wollan, P., Bertram, S., Graham, D., & Huff, J. et al. (2012). TRIPPD:	Experimental	28 practices	Higher diagnosis rates of PPD with	Statistically significant differences for	Lack of generalizability to adolescent mothers as the age cut of for	Level I High quality

	A Practice-Based Network Effectiveness Study of Postpartum Depression Screening and Management. *The Annals Of Family Medicine*, *10*(4), 320-329. doi: 10.1370/afm.1418		N=14 for intervention group N=14 for control group Overall 2,343 postpartum women were evaluated by both groups	higher rates of therapy and medication initiation in intervention groups Intervention group received training for staff (providers and nurses) regarding PPD	likelihood of receiving a diagnosis (P = 0.0006); initiate talk therapy (P= 0.002)	inclusion was 18 years old	
5	McLachlan, H., Forster, D., Collins, R., Gunn, J., & Hegarty, K. (2011). Identifying and supporting women with psychosocial issues during the postnatal period: Evaluating an educational intervention for midwives using a before-and-after survey. *Midwifery*, *27*(5), 723-730. doi: 10.1016/j.midw.2010.01.008	Quasi-experimental	25 midwives between two clinic sites in Victoria, Australia	Increase in provider comfort recognizing, diagnosing and managing psychosocial issues	Provider comfort in ability to recognize psychosocial issues p= 0.01	Practice in this study was "hectic" and had low screening rates of depression screening	Level II Good quality
6	Thome, M., Orlygsdottir, B., & Elvarsson, B. (2011). Evaluation of the clinical effect of an on-line course for community nurses on post-partum emotional distress: a community-based longitudinal time-series quasi-experiment. *Scandinavian Journal Of Caring Sciences*, *26*(3), 494-504. doi:	Quasi-experimental	16 women's health settings across Iceland with 93 women participating in the study	Improvement in patient depression rates in experimental group where nurses had depression education vs control without	Statistically significant improvement at 12mon postpartum	Inability to generalize to other groups of women	Level II Good quality

	10.1111/j.1471-6712.2011.00954.x			additional nursing education			
7	Morrell, C., Slade, P., Warner, R., Paley, G., Dixon, S., & Walters, S. et al. (2009). Clinical effectiveness of health visitor training in psychologically informed approaches for depression in postnatal women: pragmatic cluster randomised trial in primary care. *BMJ*, *338*(jan15 2), a3045-a3045. doi: 10.1136/bmj.a3045	RCT	101 women's health care practices; Intervention group n=2749 Control n= 1335	Lowered rates of PPD for patients that had health visitors who were trained with PPD s/sx	Lowered rates of EPDS >12 at 6mon (P=0.036) and 12mon (P=0.003) for women in the intervention group	Uneven intervention vs control groups	Level I High quality
8	Legere, L. E., Wallace, K., Bowen, A., McQueen, K., Montgomery, P., & Evans, M. (2017). Approaches to health-care provider education and professional development in perinatal depression: a systematic review. *BMC pregnancy and childbirth*, *17*(1), 239. https://doi.org/10.1186/s12884-017-1431-4	Systematic review	12 studies reviewed	Provider education improves postpartum depression screening rates and outcomes	N/A	Only studies that fit the question of the systematic review were considered	Level III Good quality

Appendix C: Johns Hopkins Nursing Evidence-Based Practice Evidence Level and Quality Guide

Evidence Levels	Quality Guide
Level I- - Experimentation study - Randomized controlled trial (RCT) - Systematic review of RCTs, with or without meta-analysis Level II- - Quasi-experimental study - Systematic review of a combination of RCTs and quasi-experimental studies only, with or without meta-analysis Level III- - Non-experimental study - Systematic review of a combination of RCTs, quasi-experimental and non-experimental studies or non-experimental studies only, with or without meta-analysis - Qualitative study or systematic review with ot without a meta-synthesis Level IV- - Opinion of respected authorities and/or nationally recognized expert committees/consensus panels based on scientific evidence Level V- - Experiential and non-research evidence	A. High Quality: consistent, generalizable results; sufficient sample size for study design; adequate control; definitive conclusions; consistent recommendations based on comprehensive literature review that includes thorough reference to scientific evidence B. Good quality: reasonably consistent results; sufficient sample size for the study design; some control, fairly comprehensive literature review that includes some reference to scientific evidence C. Low- quality or major flaws: little evidence with inconsistent results; insufficient sample size for the study design; conclusions cannot be drawn

(Dang & Dearholt, 2018)

Appendix D: Information for Participation in a Quality Improvement Project

Title of Study: Provider Education of Postpartum Depression
DNP Student Investigator: Gina Tytula
DNP Project Faculty Advisor: Dr. Karen Whitt

You are invited to participate in a quality improvement project under the direction of Gina Tytula (DNP student investigator) at telephone number (508) 368-3110 and Dr. Karen Whitt of the School of Nursing, George Washington University (GWU). Taking part in this research is entirely voluntary.

The purpose of this project is to improve patient care regarding postpartum depression by providing continuing education for obstetric providers. This education will enhance perceived knowledge, awareness and practice of screening for, diagnosing and managing postpartum depression.

What are the reasons you might choose to volunteer for this project? The education session will be provided online, at your convenience and will refresh your knowledge about screening, diagnosing, and managing Postpartum Depression (PPD).

What are the reasons you might not choose to volunteer for this project?
It does require some attention and time commitment to attend the education session and complete the surveys.

If you choose to take part in this project, you will answer the presurvey, view the narrated PowerPoint learning module and answer the postsurvey. One month later, you will be asked to answer the post survey again to test for knowledge retention. The total amount of time you will spend in connection with this project is 30-40 minutes. The second postsurvey will take additional 10-15 minutes. You may refuse to answer any of the questions, and you may stop your participation in this project at any time.

Possible risks or discomforts you could experience during this project include:
The risks for participating in this project are minimal and no more than encountered in daily life. The main risk would be confidentiality of your answers on the surveys. All survey answers will only be accessible to the investigator, Gina Tytula, and individual names and answers will be kept confidential. Results from the survey will only be reported in aggregated, anonymous form.

You will not benefit directly from your participation in the project. The benefits to science and humankind that might result from this study are: It may further support the need for PPD education for obstetric providers. PPD education may improve perceived knowledge, awareness and practice concerning PPD screening, diagnosis and management. Frontline providers, equipped with improved knowledge, may improve the care delivered to the at-risk postpartum patient population.

Every effort will be made to keep your information confidential, however, this can not be guaranteed. You will be asked to include an anonymous number on the survey, but only the investigator, Gina Tytula, and you will have access to this information. If results of this research study are reported in journals or at scientific meetings, the people who participated in this project will not be named or identified.

The Office of Human Research of George Washington University, at telephone number (202) 994-2715, can provide further information about your rights as a research participant.

To ensure anonymity your signature is not required. Your willingness to participate in this project is implied if you proceed with completing the surveys.
*Please keep a copy of this document in case you want to read it again.

Appendix E: AHRQ ACA PPD Screening Clinical Provider Questionnaire

ACA PPD Screening Clinical Provider Questionnaire

	Yes	No
Do you routinely screen for postpartum depression on all of your patients?		
As a women's health care provider, are you aware of the Affordable Care Act (ACA) preventative services available for PPD during the prenatal period?		
As a women's health care provider, are you aware of your role in the provision of the ACA preventative perinatal PPD services during the prenatal period?		
Does the organization have established mental health care providers to accommodate referrals?		
Do you follow up with the patient to confirm that she has seen the mental health care provider?		

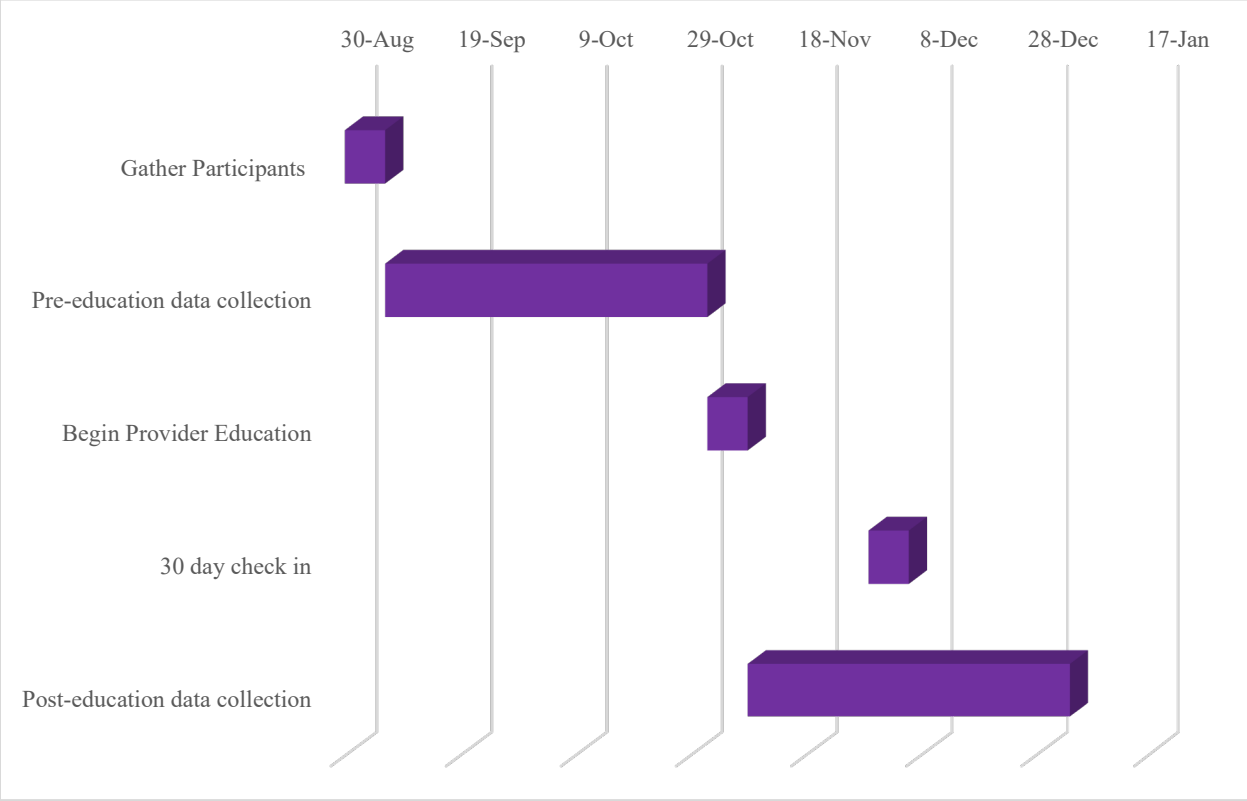
(Agency for Healthcare and Research Quality, 2015)

Appendix F: Provider Self-Assessment on Perceived Knowledge of PPD

Please rate your knowledge of the following on a scale of 1-5 with 1 being not knowledgeable and 5 being very knowledgeable:

	Not Knowledgeable	Slightly Knowledgeable	Somewhat Knowledgeable	Moderately Knowledgeable	Very Knowledgeable
Postpartum depression symptoms	1	2	3	4	5
Criteria for diagnosis of postpartum depression	1	2	3	4	5
Management of postpartum depression	1	2	3	4	5
Accurate scoring the Edinburgh Postnatal Depression Scale screening tool	1	2	3	4	5
Making a referral to a behavioral health specialist for postpartum depression.	1	2	3	4	5
Prescribing medications for postpartum depression	1	2	3	4	5

Appendix G: Project Timeline Gantt Chart



Appendix H: Outcome Measurement Tables

Table 2- AIM #1**:** Develop and implement a postpartum depression education program that will be completed by obstetrical providers

Measure	**Measure Type***	**Data Source**	**Sampling Method**	**Timing/Frequency**
Was a PPD education program developed, implemented and was it completed by obstetrical providers?	Structure	Observation	Observation	One time at beginning of study
Standard Measure?**	No			
Numerator	# of providers who complete the education program			
Denominator or Population***	All providers in the practice invited to complete the education program			
Exclusions	N/A			
Calculation/Statistic(s)	Percentage of providers who complete the education program			
Goal/Benchmark	At least 80% of providers complete education program			

Data Elements	**Variable Name**	**Definition**	**Data Type***	**Data Values & Coding**	**Restrictions/ Validation**
PPD education program completed	eduComplete	Number of obstetrical providers who completed the education program	Continuous	Actual numeric value	N/A

Table 3- AIM #2: Improve obstetrical providers' perceived knowledge, practice and awareness related to PPD screening, diagnosis and management.

Measure	**Measure Type***	**Data Source**	**Sampling Method**	**Timing/Frequency**
Provider awareness and practice of ACA PPD Screening Clinical Practice Questionnaire	Outcome	Provider Survey	All providers in education program	Pre and post survey immediately preceding and after the education

Standard Measure?**	No
Numerator	N/A
Denominator or Population***	N/A
Exclusions	Providers who are not enrolled in education program
Calculation/Statistic(s)	Chi-square to compare pre and post answers and survey ratings
Goal/Benchmark	Significantly improved post-assessment ratings

Data Elements	**Variable Name**	**Definition**	**Data Type***	**Data Values & Coding**	**Restrictions/ Validation**
Screening	screening	Do you routinely screen for postpartum depression on all of your patients?	Categorical	1, Yes 2, No	Required
Preventative services	PPD_prevent	As a women's health care provider, are you aware of the Affordable Care Act (ACA) preventative services available for PPD during the prenatal period?	Categorical	1, Yes 2, No	Required
Provider role	PPD_role	As a women's health care provider, are you aware of your role in the provision of the	Categorical	1, Yes 2, No	Required

		ACA preventative perinatal PPD services during the prenatal period?			
Referrals	PPD_referrals	Does the organization have established mental health care providers to accommodate referrals?	Categorical	1, Yes 2, No	Required
Follow up	PPD_followup	Do you follow up with the patient to confirm that she has seen the mental health care provider?	Categorical	1, Yes 2, No	Required

Measure	**Measure Type***	**Data Source**	**Sampling Method**	**Timing/Frequency**
Provider self-assessment of perceived knowledge regarding symptoms, diagnosis and management of PPD	Outcome	Provider Survey	All providers in education program	Pre and post survey immediately preceding and after the education
Standard Measure?**	No			
Numerator	N/A			
Denominator or Population***	N/A			
Exclusions	Providers who are not enrolled in education program			
Calculation/Statistic(s)	Mean			
Goal/Benchmark	4 (5 point scale)			

Data Elements	Variable Name	Definition	Data Type*	Data Values & Coding	Restrictions/ Validation
PPD Symptoms	PPD_symp	Please rate your knowledge of PPD symptoms	Categorical	1, Not Knowledgeable; 2, Slightly Knowledgeable; 3, Somewhat Knowledgeable; 4, Moderately Knowledgeable; 5, Very Knowledgeable	Required
PPD Diagnosis	PPD_diag	Please rate your knowledge of criteria for diagnosis of PPD	Categorical	1, Not Knowledgeable; 2, Slightly Knowledgeable; 3, Somewhat Knowledgeable; 4, Moderately Knowledgeable; 5, Very Knowledgeable	Required
PPD Management	PPD_manage	Please rate your knowledge of management for PPD	Categorical	1, Not Knowledgeable; 2, Slightly Knowledgeable; 3, Somewhat Knowledgeable; 4, Moderately Knowledgeable; 5, Very Knowledgeable	Required
EPDS	EPDS	Please rate your knowledge of accurately scoring the Edinburgh Postnatal Depression Scale screening tool	Categorical	1, Not Knowledgeable; 2, Slightly Knowledgeable; 3, Somewhat Knowledgeable; 4, Moderately Knowledgeable; 5, Very Knowledgeable	Required
Referral	PPD_referral	Please rate your knowledge of	Categorical	1, Not Knowledgeable;	Required

		making a referral to a behavioral health specialist for postpartum depression.		2, Slightly Knowledgeable; 3, Somewhat Knowledgeable; 4, Moderately Knowledgeable; 5, Very Knowledgeable	
PPD Medication Initiation	PPD_meds	Please rate your knowledge of prescribing medications for postpartum depression	Categorical	1, Not Knowledgeable; 2, Slightly Knowledgeable; 3, Somewhat Knowledgeable; 4, Moderately Knowledgeable; 5, Very Knowledgeable	Required

Table 4- AIM #3: Increase PPD screening rates with Edinburgh Postnatal Depression Scale screening tool at two-week and six-week postpartum visits after implementation of the education program.

Measure	**Measure Type***	**Data Source**	**Sampling Method**	**Timing/Frequency**
Number of EPDS screenings administered to postpartum patients	Process	EHR	Observation	Prior to and after implementation of education program
Standard Measure?**	No			
Numerator	Patients administered the EDPS at their visit			
Denominator or Population***	All patients present for two and six week postpartum visits			
Exclusions	Patients past 6 weeks postpartum			
Calculation/Statistic(s)	Percentage of patients			
Goal/Benchmark	100% of patients seen will be screened			

Data Elements	**Variable Name**	**Definition**	**Data Type***	**Data Values & Coding**	**Restrictions/ Validation**
Weeks PP	weeks_pp	How many weeks postpartum?	Categorical	1, two weeks; 2, 6 weeks; 3, other	N/A

EDPS given	EDPS_admin	Was the EPDS administered and completed?	Dichotomous	1, Yes; 2, No	N/A
Provider review	prov_rev	Did the provider note that the EPDS score was reviewed with the patient?	Dichotomous	1, Yes; 2, No	N/A

Table 5- AIM #4: Increase PPD diagnosis among patients in practice after the implementation of the education program.

Measure	**Measure Type***	**Data Source**	**Sampling Method**	**Timing/Frequency**
Number of PPD diagnoses during two-week and six-week postpartum visits	Outcome	EHR	Observation	Prior to and after the education program at postpartum visits
Standard Measure?**	No			
Numerator	Number of patients diagnosed with PPD			
Denominator or Population***	All patients screened at two and six week postpartum visits			
Exclusions	N/A			
Calculation/Statistic(s)	Percentage			
Goal/Benchmark	Increased rate of PPD diagnoses compared to pre-intervention rates			

Data Elements	**Variable Name**	**Definition**	**Data Type***	**Data Values & Coding**	**Restrictions/ Validation**
PPD diagnosis	PPD_diag	Was PPD diagnosed?	Dichotomous	1, Yes; 2, No	Required
Weeks PP	week_pp	How many weeks postpartum?	Categorical	1, two weeks; 2, 6 weeks; 3, other	Required

Table #6- AIM #5: Improve the management (specialty referrals, medication initiation and follow-up appointments) of PPD in postpartum patients following the implementation of the education program

Measure	**Measure Type***	**Data Source**	**Sampling Method**	**Timing/Frequency**
Number of PPD referrals, medication initiations, and follow-up	Outcome	EHR	Observation	Prior to and after the education

appointments during two-week and six-week postpartum visits				program at postpartum visits

Standard Measure?**	No
Numerator	Number of patients with medication initiated, follow-up appointment, or referral to specialty for PPD
Denominator or Population***	All patients screened at two and six week postpartum visits
Exclusions	Patients who are not postpartum
Calculation/Statistic(s)	Percentage
Goal/Benchmark	Increased rate of PPD referral, medication initiation, and follow-up appointments compared to pre-intervention rate

Data Elements	**Variable Name**	**Definition**	**Data Type***	**Data Values & Coding**	**Restrictions/ Validation**
PPD referral	PPD_refer	Was patient referred to behavioral health?	Dichotomous	1,Yes; 2, No	Required
Medication	Meds	Was medication therapy initiated?	Dichotomous	1, Yes; 2, No;	Required
Follow up	Follow_up	Was a follow up visit with OBGYN provider booked?	DIchotomous	1, Yes; 2, No;	Required

Appendix I: Results Tables

Table 1: T-Test Results of Provider Self-Assessment on Perceived Knowledge of PPD

Question	Pretest		Posttest		Paired Results				
	Mean	SD	Mean	SD	Mean Difference	Standard Error Difference	t	df	*p*
Q1: Postpartum depression symptoms	3.00	0.53	3.38	0.51	- 0.37	0.26	- 1.42	14	.176
Q2: Criteria for diagnosis of postpartum depression	2.88	0.64	3.25	0.46	- 0.37	0.28	- 1.34	14	.201
Q3: Management of postpartum depression	2.00	0.53	3.00	0.53	- 1.00	0.26	- 3.74	14	.002
Q4: Accurate scoring of the Edinburgh Postnatal Depression Scale screening tool	3.00	0.53	3.50	0.53	- 0.50	0.26	- 1.87	14	.082
Q5: Making a referral to a behavioral health specialist for postpartum depression	0.75	0.07	3.13	0.35	- 2.37	0.28	- 8.49	14	<.001
Q6: Prescribing medications for postpartum depression	1.00	0.53	2.25	0.46	- 1.25	0.25	- 5.00	14	<.001

Table 2: AHRQ ACA PPD Screening Clinical Provider Questionnaire

Question	Pretest		Posttest		Results		
					Chi Square	df	*p*
Q1: Do you routinely screen for postpartum depression on all of your patients?	**N**	**Percent**	**N**	**Percent**	0.00	1	1.00
1- Yes	2	25%	6	75%			
2- No	6	75%	2	25%			
Q2: As a women's healthcare provider, are you aware of the Affordable Care Act (ACA) preventative services available for PPD during the prenatal period?	**N**	**Percent**	**N**	**Percent**	0.00	1	1.00
1- Yes	0	0	8	100%			
2- No	8	100%	0	0			
Q3: As a women's healthcare provider, are you aware of your role in the provision of the ACA preventative perinatal PPD services during the prenatal period?	**N**	**Percent**	**N**	**Percent**	0.00	1	1.00
1- Yes	0	0	8	100%			
2- No	8	100%	0	0			
Q4: Does the organization have established mental health care providers to accommodate referrals?	**N**	**Percent**	**N**	**Percent**	0.00	1	1.00
1- Yes	5	62.5%	8	100%			
2- No	3	37.5%	0	0			
Q5: Do you follow up with the patient to confirm that she has seen the mental health care provider?	**N**	**Percent**	**N**	**Percent**	0.00	1	1.00
1- Yes	2	25%	6	75%			
2- No	6	75%	2	25%			

Table 3: EPDS Screening, Documentation and PPD Diagnosis

Question	Pre		Post		Results		
					Chi Square	df	*p*
Q1: Was EPDS administered and completed?	**N**	**Percent**	**N**	**Percent**	8.684	1	.003
1- Yes	95	72%	102	87.2%			
2- No	37	28%	15	12.8%			
Q2: Was the EPDS documented in the patient chart?	**N**	**Percent**	**N**	**Percent**	7.191	1	.007
1- Yes	90	68.2%	97	82.9%			
2- No	42	31.8%	20	17.1%			
Q3: Was PPD diagnosed?	**N**	**Percent**	**N**	**Percent**	7.327	1	.007
1- Yes	38	28.8%	17	14.5%			
2- No	94	71.2%	100	85.5%			

Table 4: PPD Management

Question	Pretest		Posttest		Results		
					Chi Square	df	*p*
Q1: Was a referral placed?	**N**	**Percent**	**N**	**Percent**	1.321	1	.250
1- Yes	15	39.5%	4	23.5%			
2- No	23	60.5%	13	76.5%			
Q2: Was medication therapy initiated?	**N**	**Percent**	**N**	**Percent**	.026	1	.873
1- Yes	17	44.7%	8	47.1%			
2- No	21	55.3%	9	52.9%			
Q3: Was a follow up appointment booked with OBGYN provider?	**N**	**Percent**	**N**	**Percent**	4.441	1	.035
1- Yes	13	34.2%	11	64.7%			
2- No	25	65.8%	6	35.3%			