

ENHANCING PSYCHIATRIC PROVIDERS' KNOWLEDGE AND SCREENING  
PRACTICES FOR PERINATAL DEPRESSION

by

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## LAND ACKNOWLEDGEMENT

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally recognized tribes, with Tucson being home to the O'odham and the Yaqui. The University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

## DEDICATION

*To my husband- thank you for being my rock throughout this journey. Your unwavering support, love, and encouragement carried me through every challenge, and I truly could not have accomplished this without you. This achievement is as much yours as it is mine.*

*To my children- you are my purpose and my inspiration. Everything I do is for you, and it is because of you that I strive to be better every day.*

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### **Abstract**

**Background:** Perinatal depression (PD) is a serious mental health condition that affects up to one in seven women during pregnancy or postpartum, yet it often goes undiagnosed and undertreated. If left untreated, PD can lead to significant health consequences for both mom and baby. Despite recommendations by various professional organizations, screening rates remain low. Although several screening tools exist, the Edinburgh Postnatal Depression Scale (EPDS) is specifically designed for perinatal populations and has demonstrated strong predictive validity for identifying PD. Providers may benefit from increased knowledge about PD and how to administer the EPDS to promote routine screening to improve early identification, intervention, and patient outcomes.

**Purpose:** The purpose of this quality improvement (QI) project was to increase the knowledge, confidence, and comfort of psychiatric healthcare providers at Denova Collaborative Health regarding screening for perinatal depression. Further, this project evaluated the impact of the educational intervention on providers' perceived benefit of the EPDS and intent to use the EPDS in practice.

**Methods:** An asynchronous educational presentation with a pre- and posttest design was used. Psychiatric providers completed a pre-test survey to assess baseline knowledge and confidence about perinatal depression and the EPDS. The presentation provided healthcare providers with education about the significance of PD and the importance of using the EPDS among this patient population. A post-test survey evaluated changes in knowledge, confidence, perceived benefit, and intent to use the EPDS. Descriptive statistics were used to analyze survey responses, and free-text responses were summarized.

**Results:** Six nurse practitioners (2%) completed all study activities and were included in the analysis. Participants demonstrated increased knowledge of PD, with mean scores rising from 52.4% to 85.7% after the intervention. Confidence in administering the EPDS increased from a median 5-point Likert score of 3.0 to 4.0, and the perceived benefit of the EPDS also increased from a median of 2.0 to 3.5. The intent to use the EPDS in future practice showed an overall positive trend, indicating plans for more consistent use among providers. Perceived barriers to consistent implementation of the EPDS included time constraints and tool complexity.

**Conclusions:** This project suggests that a brief, asynchronous educational intervention may improve psychiatric providers' knowledge, confidence, and attitudes toward using the EPDS for PD screening. Integrating targeted education and providing resources may help bridge existing gaps in screening and promote earlier identification and treatment of perinatal mental health conditions.

## **Introduction**

The perinatal period can be a challenging time for women as they navigate physical, emotional, and situational changes, which make them more vulnerable. The physical recovery from birth, fluctuations in hormones, and the adjustments to motherhood can make these changes feel overwhelming and confusing, leading some women to experience feelings of guilt and isolation. It can be complicated for women to distinguish between typical postpartum changes and symptoms of more serious conditions like postpartum depression (PPD) or anxiety, intensifying feelings of helplessness and an increasing sense of isolation. While “postpartum blues” are mild and transient depressive symptoms that typically resolve within two weeks of delivery and do not cause significant impairment, perinatal depression (PD) is a much more serious illness (Dagher et al., 2021).

## **Background**

### **Background Knowledge and Significance**

Rossi and Radney (2022) explain that perinatal depression is characterized by a major depressive episode with symptoms of hopelessness, sadness, guilt, anxiety, sleep difficulties, poor concentration, and/or thoughts of self-harm or harm to the baby. These symptoms can cause significant daily functional impairment and can occur during pregnancy or up to one year post-delivery. In some cases, depressive symptoms can last up to three years. Unfortunately, PD is significantly underdiagnosed and undertreated (Moore Simas et al., 2023). This may be due to time constraints, healthcare providers’ lack of knowledge in administering assessment tools, and symptoms coinciding with normal pregnancy and postpartum experiences (Accortt et al., 2022). Moreover, the timing of screening during the standard 6-week postpartum follow-up

appointment with an OBGYN may contribute to missed diagnoses, as symptoms of PPD often do not peak until four months post-delivery and up to 40% of women do not attend a postpartum visit (Cohen & Daw, 2021; Lamere & Golova, 2022). Additionally, the peak incidence of suicide is six to nine months postpartum (Maternal Mental Health Leadership Alliance, 2023).

Furthermore, mental health conditions are the leading cause of overall and preventable deaths (22.7%), with suicide being the most frequent occurrence, emphasizing the need to recognize those at risk and correctly identify those with perinatal mood and anxiety disorders (PMAD) (Perazzo et al., 2024).

Various organizations recommend screening for PMADs. The U.S. Preventive Services Task Force (2023) expanded its depression screening recommendation to include pregnant and postpartum adults. The American Psychiatric Association recommends screening for depression twice during pregnancy and at pediatric visits throughout the first six months postpartum, which aligns with the American Academy of Pediatrics' recommendation to screen for perinatal depression at the 1-, 2-, 4-, and 6-month pediatric well-child visits (Byatt et al., 2018; Lamere & Golova, 2022). The American College of Obstetricians and Gynecologists (2023) recommends screening for both anxiety and depression at the prenatal visit, at least twice during pregnancy, and at postpartum visits up to one year. However, despite these recommendations, screening, diagnosis, and treatment rates remain low (Johnson et al., 2021).

### **Prevalence, Risk Factors, and Complications of Perinatal Depression**

Perinatal mood and anxiety disorders (PMAD) are the most common complications during pregnancy and postpartum, affecting approximately one in seven women (Moore Simas et al., 2023). Even though these disorders are treatable upon identification, approximately 50-70%

of cases remain undetected, and up to 85% go untreated (Dagher et al., 2021). Pregnant women tend to be more susceptible to anxiety, and perinatal anxiety is a strong predictor of perinatal depression. (American College of Obstetricians and Gynecologists [ACOG], 2023).

Risk factors associated with PMADs include stressors such as infant hospitalization, maternal birth complications, and low socioeconomic status. Additionally, those women lacking social support, experiencing intimate partner violence, single parenting, and marital conflict are at increased risk for PMADs. Lastly, a previous history of a mental health condition also places women at risk for PMADs. Black and Hispanic women experience higher rates and are less likely to be diagnosed with PPD (Perazzo et al., 2024).

If left untreated, PD can lead to challenges for the mother and child. Not only can perinatal depression lead to serious health consequences such as delayed fetal development, but there are also higher incidences of prematurity, lower Apgar scores, increased rates of preeclampsia, and spontaneous abortions (Dagher et al., 2021).

Viguera (2023) explains that PPD can lead to impaired bonding with the infant, marital discord, increased risk of suicide, and increased risk for recurrent depressive episodes. Adverse consequences for the child may include lower rates of breastfeeding, physical health problems such as asthma and diabetes, impaired emotional regulation, difficult temperaments, cognitive impairment, and poorer language skills (Viguera, 2023). Additionally, PPD is associated with psychopathology in children, including increased risk of anxiety, depression, attention deficit hyperactivity disorder, and conduct disorders (Viguera, 2023).

## Screening Tools

There are several screening tools available to aid in identifying depression, but awareness of depression symptoms may be misinterpreted due to their overlap with typical signs of pregnancy and the postpartum period. The Edinburgh Postnatal Depression Scale (EPDS) and the Patient Health Questionnaire (PHQ-9) are the two most widely used validated tools for assessing perinatal depression. The EPDS is a 10-item self-report assessment tool developed by Cox, Holden, and Sagovsky (1987) to detect major depression in postpartum women specifically. Compared to other screening tools, the EPDS explores sleep difficulty in relation to unhappiness and excludes questions about fatigue and appetite, which may be nonspecific in perinatal women (Park & Kim, 2023). Additionally, it includes three questions related to anxiety, which occurs in >37% of screened perinatal patients and is comorbid with depression in >28% of patients (Park & Kim, 2023). Its accuracy has been proven through several systematic reviews.

The PHQ-9 is a 9-item assessment tool used to screen for depressive symptoms in the general population and assess the severity of depression, although it is not designed explicitly for perinatal patients and emphasizes vegetative symptoms (Park & Kim, 2023; Rossi & Radney, 2022). A cutoff score of ten is positive for both the EPDS and PHQ-9. A score of greater than five on the three anxiety questions on the EPDS correlates to a positive Generalized Anxiety Disorder (GAD-7) screen (ACOG, 2023).

Park and Kim (2023) emphasize that early identification and treatment of PMADs can lead to a remission rate of over 80%. Pregnancy and childbirth are usually seen as joyful events; however, the pressure to appear as a “great mother” often leads women to hide their symptoms. This highlights the importance of using tools like the EPDS, explicitly designed for perinatal

women, to ensure that PD is accurately identified to provide prompt treatment if necessary. In a systematic review by Park and Kim (2023) of 1,831 pregnant women and 515 postpartum women, the EPDS demonstrated more accurate predictive validity as a perinatal-specific depression screening tool than other tools, such as the PHQ-9. The EPDS may be reproduced without permission if copyright is respected by citing the authors' names, the title, and the source of the paper in all reproduced copies (American Psychological Association, n.d.). Therefore, the EPDS is a cost-effective, validated, and preferred tool for identifying perinatal depression accurately.

### **Local Problem**

Perinatal depression remains a significant condition that is underdiagnosed and undertreated, affecting women across the United States. Most recent data show that the percentage of postpartum women who reported experiencing depressive symptoms in Arizona is 11.7% (America's Health Rankings, n.d.). Almost 33% of maternal deaths in the state involved mental health conditions and were preventable, which is higher than the national average of 22.7% of maternal deaths associated with mental health conditions (Perazzo et al., 2024; Ramirez et al., 2024). Arizona is ranked 48<sup>th</sup> in the nation for access to mental health care, and more than half of Arizona's fifteen counties have zero perinatal mental health care specialists (Mental Health America, 2024). This highlights the need for targeted screening and intervention to improve maternal mental health outcomes.

Denova Collaborative Health is an outpatient, integrated healthcare clinic providing primary and mental healthcare services in-person and through telehealth throughout Arizona. The site has recently added a mandatory question to the provider note stating, "Have you recently or are you planning to become a parent or guardian?" While this represents a critical

step towards identifying perinatal patients, gaps remain in standardized screening for perinatal depression.

One identified challenge at Denova is that the drop-down menu under available screening tools for psychiatric providers does not include the EPDS, but it can be located under primary care. Most psychiatric providers are comfortable using the PHQ-9 to assess for depression among their patients, which may not be optimal for this patient population. The PHQ-9 captures somatic symptoms that can overlap with normal pregnancy and postpartum experiences, which can lead to misinterpretation of depressive symptoms (Liu et al., 2024). In contrast, the EPDS focuses on psychological symptoms, including anxiety, that are pertinent during the perinatal period. The lack of familiarity and comfort with the EPDS among providers at Denova presents a barrier to more effective screening practices for perinatal patients with this evidence-based tool.

This highlights the importance of educating providers at Denova on PD and the proper use of the EPDS because they have the potential to interact with patients throughout Arizona. Enhancing provider knowledge and confidence in properly administering, scoring, and interpreting the results of the EPDS will support the early recognition of those at risk for PD. Additionally, tracking scores for symptom monitoring in those who screen positive can inform and guide treatment to improve patient outcomes. Implementing standardized, evidence-based screening practices, like using the EPDS, can help close the gaps in care and improve the identification and treatment of perinatal depression.

### **Theoretical Framework**

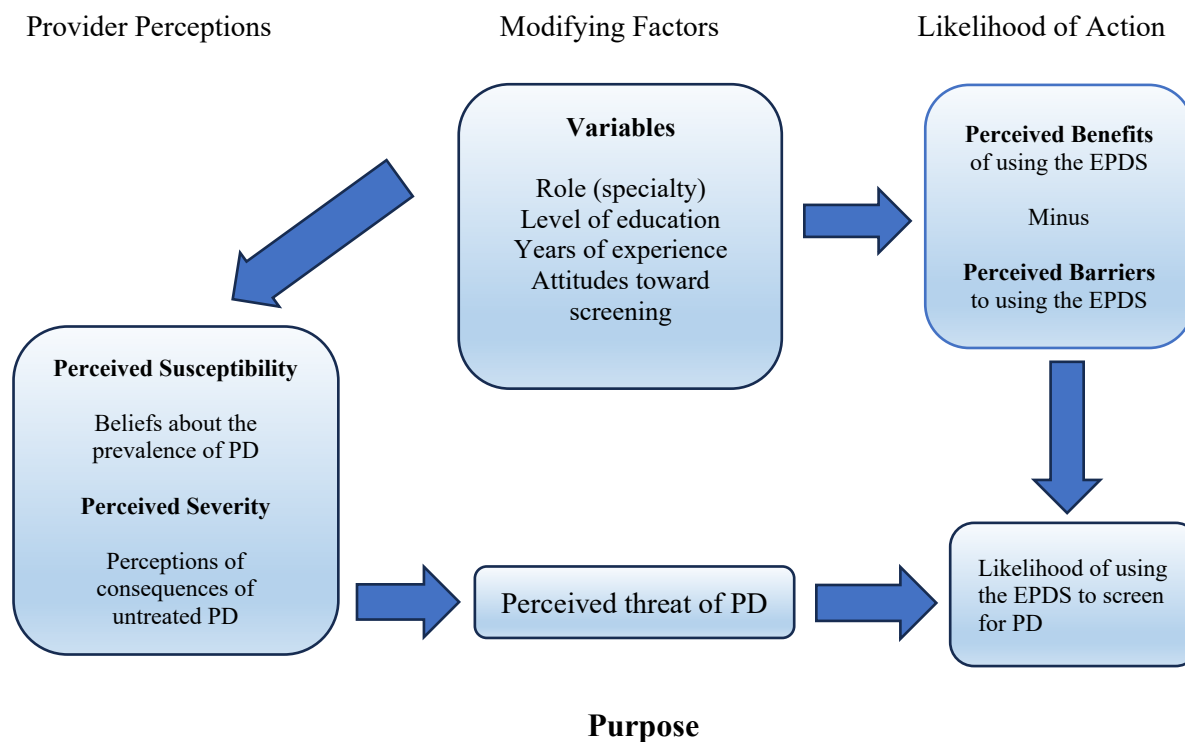
The Health Belief Model (HBM), developed in the 1950s by the U.S. Public Health Service, seeks to understand the reluctance of individuals to adopt preventive health measures

and participate in screenings for early disease identification (Janz & Becker, 1984). It emphasizes two main components: the motivation to avoid or recover from illness and the belief that specific health actions can prevent or improve one's condition (Janz & Becker, 1984). The model outlines four key concepts—perceived susceptibility, severity, benefits, and barriers—which predict health-related behaviors (Champion & Skinner, 2008). In this quality improvement project, the HBM was utilized to explore healthcare providers' behaviors rather than focusing solely on patients.

Perceived susceptibility refers to whether providers recognize that their perinatal patients may be at risk for PD, including those who do not present with a typical presentation or those outside the 6-week postpartum period. If providers do not perceive PD as a common or serious risk among their patients, they may be more reluctant to screen for it. Perceived severity addresses providers' understanding of the serious consequences of untreated PD for both mother and child, highlighting the necessity of early identification and intervention to improve remission rates. The perceived benefits focus on the advantages of using the EPDS, including its specificity for perinatal patients, its ability to detect anxiety symptoms, and its strong predictive validity compared to other screening tools. In contrast, perceived barriers highlight obstacles to adopting the screening, such as unfamiliarity with the EPDS and time constraints. This QI project aimed to overcome these barriers through education, with the intent to integrate the EPDS into the electronic health record (EHR) to facilitate routine screening and cultivate a sense of shared responsibility and continuity of care across disciplines.

**Figure 1**

*The Health Belief Model Adapted into Provider Education on Screening for PD*



The purpose of this quality improvement (QI) project was to increase the knowledge, confidence, and comfort of psychiatric healthcare providers at Denova Collaborative Health regarding screening for perinatal depression. Further, this project evaluated the impact of the educational intervention on providers' perceived benefit of the EPDS and intent to use the EPDS in practice.

## Methods

### Project Design

A quality improvement project was implemented using an asynchronous educational presentation to increase psychiatric providers' knowledge about PD, their confidence in using the EPDS in practice, and their perceived benefits of using the EPDS. A pretest was administered

before the educational session, assessing knowledge about PD, confidence in identifying PD, and familiarity with the EPDS. Following the presentation, a posttest was administered to evaluate changes in knowledge, confidence, and the perceived benefit and intent to use the EPDS as a screening tool. The pre- and posttest results were then compared. The goal was to drive clinical practice change by encouraging routine use of the EPDS, enhancing early detection of PD, and supporting positive patient outcomes.

### **Model for Implementation**

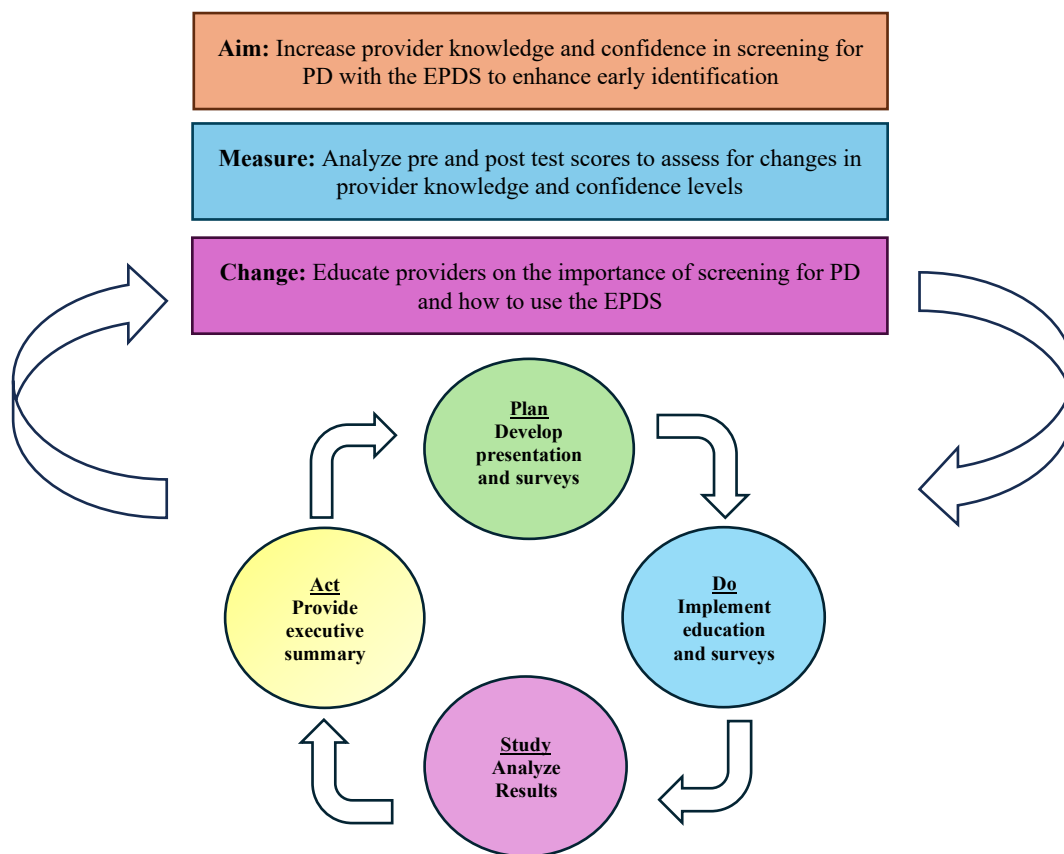
The Institute for Healthcare Improvement's (n.d.) Model for Improvement is a structured framework for guiding quality improvement initiatives through a two-part process. The first part entails answering three fundamental questions: "What are we trying to accomplish? How will we know that a change is an improvement? What changes can we make that will result in improvement?" The goal was to increase provider knowledge of PD and confidence in administering the EPDS, thereby enhancing early identification and timely intervention by integrating the EPDS into the routine mental health screening process for perinatal patients. Improvement was measured through pre- and post-education surveys, which evaluated the effectiveness of the intervention. The proposed change was to provide an educational session for providers about PD and the EPDS, with the intention of adopting the EPDS as a selectable screening tool for PD under the psychiatric screening tools at Denva Collaborative Health, along with a workflow prompt associated with the parental question.

The second part encompasses the implementation component, which utilizes an iterative four-part cycle—plan-do-study-act—to improve a process or implement a change (Institute for Healthcare Improvement, n.d.). The "Plan" phase involved identifying a target population

(mental health providers), developing an educational presentation (a Microsoft PowerPoint voice-over recording) based on the literature review, and creating pre- and posttest surveys in Qualtrics. Additionally, outcome measures included provider knowledge about PD and confidence, perceived benefit of, and intent to use the EPDS. The “Do” phase involved emailing the recruitment flyer with links to the pre- and posttest surveys and educational presentation for Denova mental healthcare providers to complete. The “Study” phase involved analyzing the data collected from the previous phase by comparing pre- and posttest survey results to determine any changes in provider knowledge about PD and confidence, perceived benefit of, and intent to use the EPDS. Feedback was gathered to identify barriers concerning screening for PD. The “Act” phase involved providing an executive summary of the results to the psychiatric supervisor with the intention of activating the EPDS within the EHR under psychiatric screening tools and introducing a workflow prompt to support the consistent use of the tool during visits with perinatal patients.

**Figure 2**

*The Model for Improvement Adapted for Educating Providers on Screening for PD using the EPDS.*



### Site and Stakeholders

This quality improvement project was conducted at Denova Collaborative Health, an integrated outpatient clinic providing primary care and behavioral health services in the Greater Phoenix metropolitan area. Its locations have also expanded to Tucson, Flagstaff, and Yuma. Virtual care is also available to patients statewide (Denova, n.d.). There are currently over 300 clinicians in various disciplines at Denova serving patients throughout Arizona. The key stakeholders were the psychiatric supervisor and licensed psychiatric providers, who provide services to individuals across the lifespan and socioeconomic backgrounds.

## **Participants and Recruitment**

Potential participants in this QI project included approximately 300 providers at Denova Collaborative Health, including psychiatric-mental health nurse practitioners, physician assistants, psychiatrists, therapists, and medical assistants. Eligibility criteria required participants to be licensed psychiatric providers employed by Denova, have the potential to be involved in the care of perinatal patients, and screen for PD. All responses remained anonymous, and participants were reminded that their involvement was voluntary.

The psychiatric supervisor emailed all eligible participants through a company email, inviting them to participate in the QI project. The email included a recruitment flyer with a brief overview of the project, the objectives, and links to the disclosure form, pretest survey, educational video, and posttest survey. The goal was to send three recruitment emails with one at the start of the survey period, one halfway through, and one the day before the survey's closing. The surveys were open for two weeks, allowing participants to complete them with an estimated total activity time of 20 minutes.

## **Intervention**

The intervention was a recorded educational voice-over PowerPoint presentation highlighting PD's prevalence, risk factors, and complications. Additionally, it highlighted the EPDS tool and the importance of screening all perinatal patients up to one year postpartum. Further, the presentation provided guidance on administering, scoring, and interpreting the results. A list of local and national resources was provided to assist clinicians in managing the care of perinatal patients and connecting patients with appropriate support services. The project timeline included all phases of implementation as outlined below.

**Table 1***QI Project Timeline*

<b>Plan</b>	<b>Do</b>	<b>Study</b>	<b>Act</b>
<b>February 2025-June 2025</b>	<b>July 2025-August 2025</b>	<b>August 2025-October 2025</b>	<b>November 2025-December 2025</b>
<ul style="list-style-type: none"> <li>-Gather background information and identify local problem</li> <li>-Synthesize literature</li> <li>-Define methodology for QI project</li> <li>-Obtain site approval</li> <li>-Prepare surveys and education content</li> <li>- Proposal to committee</li> <li>-Submit for IRB approval</li> </ul>	<ul style="list-style-type: none"> <li>-Receive IRB approval</li> <li>-Send recruitment flyer to participants via email</li> <li>- Send email with links to pretest survey, educational presentation, and posttest survey for participants to complete</li> </ul>	<ul style="list-style-type: none"> <li>-Analyze survey data</li> <li>-Summarize results</li> </ul>	<ul style="list-style-type: none"> <li>-Defend QI project</li> <li>-Distribute executive summary of results to site</li> </ul>

**Evaluation Measures**

Data was collected from participants' pre- and posttest survey responses, using the secure Qualtrics platform to assess changes in knowledge and confidence regarding PD and the EPDS. Qualtrics, accessed through the University of Arizona, enables the creation and distribution of confidential surveys via email. The surveys included multiple-choice questions to evaluate knowledge of PD and Likert scales to assess confidence, perceived benefit, and intent to use the EPDS. Demographic data were carefully collected and included their role (e.g., PMHNP, therapist) and the number of years they had held that role. A free-text response was included at the end of the posttest survey to assess for potential barriers to using the EPDS in practice. Responses were anonymous, and scores were linked by a question that asked participants to create a four-digit code and provide their favorite zoo animal (e.g., 1991, lion) as their unique identifier to match responses on the pre- and posttest surveys.

## **Data Analysis**

Data collected from the pre- and posttest surveys were exported from Qualtrics to Microsoft Excel for analysis. The pre- and posttest survey responses were compared to assess changes in knowledge, confidence, and perceived benefit. Descriptive statistics, such as central tendencies, were calculated to quantify and summarize the data about confidence, perceived benefit, and intent to use. Percentages of correct answers were used to analyze pre- and posttest survey data regarding knowledge, and the mean scores were compared between the pre- and posttest surveys. These mean scores are presented in bar graphs displayed below.

Participant-to-participant data was also compared. Bar graphs and tables were used to display results. Open-ended questions were reviewed to identify recurrent themes, and direct quotes are summarized within the findings.

## **Ethical Considerations**

The four ethical principles in nursing practice — autonomy, beneficence, non-maleficence, and justice — were considered throughout the project (Dunn, 2024). Autonomy refers to an individual's right to make their own decision (Dunn, 2024). Autonomy was upheld through informed consent, which was achieved by providing participants with detailed information regarding the project, including its objectives, time commitment, and potential benefits and risks, thereby allowing them to make an informed decision about participating in the project. Participants were informed that participation was strictly voluntary, and they may refuse to participate or withdraw at any time without incurring any negative consequences. Disclosure was provided at the beginning of the survey, asking participants to consent to participate in the QI project before proceeding. Survey completion implied consent.

Beneficence involves acting in the best interest of others (Dunn, 2024). The QI project aimed to equip providers with the knowledge and tools to identify and address perinatal depression (PD) more effectively, ultimately improving care and outcomes for perinatal patients. By enhancing providers' confidence in using the EPDS, the project aimed to promote early intervention and support those at risk.

Non-maleficence refers to doing no harm (Dunn, 2024). Participants were not asked for personal information, and their participation remained anonymous. The psychiatric supervisor sent emails with links to the surveys. Survey responses were collected through Qualtrics, which ensures confidentiality. No identifying information was linked to survey responses to ensure privacy and protection. The Institutional Review Board (IRB) reviews research proposals to ensure proper steps are taken to protect the rights and safety of human participants (U.S. Food & Drug Administration, 2019). The QI project was submitted to the University of Arizona IRB before implementation to ensure that all ethical standards were met.

Justice refers to ensuring fairness and equality in the distribution of benefits and burdens (Dunn, 2024). Justice was upheld by offering all eligible psychiatric providers equal access to educational materials, surveys, and the opportunity to participate without bias. All participants received identical materials, and everyone was treated equitably, regardless of whether they chose to participate or withdraw from the QI project.

### **IRB Review and Approval**

The QI proposal was approved by the University of Arizona IRB on July 15, 2025.

## Results

### Participants

A recruitment email was sent at the beginning of the survey period on July 25, 2025, announcing the project. A reminder email was sent one day before the survey's closing on August 7, 2025. Six of the 300 participants recruited (2%) completed all activities. All participants were nurse practitioners. Two participants did not complete the posttest survey and were therefore excluded from the analysis. Four providers had between 1 and 5 years of experience, one had less than one year of experience, and one had between 6 and 10 years of experience. Demographics are displayed in Table 2.

**Table 2**

#### *Demographics*

Characteristics	Participants	
	n	%
<b>Provider license</b>		
Medical Doctor/Doctor of Osteopathy	0	0
Nurse Practitioner	6	100
Physician Assistant	0	0
Psychologist	0	0
Counselor	0	0
Medical Assistant	0	0
Other	0	0
<b>Years in Practice</b>		
<1 year	1	16.7
1 – 5 years	4	66.7
6 – 10 years	1	16.7
11 – 15 years	0	0
>15 years	0	0

## Outcomes

### Provider Knowledge

Knowledge regarding perinatal depression and screening was measured by comparing mean scores on the same seven multiple-choice questions on the pretest and posttest. Before the

intervention, the total mean percentage of correct answers was 52.4%. After the presentation, the total mean percentage of correct answers improved to 85.7% (Figure 3). Pre and posttest scores regarding knowledge for each participant are illustrated in Table 3.

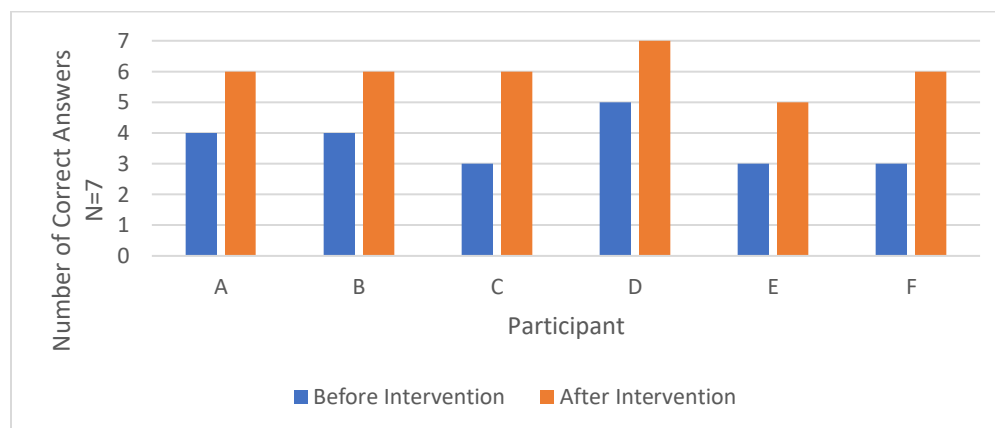
**Table 3**

*Comparison of Pretest and Posttest Knowledge About Perinatal Depression*

Participant	Pretest, Frequency Correct Answers N = 6 (Mean Percentage)	Posttest, Frequency Correct Answers N = 6 (Mean Percentage)
A	4 (57.1)	6 (85.7)
B	4 (57.1)	6 (85.7)
C	3 (42.9)	6 (85.7)
D	5 (71.4)	7 (100)
E	3 (42.9)	5 (71.4)
F	3 (42.9)	6 (85.7)
Total Mean Percentage Correct	52.4	85.7

**Figure 3**

*Knowledge Before and After Intervention*

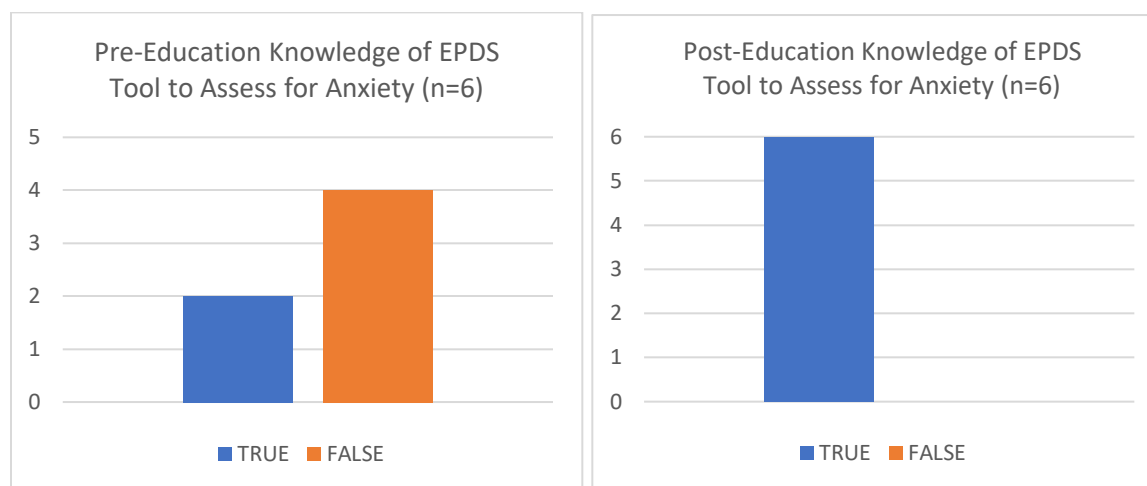


Before the intervention, a majority of participants knew that the EPDS demonstrates more accurate predictive validity as a screening tool for PD and that the cutoff score is 10. However, only 33% knew that the EPDS assesses for anxiety. After the presentation, 100% of

participants understood that the EPDS also assesses for anxiety. This is reflected in Figure 4 below.

**Figure 4**

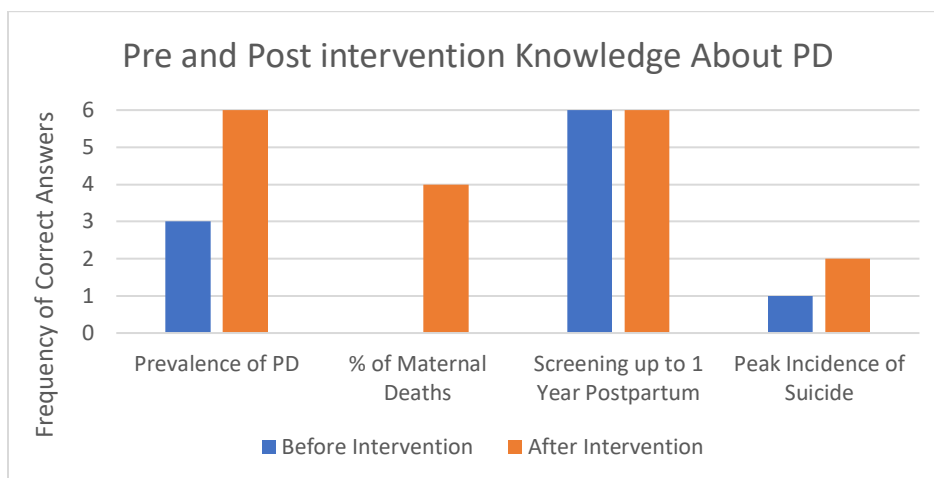
*Knowledge of EPDS to Assess for Anxiety*



Prior to the educational session, 50% of participants correctly identified the prevalence of PD, and none (0%) knew the percentage of maternal deaths in Arizona due to mental health conditions. After the educational session, 100% accurately identified the prevalence of PD, and 66% correctly answered the question about maternal deaths related to mental health. All participants knew to screen for PD up to one year postpartum before the intervention. Knowledge about the peak incidence of suicide occurring between six and nine months postpartum slightly increased from 16% before the intervention to 33% after the intervention. This data is displayed below in Figure 5.

**Figure 5**

*Specific Knowledge Questions About PD Before and After Intervention*



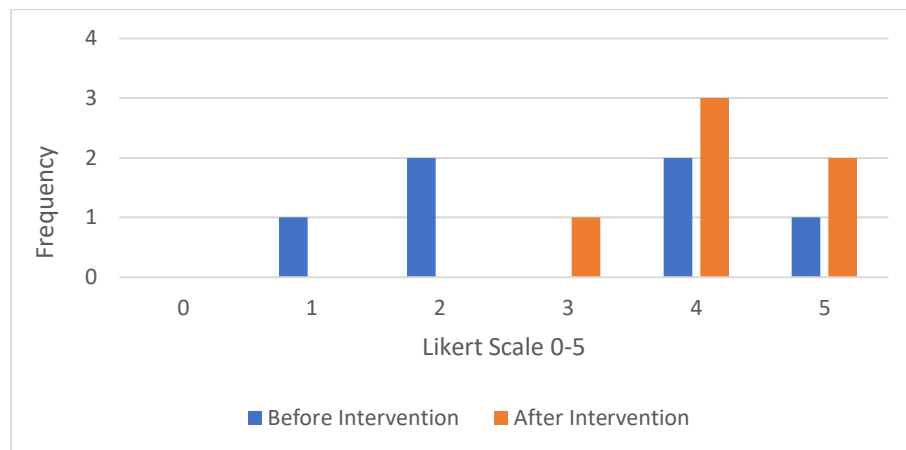
### Provider Confidence

Confidence was measured using a Likert scale (0-5) assessing provider comfort in administering the EPDS as a screening tool for PD. The median response was “3” or “neither comfortable nor uncomfortable” on the pretest and improved to a “4” or “somewhat comfortable” on the posttest (Figure 6). Responses are shown below in Table 4.

**Table 4**

*Comparison of Pretest and Posttest Confidence Levels of Administering the EPDS*

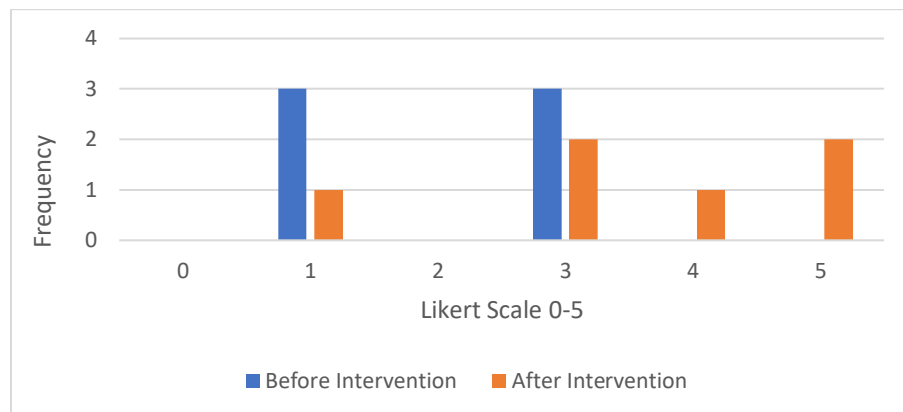
Participant	Pretest Confidence Level (Likert Scale 0-5)	Posttest Confidence Level (Likert Scale 0-5)
A	2	4
B	4	4
C	1	5
D	2	3
E	4	4
F	5	5
Mean	3	4.2
Median	3	4
Standard Deviation	1.41	0.69

**Figure 6***Confidence Level Before and After Intervention***Provider Perceived Benefit**

Perceived benefit was measured using a Likert scale (0-5) that assessed the perceived value of providers in using the EPDS as a screening tool for identifying perinatal depression, compared to other screening tools. The median response on the pretest was a “2” or “moderately beneficial” and improved to a “3.5” or moderately to very beneficial” on the posttest (Figure 7). Responses can be viewed below in Table 5.

**Table 5***Comparison of Pretest and Posttest Perceived Benefit of the EPDS*

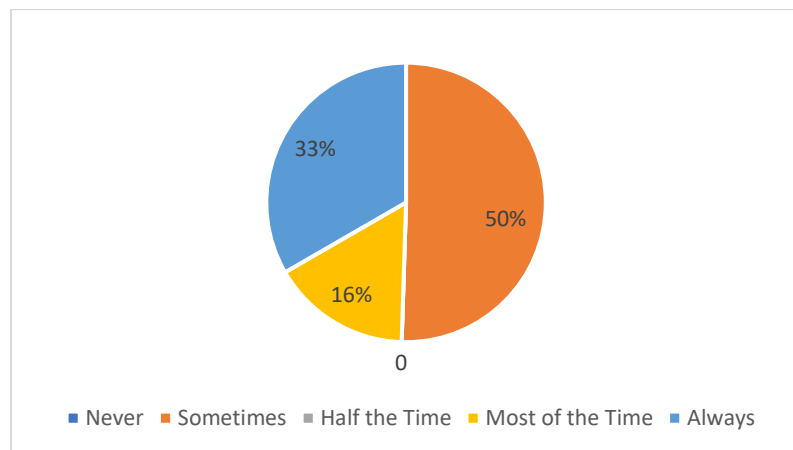
Participant	Pretest Perceived Benefit (Likert Scale 0-5)	Posttest Perceived Benefit (Likert Scale 0-5)
A	1	3
B	3	3
C	1	5
D	3	4
E	1	1
F	3	5
Mean	2	3.5
Median	2	3.5
Standard Deviation	1.1	1.52

**Figure 7***Perceived Benefit Before and After Intervention***Provider Intent to Use**

Intent to use was measured by assessing how often the provider currently uses the EPDS to screen for PD on the pretest. The posttest measured the anticipated change in how frequently the provider intends to use the EPDS to screen for PD in their future practice after viewing the presentation. Most participants (83%) reported that they “sometimes” use the EPDS on the pretest survey. On the posttest survey, 50% of participants intend to use the EPDS “sometimes,” 16% intend to use it “most of the time,” and 33% intend to use it “always” (Figure 8). Responses can be seen in Table 6.

**Table 6***Comparison of Current Use and Intent to Use the EPDS*

Participant	Current Use of EPDS	Intent to Use EPDS Post Intervention
A	Sometimes	Sometimes
B	Sometimes	Sometimes
C	Always	Most of the Time
D	Sometimes	Always
E	Sometimes	Sometimes
F	Sometimes	Always

**Figure 8***Intent to Use the EPDS in Future Practice***Perceived Barriers**

To assess barriers to using the EPDS in practice for future perinatal patients, a free-text response question was included at the end of the posttest survey. Two participants did not leave a response. All available responses included concerns regarding time constraints. One participant expressed that the tool may be too complex to administer verbally. Another participant noted that there are more convenient tools to identify depression and anxiety that are less time-consuming. Individual responses are displayed in Table 7.

**Table 7***Free Text Responses on Barriers*

Participant	Barriers to Use
A	
B	“It is a time-consuming process and depression, and anxiety can be identified with quicker to use tools.”
C	“time with patient”
D	
E	“Time! and... Cumbersome w/ out showing screen to patient and having to read and give choices.”
F	“Barrier in regard to time to administer the tool.”

## **Discussion**

### **Summary**

Perinatal depression is a treatable mental health condition that can occur at any time, beginning in pregnancy and up to one year postpartum (Rossi & Radney, 2022). Early identification and treatment are crucial to prevent complications for mom and baby. There is evidence that suggests the EPDS is more accurate in identifying PD, which psychiatric providers can administer to promote timely recognition and intervention of PD (Park & Kim, 2023).

This QI project aimed to educate mental health care providers at Denova Collaborative Health to improve their understanding of PD and enhance their screening practices by increasing their confidence and perceived benefit of using the EPDS as a preferred screening tool for PD. To assess the effectiveness of this project, a pre-survey was administered before participants viewed the educational presentation, and a post-survey was delivered to a cohort of nurse practitioners after the presentation. Despite the small sample size, the results demonstrated favorable outcomes, showing that an asynchronous educational session was effective for educating psychiatric providers on PD and the use of the EPDS. There was also an overall positive trend in intent to use the EPDS in future practice. Additionally, providers reported barriers to using the tool consistently with patients.

### **Interpretation**

#### **Knowledge**

A key finding was a notable increase in knowledge following the intervention, with the mean score improving from 52.4% to 85.7%. This indicates that participants grasped key concepts about PD and the EPDS through the educational presentation. One important concept

that showed significant improvement was recognizing that the EPDS can also assess for perinatal anxiety in addition to depression, with 100% accuracy on the posttest compared to 33% on the pretest. Additionally, there was a stronger understanding of PD prevalence and maternal mortality post-intervention. This improvement across all participants suggests that the educational material was effective in conveying essential information clearly and impactfully to address knowledge gaps about PD among providers with varying levels of experience.

### **Confidence and Perceived Benefit**

Provider confidence in administering the EPDS increased, as evidenced by a mean Likert score rise from “3” (neither comfortable nor uncomfortable) to “4.2” (somewhat comfortable). This positive shift suggests that participants felt more comfortable using the EPDS after the presentation, indicating increased familiarity with the screening tool and how to administer it. There was also a positive shift in participants’ perceived benefit of the EPDS. Before the intervention, most providers considered the EPDS as only “moderately” useful. After the intervention, however, participants viewed the EPDS as a more valuable tool for identifying PD. This suggests the presentation helped distinguish the advantages of the EPDS over other screening tools.

### **Intent to Use**

The intent to use the EPDS in future practice demonstrated an overall positive trend. Most participants reported that they currently use the EPDS occasionally. However, after the intervention, some participants indicated a commitment to using it more consistently in their future practice with perinatal patients. This shift implies that increased knowledge about PD and

confidence in administering the EPDS may contribute to improved screening practices among mental health care providers.

### **Barriers**

Despite the improvement across all outcomes, participants reported several barriers to consistent use of the EPDS. The most cited challenge was time constraints. Providers at Denova face time constraints during patient visits, with only 15 minutes for follow-up appointments and 45 minutes for new psychiatric evaluations, which makes it challenging to incorporate specific screening tools within the allotted timeframe. Other participants expressed concerns about the practicality of administering the tool, especially in verbal formats, and a preference for quicker and simpler alternatives. These responses highlight the need for strategies that facilitate more efficient integration of the EPDS into clinical workflows to improve screening practices.

### **Implications**

#### **Practice**

The findings from this QI project, which showed increases in provider knowledge, confidence, perceived benefit, and intent to use the EPDS as a screening tool for PD, highlight the value of provider education in improving PD screening practices. Despite the small sample size, the observed positive trends suggest that brief, targeted educational interventions can lead to meaningful behavioral changes in clinical practice. Psychiatric providers who are better informed and more comfortable with the EPDS are more likely to incorporate it into their daily practice, leading to earlier detection and intervention for PD and better patient outcomes.

Since providers were receptive to the educational presentation and expressed intent to use the tool more consistently, Denova Collaborative Health could provide this education and

resources to providers to support broader implementation across the organization. Offering this education as part of the onboarding process or through routine training sessions may help standardize screening practices within the organization and promote consistency in identifying PD. Furthermore, integrating the EPDS into the EHR, along with prompts, may reduce barriers to screening and support routine screening for perinatal patients. Additionally, using self-administered versions before appointments or involving support staff, such as medical assistants, in the screening process could help streamline implementation and alleviate time constraints on providers to ensure consistent use in clinical practice.

### **Education**

This QI project supports the incorporation of asynchronous, online educational presentations into provider training and continuing education. The notable improvement in knowledge and confidence after the intervention indicates that short, focused presentations can fill gaps in training for psychiatric providers related to PD. Future educational sessions should emphasize not only the clinical utility of the EPDS but also practical strategies to overcome workflow barriers. Moreover, education should also aim to enhance provider motivation for regular screening using the EPDS by reinforcing the implications of undiagnosed PD along with critical timeframes for peak incidence of symptoms and suicidality.

### **Research and Policy**

This QI project had a small sample size with only nurse practitioners participating. Further investigations with a larger and more diverse group of providers are essential to validate these findings and may provide valuable insight into different providers' perceptions and how to tailor training across disciplines. Future studies should explore the long-term impact of

educational interventions on screening rates, referrals, and patient outcomes to determine their effectiveness in improving perinatal mental health care. Additionally, future studies should explore alternative formats for administering the EPDS to determine the most effective method for promoting widespread adoption and use of the tool.

Organizations could consider mandating routine PD screening using the EPDS as part of the standard screening process for perinatal patients. Policymakers might consider advocating for longer visit times to alleviate the time constraints identified by providers. Lastly, aligning the organization's policies with guidelines from various organizations, such as ACOG, can help ensure consistent, evidence-based practices are implemented to promote early detection, timely intervention, and improved outcomes for perinatal patients and their babies.

### **Limitations**

This QI project had several limitations that must be considered when interpreting the findings. First, the sample size was small, consisting of only six nurse practitioners, which can lead to false conclusions (Andrade, 2020). The homogeneity of the sample – only nurse practitioners – limits the diversity of clinical perspectives and excludes the viewpoints of other healthcare providers such as physicians, therapists, and medical assistants. Participation from different disciplines could have provided valuable insight into screening practices across a broader range of specialties and offered a more comprehensive understanding of how PD is addressed at Denova, highlighting the variations in screening approaches among different types of providers. One possible reason for the lack of participation across multiple disciplines was the use of the term “psychiatric providers” on the recruitment material, which may have led some potential participants to feel excluded if they did not consider themselves psychiatric providers,

such as medical assistants and therapists who can screen for PD. Additionally, providers from disciplines other than nurse practitioners may not be familiar with the objectives of a DNP project or recognize the relevance of their potential contribution.

Another limitation was that the project relied on self-reported data from surveys, which could introduce response bias due to misunderstanding the measurement being used or social desirability bias, even when the survey is anonymous (Rosenman et al., 2011). Providers might have overestimated their confidence levels on the current use of the EPDS due to social desirability. Additionally, subjective responses to Likert-scale questions can lead to variability in interpretation, as providers may have different opinions of what constitutes “moderately beneficial” versus “very beneficial.” This can affect the accuracy of the data and may not fully reflect actual clinical practices.

Finally, there were limitations due to the short duration of the intervention, limited recruitment emails, and the lack of long-term follow-up of data. While improvements in knowledge and confidence were observed after the intervention, changes in behavior and use of the EPDS in practice could not be measured. Therefore, it is uncertain whether these changes were sustained over time and if screening rates with the EPDS increased or if patient outcomes improved. Future projects with a larger and more diverse sample group and longer follow-up periods can address these limitations and provide more evidence for the effectiveness of the educational intervention. These findings offer initial insights into PD screening practices at Denova among psychiatric providers and highlight areas for further exploration.

## **DNP Essentials Addressed**

### **DNP Essential II: Organization and Systems Leadership for Quality Improvement and Systems Thinking**

DNP Essential II emphasizes the importance of leadership in improving healthcare systems and promoting quality improvement within organizations (American Association of Colleges of Nursing [AACN], 2006). This project addressed this by implementing a quality improvement initiative to enhance PD screening practices at Denova Collaborative Health. The project aimed to increase psychiatric providers' knowledge, confidence, and consistent use of the EPDS as a screening tool through an educational intervention. Furthermore, it identified systemic barriers, such as time constraints and the complexity of administering the tool, which can guide organization-wide changes to optimize clinical workflows and align them with evidence-based guidelines for incorporating the EPDS.

### **DNP Essential III: Clinical Scholarship and Analytic Methods for Evidence-Based Practice**

This QI project aligns with DNP Essential III, which focuses on translating existing research into practice to guide improvements in practice and outcomes of care (AACN, 2006). This project used a literature search and evidence appraisal on perinatal depression and screening practices. Through a comprehensive literature review, the project identified best practices for PD screening, which were then used to develop an educational presentation aimed at enhancing providers' knowledge, confidence, and intent to consistently use evidence-based screening practices with the EPDS to improve clinical practice and patient outcomes. The integration of scholarly evidence into this educational initiative reflects the principles of this essential, which promotes the application of research findings into clinical settings.

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

DNP Essential VII focuses on the importance of health promotion and illness prevention, especially for addressing gaps in care for specific population groups to improve overall well-being for individuals and families (AACN, 2006). This project focused on perinatal depression, a prevalent but underdiagnosed condition that is a significant public health concern. Educating providers on the use of the EPDS enhances screening practices, leading to earlier identification and treatment, which helps to prevent the development of a more severe mental health condition during the perinatal period. Additionally, it aimed to reduce disparities in care by improving access to timely mental health support for a vulnerable population and supports the goal of improving population health and reducing long-term consequences of untreated PD.

### **Conclusion**

Perinatal depression and anxiety are prevalent and underdiagnosed conditions seen among perinatal patients, and providers have an opportunity to ensure proper screening is conducted for all pregnant and postpartum women to promote early identification and intervention, ultimately improving maternal and infant outcomes. There is evidence that the EPDS has more accurate predictive validity for identifying perinatal depression, yet it is often underutilized in psychiatric settings.

An asynchronous educational presentation accompanied by a list of local and national resources was developed for psychiatric providers at Denova Collaborative Health, which provides integrated medical and psychiatric services in Arizona. The project included a pretest and posttest to assess changes in providers' knowledge about PD and confidence, perceived

benefit of, and intent to use the EPDS in clinical practice. Results showed increases across all outcome measures, indicating that the educational intervention was effective in enhancing provider knowledge and confidence, as well as in positively influencing attitudes towards the use of the EPDS. These findings suggest that brief, targeted education can be a valuable tool in closing gaps in evidence-based recommendations and care for perinatal patients at Denova. Continued efforts to support provider education and integrate preferred standardized screening tools into routine care are critical steps toward improving the identification and treatment of perinatal mental health conditions.

### **Plan for Sustainability**

To support the sustainability of this project, the educational presentation, along with a list of resources for providers and patients, will be provided to Denova Collaborative Health for ongoing educational purposes to inform new and existing staff about the importance of PD screening and the EPDS. The goal is to incorporate the EPDS into the EHR as a selectable screening tool for psychiatric providers with a workflow prompt for the intake question asking about planning to or recently becoming a parent to facilitate consistent use of the tool during perinatal patient encounters. Additionally, a future DNP project can implement the workflow prompt and assess its effectiveness in increasing screening rates, improving early detection, and promoting timely interventions.

### **Plan for Dissemination**

A copy of this QI project will be available in the University of Arizona Thesis and Dissertation repository after the final defense. An executive summary will be provided to the psychiatric supervisor at Denova Collaborative Health.

**Appendix A**

**Site Authorization/Approval Letter**



3101 N. Central Ave., Suite 550  
Phoenix, AZ 85012  
(602) 230-7373  
denova.com

Denova Collaborative Health  
2120 W Guadalupe Rd.  
Mesa, AZ 85202

4/22/2025

Human Subjects Protection Program  
The University of Arizona  
845 N Park Ave., Suite 537A  
Tucson, AZ 85719

Please note that Mrs. Ashli Rios, University of Arizona Doctor of Nursing Practice student, has permission of Denova Collaborative Health to conduct a quality improvement project at our facility for her project, "Enhancing Psychiatric Providers' Knowledge and Screening Practices for Perinatal Depression."

Mrs. Rios will conduct a pre-survey, deliver an education presentation, then conduct a post-survey of health care providers at Denova Collaborative Health Clinic. She will recruit providers through email. The email will provide a description of the project, what they will be asked to do, and the time involved. Mrs. Rios' activities will be completed by December 2025.

Mrs. Rios has agreed to provide to my office a copy of the University of Arizona Determination before she recruits participants. She will also present aggregate results to the providers at their monthly staff meeting.

If there are any questions, please contact my office at 602-230-7373.

Collaboratively,

A handwritten signature in blue ink that reads "Luis Fong DNP". The signature is stylized and includes the letters "DNP" in a larger font.

Luis Fong, DNP, PMHNP-BC  
Denova Collaborative Health - Psychiatric Supervisor

**denova**  
collaborative  
health

**Appendix B**  
**Recruitment Material**

## Recruiting all mental health providers

### YOU'RE INVITED TO PARTICIPATE IN A VOLUNTARY QUALITY IMPROVEMENT PROJECT TITLED

### "ENHANCING PSYCHIATRIC PROVIDERS' KNOWLEDGE AND SCREENING PRACTICE FOR PERINATAL DEPRESSION"

I AM CURRENTLY COMPLETING MY CLINICAL ROTATIONS AT DENOVA AND HAVE TRULY ENJOYED MY LEARNING EXPERIENCE AND THE PRIVILEGE TO WORK WITH EXCELLENT PROVIDERS. I AM THANKFUL FOR YOUR CONTRIBUTION TO MY DNP PROJECT!

IF YOU CHOOSE TO TAKE PART IN THIS PROJECT, YOU WILL BE ASKED TO

1. COMPLETE A PRETEST SURVEY (5 MINUTES)

[https://u.arizona.co1.qualtrics.com/jfe/form/SV\\_9AirpkMaoqg2DxY](https://u.arizona.co1.qualtrics.com/jfe/form/SV_9AirpkMaoqg2DxY)

2. VIEW A PRERECORDED POWERPOINT PRESENTATION (10 MINUTES)

<https://1drv.ms/p/c/406B81232AF68824/Ebvi4vunMAP1ApQ4DYKG92jQBInsl7ghj15qkiSomgoeP7Q>

3. COMPLETE A POSTTEST SURVEY (5 MINUTES)

[https://u.arizona.co1.qualtrics.com/jfe/form/SV\\_0BTF1z9JWRjEqua](https://u.arizona.co1.qualtrics.com/jfe/form/SV_0BTF1z9JWRjEqua)

THE PURPOSE IS TO PROVIDE A SHORT EDUCATIONAL PRESENTATION WITH THE INTENT TO IMPROVE PROVIDER KNOWLEDGE AND CONFIDENCE ABOUT SCREENING FOR PERINATAL DEPRESSION

**ELIGIBILITY:** ANYONE WITH THE POTENTIAL TO SCREEN FOR PERINATAL DEPRESSION MAY PARTICIPATE. THE SURVEY WILL BE OPEN FOR 2 WEEKS!

**Questions or concerns? Contact me anytime!**



ashlirios@arizona.edu



806-543-4847

Thank you for your time and consideration,  
Ashli Rios, BSN, RN  
DNP-PMHNP Candidate

## **Appendix C**

### **Evaluation Instruments (Pretest and Posttest Survey)**

Pre-test Survey: [https://uarizona.co1.qualtrics.com/jfe/form/SV\\_9AirpkMaoqg2DxY](https://uarizona.co1.qualtrics.com/jfe/form/SV_9AirpkMaoqg2DxY)



#### CONSENT FORM

The purpose of this project is to provide all psychiatric providers at Denova with education on perinatal depression and recommended screening practices. If you choose to take part in this project, you will be asked to complete a short pretest survey, watch the recorded PowerPoint presentation, and complete a short posttest survey. It will take approximately 20 minutes to complete all activities.

There are no foreseeable risks associated with participating in this project. You will receive no immediate benefit from your participation. Your responses are anonymous. Your name will not be collected or linked to your answers. If you choose to participate in this project, participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw at any time from the project. In addition, you may skip any question that you choose not to answer. By participating, you do not give up any personal legal rights you may have as a participant in this project.

DO YOU CONSENT TO HAVE YOUR RESPONSES USED FOR THIS PROJECT AND CONSENT TO PARTICIPATE IN ALL INCLUDED ACTIVITIES (PRE-TEST, RECORDED PRESENTATION, POST-TEST)?

- Yes  
 No



Create a four-digit code AND provide your favorite zoo animal (Example: 1991, lion). Please write down or remember this code- it will be used to compare results with your post-survey. Your identity will remain anonymous. Thank you!

Powered by Qualtrics 



What is your professional role?

- Medical Doctor/Doctor of Osteopathy
- Nurse Practitioner
- Physician Assistant
- Psychologist
- Counselor
- Medical Assistant
- Other, please specify

How many years have you been in your role?

- <1 year
- 1-5 years
- 6-10 years
- 11-15 years
- >15 years



What is the prevalence of perinatal depression in the United States?

- 1 in 7
- 1 in 100
- 1 in 15
- 1 in 3

What is the percentage of maternal deaths due to mental health conditions in Arizona?

- 15.3%
- 22.7%
- 32.6%
- 40.6%

How long should you screen for perinatal depression?

- 6 weeks postpartum
- 12 weeks postpartum
- 6 months postpartum
- 1 year postpartum
- 2 years postpartum

When is the peak incidence of suicide during the perinatal period?

- During pregnancy
- 0-6 weeks postpartum
- 6-12 weeks postpartum
- 3-6 months postpartum
- 6-9 months postpartum
- 1 year postpartum

What screening tool demonstrates more accurate predictive validity for perinatal depression?

- HAM-D
- BDI
- PHQ-9
- EPDS

On a scale from 0 to 5 (0= extremely uncomfortable to 5= extremely comfortable), how comfortable are you with administering the EPDS as a screening tool for perinatal depression?

Extremely uncomfortable 0      Somewhat uncomfortable 1      Neither comfortable nor uncomfortable 2      Somewhat comfortable 4      Extremely comfortable 5

Comfort 0-5



What is the cut off score for depression using the EPDS?

- 15
- 10
- 5
- 20

The EPDS assesses for anxiety.

- True
- False

How often do you use the EPDS to screen for perinatal depression?

- Always
- Most of the time
- About half the time
- Sometimes
- Never

On a scale from 0 to 5 (0= not beneficial and 5= extremely beneficial), how beneficial do you find the EPDS as a screening tool for identifying perinatal depression compared to other screening tools?

Not beneficial at all 0      Slightly beneficial 1      Moderately beneficial 2      Very beneficial 4      Extremely beneficial 5

Perceived benefit 0-5



Post-test Survey: [https://uarizona.co1.qualtrics.com/jfe/form/SV\\_0BTF1z9IWRjEqua](https://uarizona.co1.qualtrics.com/jfe/form/SV_0BTF1z9IWRjEqua)



Please enter the four digit code AND favorite zoo animal from your pre-survey (Example: 1991, lion). This is to compare results with your pre-survey. Your identity will remain anonymous. Thank you!

What is the prevalence of perinatal depression in the United States?

- 1 in 7
- 1 in 100
- 1 in 15
- 1 in 3

What is the percentage of maternal deaths due to mental health conditions in Arizona?

- 15.3%
- 22.7%
- 32.6%
- 40.6%

How long should you screen for perinatal depression?

- 6 weeks postpartum
- 12 weeks postpartum
- 6 months postpartum
- 1 year postpartum
- 2 years postpartum

When is the peak incidence of suicide during the perinatal period?

- During pregnancy
- 0-6 weeks postpartum
- 6-12 weeks postpartum
- 3-6 months postpartum
- 6-9 months postpartum
- 1 year postpartum

What screening tool demonstrates more accurate predictive validity for perinatal depression?

- HAM-D
- BDI
- PHQ-9
- EPDS

After viewing the presentation, on a scale from 0 to 5 (0= extremely uncomfortable to 5= extremely comfortable), how comfortable are you with administering the EPDS as a screening tool for perinatal depression?

Extremely uncomfortable 0	Somewhat uncomfortable 1	Neither comfortable nor uncomfortable 2	3	Somewhat comfortable 4	Extremely comfortable 5
---------------------------------	-----------------------------	---	---	---------------------------	-------------------------------

Comfort 0-5



What is the cut off score for depression using the EPDS?

- 15
- 10
- 5
- 20

The EPDS assesses for anxiety.

- True
- False

After viewing the presentation, how often do you intend to use the EPDS to screen for perinatal depression?

- Always
- Most of the time
- About half the time
- Sometimes
- Never

After viewing the presentation, on a scale from 0 to 5 (0= not beneficial and 5= extremely beneficial), how beneficial do you find the EPDS as a screening tool for identifying perinatal depression compared to other screening tools?

Not beneficial at all 0      Slightly beneficial 1      Moderately beneficial 2      Very beneficial 4      Extremely beneficial 5

Perceived benefit 0-5



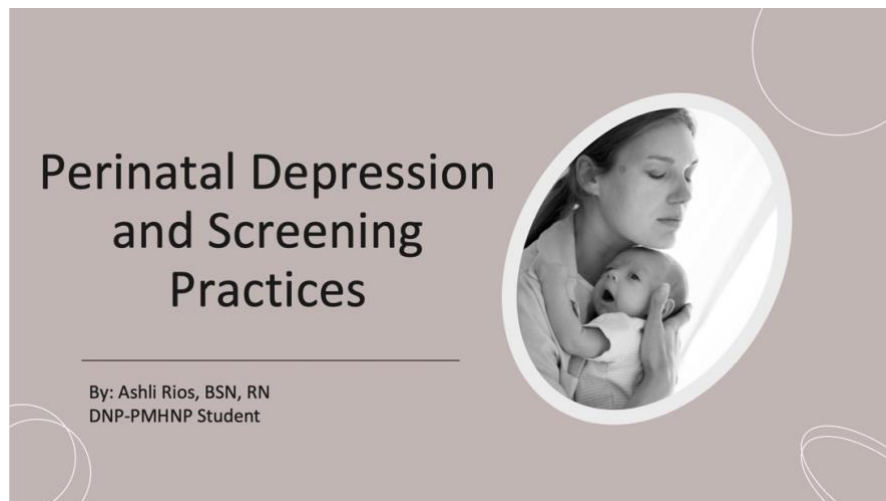
Please identify any barriers to using the EPDS in practice for future perinatal patients.

**Appendix D**

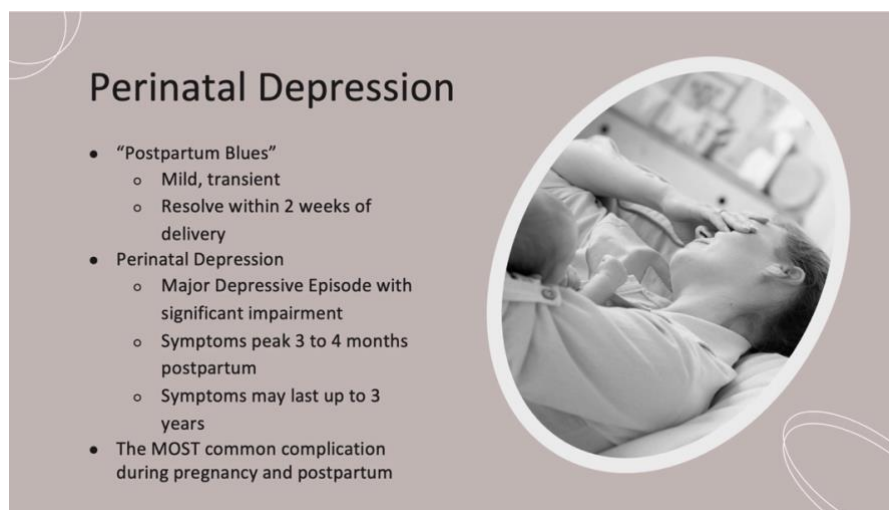
**Participant Materials (PowerPoint Presentation)**

PowerPoint:

<https://1drv.ms/p/c/406B81232AE68824/Ebvi4vmMAP1ApQ4IYKG92jQBJnsI7ghjI5qk1Somg0eP7Q>



Slide 1: Hi, my name is Ashli Rios, and I am a psychiatric mental health nurse practitioner student at the University of Arizona. This is my PowerPoint presentation on perinatal depression and screening practices as part of my DNP project. I appreciate you being here today, and I hope you can take something away from this today, whether that be improving your knowledge about perinatal depression, enhancing your future screening practices, or refreshing your memory.

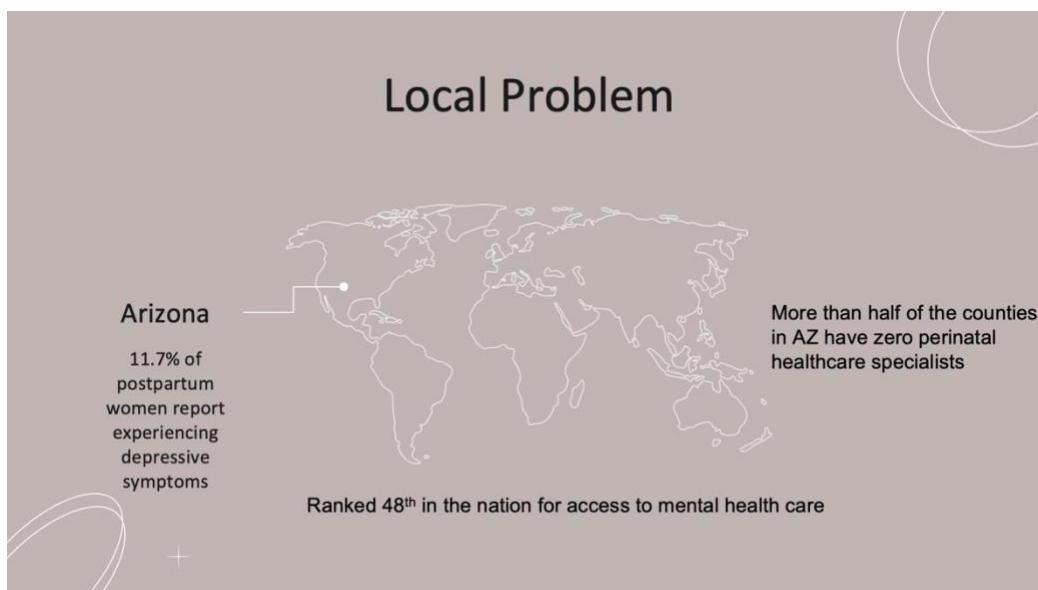


Slide 2: First, I want to start with a little background information about perinatal depression. There is a term called “Postpartum Blues,” and this typically presents as mild, transient sadness or depressive symptoms immediately postpartum, and it usually resolves within 2 weeks of delivery. This is significantly different than perinatal depression, which meets the same criteria for a major depressive episode lasting at least 2 weeks with significant functional impairment. More recent studies have shown that these symptoms peak 3 to 4 months postpartum, which was previously viewed as peaking around 6 weeks postpartum. Additionally, these symptoms can last up to 3 years postpartum. Unfortunately, this is

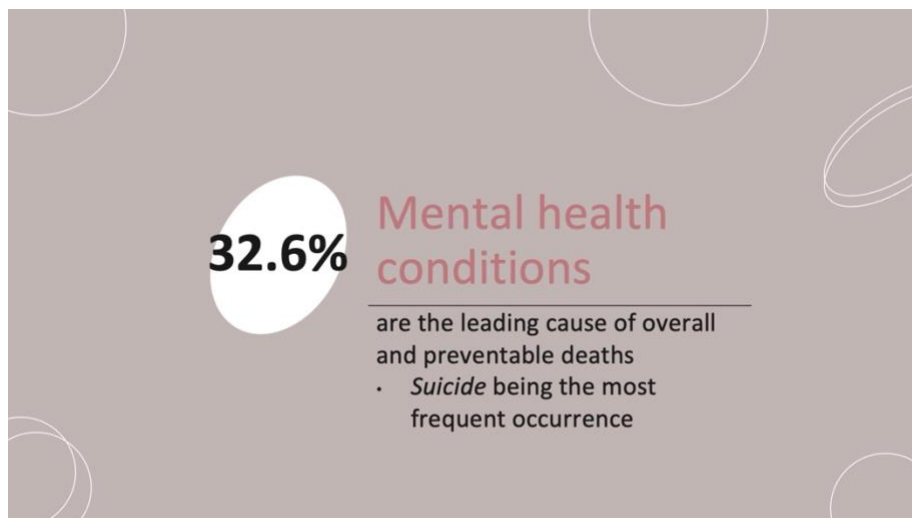
the most common complication in pregnancy and postpartum, which means you will probably get referrals for this patient population, and it makes it important that we know what to look for, how to screen, and properly identify these patients.



Slide 3: A few statistics that I think are noteworthy are that 1 in 7 women are affected by perinatal depression. It is significantly underdiagnosed and undertreated, with 50-70% of these cases going undetected, and up to 85% going untreated.



Slide 4: The latest data showed that 11.7% of postpartum women in Arizona reported experiencing depressive symptoms. Arizona is ranked 48<sup>th</sup> in the nation for access to mental healthcare and more than half of the 15 counties in Arizona have zero perinatal healthcare specialists.




Slide 5: Mental health conditions are now the leading cause of overall and preventable deaths among perinatal patients, accounting for 32.6% of deaths in AZ, ahead of postpartum hemorrhage, infections, and cardiovascular complications. And suicide is the most frequent occurrence. This is higher than the 22.7% national average of maternal deaths surrounding mental health conditions.




Slide 6: Here, I have listed common risk factors for developing perinatal depression. Perinatal anxiety is a very strong predictor of developing perinatal depression. So, if you have a pregnant patient experiencing anxiety, you'll want to be on alert for perinatal depression onset, especially in the postpartum period. Additional risk factors include, infant hospitalization such as being in the NICU in particular, maternal birth complications, low socioeconomic status, history of a mental health condition including substance abuse, lack of social support, intimate partner violence, single parenting, marital conflict, and Black and Hispanic women experience higher rates and are less likely to be diagnosed.

## Complications



**For mothers**

- Lower rates of breastfeeding
- Preeclampsia
- Spontaneous abortion
- Impaired bonding
- Marital discord
- Increased risk of suicide
- Increased risk of recurrent depressive episodes



**For children**

- Delayed fetal development
- Prematurity
- Lower Apgar scores
- Physical health problems
  - Asthma, Diabetes
- Impaired emotional regulation
- Difficult temperament
- Cognitive impairment
- Poorer language skills
- Psychopathology
  - Anxiety, Depression, ADHD, Conduct disorder

Slide 7: If left untreated, perinatal depression can lead to issues for both mother and child. Complications for mom include lower rates of breastfeeding, preeclampsia, spontaneous abortion, impaired bonding with their infant, marital discord, increased risk of suicide, and increased risk of recurrent depressive episodes. Complications for the child include delayed fetal development, prematurity, lower Apgar scores, physical health problems like asthma and diabetes, impaired emotional regulation, difficult temperament, cognitive impairment, and poorer language skills. It is also associated with psychopathology in children, with the highest risk for anxiety, depression, ADHD, and conduct disorder.

## Screening Recommendations

- Healthy People 2030 Objective
  - Increase proportion of women who get screened for postpartum depression – MICH –D01
- Screening recommended by
  - American College of Obstetricians and Gynecologists
  - American Psychiatric Association
  - American Academy of Pediatrics
  - American Medical Association
  - U.S. Preventive Services Task Force
- Screen for BOTH depression and anxiety
- Screen up to 1 year postpartum
  - Up to 40% of women do not attend a postpartum visit
  - Peak incidence of suicide is 6 to 9 months postpartum
- Use same screening tool to track scores for symptom monitoring
  - Continuity of care across disciplines

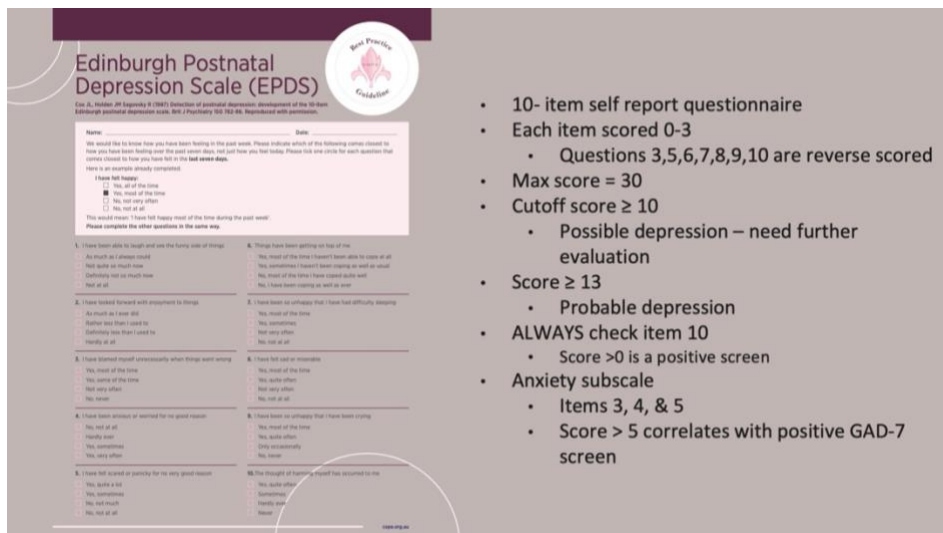
Slide 8: A Healthy People 2030 objective in development is to increase the proportion of women who get screened for postpartum depression, showing that this is a high-priority public health issue that has evidence-based interventions to address it. Screening is recommended by various organizations, including the American College of Obstetricians and Gynecologists, the American Psychiatric Association, the American Academy of Pediatrics, the American Medical Association, and the U.S. Preventive Services Task Force. However, screening, diagnosis, and treatment rates remain low despite these recommendations. This could be due to time constraints or clinicians not feeling comfortable screening

for and treating these disorders, among others. It is recommended to screen for both depression and anxiety up to 1 year postpartum. Women typically see their OBGYN once post-delivery, and up to 40% do not attend a postpartum visit. As stated earlier, these symptoms may not even peak until 4 months, and unfortunately, the peak incidence of suicide is 6 to 9 months postpartum, increasing the number of women seeking help outside the 6-week follow-up period. These are vulnerable times that providers need to be aware of and know the signs to look for. Additionally, it is recommended that the same screening tool be used to track scores for symptom monitoring and facilitate continuity of care across disciplines.

## Screening Tools

Edinburgh Postnatal Depression Scale	Patient Health Questionnaire-9
<ul style="list-style-type: none"> <li>• Developed specifically to detect MDD in perinatal women</li> <li>• 10 item self report assessment tool</li> <li>• More accurate predictive validity as a perinatal specific screening tool</li> <li>• Excludes questions about fatigue and appetite</li> <li>• Sleep difficulty in relation to unhappiness</li> <li>• Includes anxiety subscale</li> <li>• Reliable/valid tool for fathers</li> </ul>	<ul style="list-style-type: none"> <li>• Developed to detect MDD in general population</li> <li>• 9 item self report assessment tool</li> <li>• Assesses severity of depression</li> <li>• Emphasizes vegetative symptoms               <ul style="list-style-type: none"> <li>• Sleep, appetite, fatigue, energy</li> </ul> </li> </ul>

Slide 9: The two most widely validated tools for detecting perinatal depression are the Edinburgh Postnatal Depression Scale and the Patient Health Questionnaire. Most psychiatric providers are comfortable using the PHQ-9 to screen for depression, and a lot of primary care physicians utilize the EPDS. The EPDS was developed specifically to detect major depression in perinatal women. It is a 10-item self-report assessment tool. There have been multiple studies proving the EPDS to have more accurate predictive validity as a perinatal-specific screening tool. It excludes questions about fatigue and appetite as these are common symptoms that overlap with normal pregnancy experiences and can be misinterpreted. It also asks about sleep difficulty in relation to unhappiness. It includes an anxiety subscale, and it is also a reliable and validated tool for detecting depression among fathers. The PHQ-9 was developed to detect depression in the general population. It is a 9-item self-report assessment tool. It assesses the severity of depression. However, it emphasizes vegetative symptoms, like sleep, appetite, fatigue, and energy.



**Edinburgh Postnatal Depression Scale (EPDS)**

Can A. Wilson, M.D. Copyright © 1987. Distribution of postnatal depression measurement of the 10-item Edinburgh postnatal depression scale, with a Psychiatry 100 102-86. Reproduced with permission.

**Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

We would like to know how you have been feeling in the past week. Please indicate which of the following answer choices best describe how you have been feeling over the past seven days, not just how you feel today. Please tick one circle for each question that carries a mark to how you have felt in the last seven days.

Have you recently or are you planning to become a parent or guardian?

Yes, all of the time  
 Yes, most of the time  
 Yes, some of the time  
 No, not at all

This would mean I have not been most of the time during the past week.  
 Please complete the other questions in the same way.

1. I have been able to laugh and see the funny side of things.	2. Things have been getting on top of me.
As much as I always could	Yes, most of the time I haven't been able to cope at all
Not quite so much as usual	This sometimes hasn't been going so well as usual
Difficultly not so much as usual	No, most of the time I have enjoyed life well
Not at all	No, I have been coping as well as ever
3. I have looked forward with enjoyment to things.	4. I have been so unhappy that I have had difficulty sleeping.
As much as I ever did	Yes, most of the time
Harder to look forward to	Yes, sometimes
Difficultly not so much as usual	Not very often
Not at all	No, not at all
5. I have blamed myself unnecessarily when things went wrong.	6. I have felt so sad or miserable.
Yes, most of the time	Yes, most of the time
Yes, some of the time	Yes, some of the time
Not very often	Not very often
No, never	No, not at all
7. I have been anxious or worried for no good reason.	8. I have been so unhappy that I have been crying.
Yes, not at all	Yes, most of the time
Sometimes	No, sometimes
Yes, sometimes	Not very often
Yes, very often	Only occasionally
	No, never
9. I have not enjoyed sex for my usual reason.	10. I have thoughts of harming myself.
Yes, quite a lot	Yes, quite often
Yes, sometimes	Sometimes
Yes, not much	Not very often
Yes, not at all	Never

- 10- item self report questionnaire
- Each item scored 0-3
  - Questions 3,5,6,7,8,9,10 are reverse scored
- Max score = 30
- Cutoff score  $\geq 10$ 
  - Possible depression – need further evaluation
- Score  $\geq 13$ 
  - Probable depression
- ALWAYS check item 10
  - Score  $>0$  is a positive screen
- Anxiety subscale
  - Items 3, 4, & 5
  - Score  $> 5$  correlates with positive GAD-7 screen

Slide 10: Here, I have the EPDS for you to take a look at. There are 10 items scored 0-3. So, if you look at #1, it says I have been able to laugh and see the funny side of things. You would give a 0 if they answered as much as I always could, and then a 3 if they answered not at all. For questions 3, 5, 6, 7, 8, 9, and 10, the scores are reversed. So, question #3 says I have blamed myself unnecessarily when things went wrong. If they answer yes, most of the time you would give a 3, and if they answer no, never you would give a 0. The max score is 30. The cutoff score is 10 or greater, indicating possible depression needing further evaluation. And a score of 13 or greater indicates probable depression. Remember always to check #10, which asks about thoughts of harming themselves. If they score anything above 0 on #10, this is a positive screen. And then there is an anxiety subscale, which is items 3,4, and 5. If they score greater than 5 on these 3 items, this correlates with a positive GAD-7 screen. So, it is a validated tool and effective for screening for both depression and anxiety.

## Why is this important?

Question on provider note:

- “Have you recently or are you planning to become a parent or guardian?”

An additional evidence-based resource in your “toolbox”

EPDS has higher detection for perinatal depression and helps distinguish between typical perinatal changes and a more serious illness

Serial screening with EPDS for referrals

- EPDS is most commonly used in other settings

Positive patient outcomes

- Early recognition and treatment lead to a remission rate of over 80%



Slide 11: So why is this important? On the provider note, it asks, “Have you recently or are you planning to become a parent or guardian?” It is important that we ask our patients because this is a big life

adjustment, and as mentioned earlier, can come with a significant prevalence of perinatal depression. By refreshing your memory about the EPDS and how to administer, score, and interpret results, you will have an additional evidence-based resource in your toolbox to use when assessing perinatal patients other than the PHQ-9. The EPDS has higher detection for perinatal depression and helps distinguish between typical perinatal changes and a more serious illness. EPDS is most commonly used in other settings like OBGYN and primary care offices, so it is important that we are familiar with the EPDS to do serial screenings on patients who are referred to us to track scores for symptom monitoring to inform and guide treatment. Lastly, and most importantly, early recognition and treatment lead to a remission rate of over 80%. By using evidence-based tools and recommendations, we can promote positive patient outcomes.

## Resources

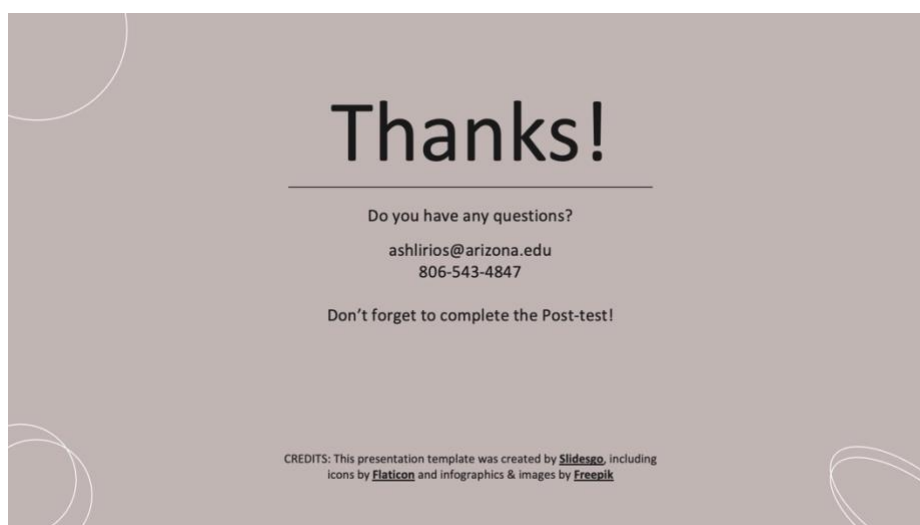
### For Providers

- Postpartum Support International's Perinatal Psychiatric Consult Line
  - <https://postpartum.net/professionals/perinatal-psychiatric-consult-line/>
  - (877) 499-4773
  - 1:1 consultation with a perinatal psychiatry expert for all clinicians across the U.S.
- Arizona Perinatal Psychiatry Access Line
  - <https://apal.arizona.edu/perinatal>
  - 888-290-1336
  - Perinatal psychiatrist available M-F from 8:30am – 4:30pm to answer provider questions and review treatment options
  - Additional support resources by county in AZ
- Perinatal Mental Health Toolkit
  - <https://www.psychiatry.org/psychiatrists/practice/professional-interests/women-s-mental-health/maternal-mental-health-toolkit>
  - Resources and recommendations for clinical management of perinatal mental and substance use disorder
- ACOG Clinical Practice Guidelines: Screening, Diagnosis, Treatment, and Management of Perinatal Mental Health Conditions
  - <https://www.acog.org/programs/perinatal-mental-health/educational-resources-for-providers-patients-and-families#:~:text=ACOG-Clinical%20Practice%20Guideline&text=State%20Perinatal%20Psychiatry%20Access%20Programs,mental%20health%20resources%20and%20referrals>
- Postpartum Support International: Certification in Perinatal Mental Health
  - <https://postpartum.net/professionals/certification/>
  - 2+ years experience with perinatal patients

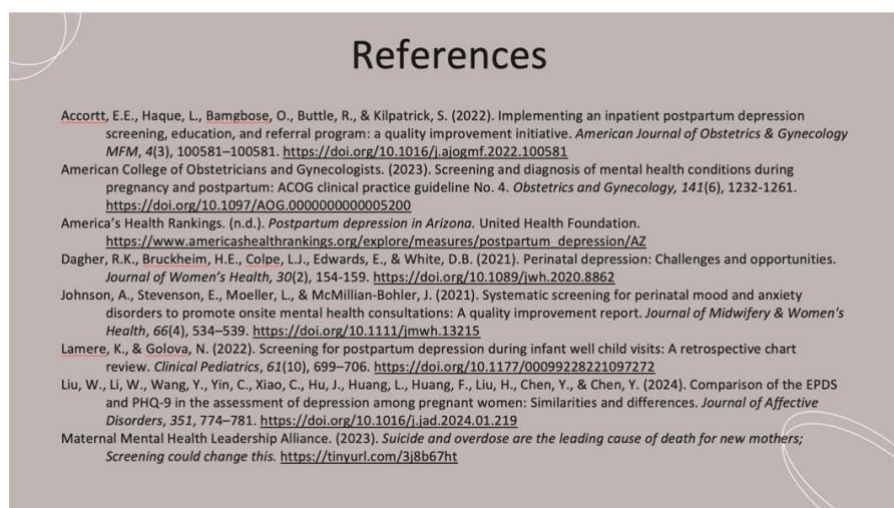
### For Patients

- Arizona Perinatal Support and Resource Line
  - <https://apal.arizona.edu/parents-kids>
  - Perinatal resources and support for parents and children
- Maternal Mental Health Hotline
  - [national-maternal-mental-health-hotline](https://national-maternal-mental-health-hotline.org)
  - Call or Text 1-833-TLC-MAMA
  - Free, confidential support 24/7 in over 60 languages
- National Mental Health & Suicide Prevention Lifeline
  - <https://crisis.solaris-inc.org/>
  - Dial 988 for 24/7 access to crisis counselors
  - Dial 1-844-534-HOPE for AZ statewide line
  - Text "HOPE" to 4HOPE for AZ statewide line
- Perinatal Mental Health Guideline
  - <https://www.psychiatry.org/maternal>
  - Expert information about perinatal mental health
- Postpartum Emotional Wellness Class
  - <https://www.postpartum.net/postpartum-planning-for-expectant-parents/>
  - Free 2-hour virtual class focusing on emotional well-being in preparation for postpartum
- Postpartum Support International Helpline
  - [psi-helpline](https://www.postpartum.net/psi-helpline)
  - Call 1-800-944-4773 or text "Help" to 800-944-4773 (English) or 971-203-7773 (Spanish)
  - Free, confidential postpartum support
- Postpartum Support International Virtual Postpartum Support Groups
  - <https://www.postpartum.net/get-help/psi-online-support-meetings/>
  - 50+ free virtual support groups for new parents

Slide 12: Here I have listed some resources that can be beneficial for you as providers, as well as resources for your patients should they screen positive for perinatal depression. Several free resources are available to help providers manage the care of perinatal patients. Postpartum Support International's Psychiatric Consult line offers a one-on-one consultation with a perinatal psychiatry expert. You can either call the listed number or schedule online at their website. The Arizona Perinatal Psychiatry Access Line is available Monday through Friday from 8:30 to 4:30 to answer provider questions and review treatment options. Their website also lists additional support resources by county in Arizona. The Perinatal Mental Health Toolkit has resources and recommendations for the clinical management of perinatal mental and substance use disorders. ACOG also has clinical practice guidelines available for screening, diagnosis, treatment, and management of perinatal mental health conditions. And if you want to truly immerse yourself, you can pursue Postpartum Support International's certification in perinatal mental health, provided you have at least two years of experience working with perinatal patients. Resources for patients include Arizona Perinatal Support and Resource Line for parents and children, Maternal Mental Health Hotline with free, confidential support 24/7 in over 60 languages, the National Mental Health & Suicide Prevention Lifeline with access to crisis counselors and I have listed the Arizona statewide numbers to call or text, the Perinatal Mental Health Guideline with expert information about perinatal mental health, Postpartum Emotional Wellness class which is a free 2 hour virtual class focusing on emotional wellbeing in preparation for postpartum, Postpartum Support International Helpline and Virtual postpartum support groups which offers over 50 free virtual support groups for new parents.



Slide 13: I hope you found this presentation interesting and helpful, and that you were able to take away something that will positively impact your future care and practices with perinatal patients. If you have any questions, comments, or concerns, please feel free to contact me. I would appreciate it if you could complete the posttest at your convenience! Thank you so much for watching this presentation.



Slide 14: Here are my references.

## References cont.

- Moore Simas, T. A., Whelan, A., & Byatt, N. (2023). Postpartum depression—New screening recommendations and treatments. *JAMA: The Journal of the American Medical Association*, 330(23), 2295–2296. <https://doi.org/10.1001/jama.2023.21311>
- Office of Disease Prevention and Health Promotion. (n.d.). Increase the proportion of women who get screened for postpartum depression – MICH-D01. *Healthy People 2030*. U.S. Department of Health and Human Services. <https://odphp.health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth/increase-proportion-women-who-get-screened-postpartum-depression-mich-d01>
- Park, S.H. & Kim, J.I. (2023). Predictive validity of the Edinburgh postnatal depression scale and other tools for screening depression in pregnant and postpartum women: a systematic review and meta-analysis. *Archives of Gynecology and Obstetrics*, 307(5), 1331-1345. <https://doi.org/10.1007/s00404-022-06525-0>
- Perazzo, S. I., Hoge, M. K., Shaw, R. J., Gillispie-Bell, V., & Soghier, L. (2024). Improving parental mental health in the perinatal period: A review and analysis of quality improvement initiatives. *Seminars in Perinatology*, 48(3), 151906–151906. <https://doi.org/10.1016/j.semperi.2024.151906>
- Rossi, N. M., & Radney, L. (2022). Diagnosis and management of perinatal depression. *Nursing for Women's Health*, 26(4), 318–330. <https://doi.org/10.1016/j.nwh.2022.05.007>
- Viguera, A. (2023). Postpartum depression: Adverse consequences in mothers and their children. *UpToDate*. Retrieved March 2, 2025, from [https://www.uptodate.com.ezproxy2.library.arizona.edu/contents/postpartum-depression-adverse-consequences-in-mothers-and-their-children?search=postpartum%20depression%20adverse%20effects&source=search\\_result&selectedTitle=1%7E150&usage\\_type=default&display\\_rank=1](https://www.uptodate.com.ezproxy2.library.arizona.edu/contents/postpartum-depression-adverse-consequences-in-mothers-and-their-children?search=postpartum%20depression%20adverse%20effects&source=search_result&selectedTitle=1%7E150&usage_type=default&display_rank=1)

Slide 15: Thank you!

**Appendix E**  
**Evidence Table**

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
American College of Obstetricians and Gynecologists, 2023	Screening and Diagnosis of Mental Health Conditions During Pregnancy and Postpartum: ACOG Clinical Practice Guideline No. 4	Clinical Practice Guideline	<p>ACOG recommends:</p> <ul style="list-style-type: none"> <li>• Everyone receiving a well-woman, prepregnancy, prenatal, and postpartum care be screened for depression and anxiety using validated instrument</li> <li>• Perinatal screening be performed at initial visit, later in pregnancy, and postpartum visits</li> <li>• Screening be implemented with systems in place to ensure timely access to assessment and diagnosis, effective treatment, and appropriate monitoring and follow up</li> </ul> <p>-Perinatal mental health conditions affect more than 1 in 5 people, and can occur up to one year postpartum          -Suicide most common cause of pregnancy associated deaths          -PHQ-9 and EPDS are both validated screening tools available in multiple languages and can be self-administered with electronic versions available          -Anxiety occurs in &gt;37% of screened perinatal patients and comorbid with depression in &gt;28% of patients – important to screen for both anxiety and depression          -EPDS: 3 anxiety questions considered as anxiety subscale         <ul style="list-style-type: none"> <li>• Score &gt;5 correlates significantly with positive GAD-7 screen</li> </ul>         -Serial screening with same validated tool should be used to track severity and assess response to treatment</p>	<p>Confirms the need to educate providers on the use of the EPDS to assess both depression and anxiety for perinatal patients</p> <p>Providers should be comfortable using the EPDS if they receive a referral from an OBGYN that utilized the tool to perform serial screening to assess response to treatment</p> <p>Highlights the importance of assessing anxiety in addition to depression as it is highly comorbid among perinatal patients</p> <p>Emphasizes that perinatal depression can occur up to one year postpartum and outside of the 6 week follow up postpartum appointment and the need for mental health providers to understand how to use the EPDS to assess these patients</p>
Accortt et al., 2022	Implementing an inpatient postpartum depression screening, education, and	Quality Improvement Project Review	-The authors implemented a QI initiative incorporating 4 interventions to educate and train staff on PMADs and how to administer the PHQ-9	Confirms that providing education to providers about PMADs and specific screening tools increases

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
	referral program: a quality improvement initiative		<p>screening tool to improve screening rates and screen positive rates for PPD risk</p> <p>-The 4 interventions they implemented include:</p> <ul style="list-style-type: none"> <li>• Nurse champion training that provided education on prevalence, risk factors, symptoms, and negative outcomes associated with PMADs</li> <li>• Implementation of a standardized screening protocol using the PHQ9 into workflow</li> <li>• Multiple 20 minute in service trainings on how to administer the PHQ-9</li> <li>• Brief video training for nursing staff that demonstrated the screening process</li> </ul> <p>-There was an overall increase in nurse comfortability in screening for PPD, knowledge about PMADs, and ability to identify those who would benefit from mental health consultations.</p> <p>-Screening rates increased from 10% to 99%</p> <p>-Screen positive rates increased from 0.04% to 2.9%</p> <p>-Social work consultations increased from 1.7% to 8.4%</p>	<p>provider knowledge and comfort with screening for these disorders and the ability to identify those who screen positive requiring further assessment and intervention.</p> <p>This specific study used the PHQ-9 to assess PPD due to the need for using 1 tool consistently across the hospital system. However, the EPDS was considered, and it was noted that the EPDS will replace the PHQ-9 in the future for postpartum women because it does not take into consideration somatic symptoms commonly experienced in pregnancy and postpartum. It additionally includes the assessment of anxiety which is very common in the postpartum period.</p>
Dagher et al., 2021	Perinatal Depression: Challenges and Opportunities	Literature Review	<p>-Prevalence rate of 17% for AND and 13% for PPD</p> <p>-Prevalence of self-reported PPD symptoms was higher among the following compared to white women (11.4%)</p> <ul style="list-style-type: none"> <li>• American Indian/Alaskan Native (22%)</li> <li>• Asian/Pacific Islander (19.2%)</li> <li>• Black women (18.2%)</li> </ul> <p>-Causes of PND are multifactorial and strong associations include:</p> <ul style="list-style-type: none"> <li>• History of depression/AND and antenatal anxiety</li> </ul>	<p>Provides data to understand the scope of the problem and the need for improving screening practices.</p> <p>Highlights the importance of identifying those at risk and properly screening perinatal women to improve detection rates and prevent adverse consequences for mom and baby.</p> <p>Confirms that the EPDS is an</p>

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
			<ul style="list-style-type: none"> <li>• Neurotic personality</li> <li>• Low self esteem</li> <li>• Maternity blues</li> <li>• Stressful life events</li> <li>• Poor marital status</li> <li>• Unintended pregnancy</li> <li>• Obstetrical stressors</li> <li>• Infant with difficult temperament</li> </ul> <p>-Health consequences to mother and offspring include:</p> <ul style="list-style-type: none"> <li>• Prematurity, low birth weight, increased rate of preeclampsia, spontaneous abortion</li> <li>• Lower rates of breastfeeding, impaired maternal infant bonding, two fold increase in childhood mental disorders</li> <li>• Suicide – up to 20% of maternal mortality</li> </ul> <p>-50-70% of women with PD are undetected and underdiagnosed, and nearly 85% go untreated. Could be due to:</p> <ul style="list-style-type: none"> <li>• Overlap of somatic symptoms</li> <li>• Routine screening is not standard practice</li> <li>• Stigma, cultural factors, fear of side effects from antidepressants, limited access to mental healthcare</li> </ul> <p>-EPDS is the most frequently utilized screening instrument due to its brevity, exclusion of constitutional symptoms, and inclusion of anxiety symptoms -IPT and CBT are effective at reducing depressive symptoms</p>	effective tool to identify PD
Johnson et al., 2021	Systematic Screening for Perinatal Mood and Anxiety Disorders to Promote Onsite Mental Health Consultations:	A Quality Improvement Project Review	-The authors implemented a QI initiative to implement a systematic screening guideline during the prenatal and postpartum periods to promote screening all women during the first and third	The authors report that the successful implementation of this project depended largely upon buy in from staff in which the authors

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
	A Quality Improvement Report		<p>trimester, and postpartum</p> <ul style="list-style-type: none"> <li>-The PHQ-9 was administered during the first trimester, while the EPDS was used during the third trimester and 2 to 8 weeks postpartum follow up</li> <li>-Additionally, they provided onsite mental health consultations for women who screened positive to expedite access to care and improve patient outcomes</li> <li>-They found screening rates increased from 24.9% to 64.2% at the perinatal intake visit and in the third trimester from 0.3% to 32.8%</li> <li>-Mental health consultations increased from 7.2% to 15.2%</li> <li>-They found that a systematic screening approach paired with onsite mental health consultation is an effective method for identifying at risk women and providing essential, convenient maternal mental health care, all while minimizing the strain on perinatal care providers</li> </ul>	<p>provided preimplementation education on the importance of PMAD screening</p> <p>The screening tools are fast and easy to use</p> <p>This confirms that educating providers on the importance of PMADs and screening increases perceived benefit and frequency of screenings using appropriate tools like the EPDS that can be self-administered and do not cause time constraints on providers</p>
Lamere & Golova, 2022	Screening for Postpartum Depression During Infant Well Child Visits: A Retrospective Chart Review	Retrospective Chart Review	<ul style="list-style-type: none"> <li>-Statewide quality improvement project to screen for PPD at well child visits through the first year of life</li> <li>-Highest prevalence of positive EPDS was at the 4-month visit as mothers return to work and family support availability lessens</li> <li>-Increased positive screens in mothers with history of depression or other mental health conditions and low socioeconomic status</li> <li>-Screening rates significantly increased at all recommended well child visits</li> <li>-81.6% who scored positive had a follow up action documented in the chart and follow up was most likely to occur at the 2-month visit</li> </ul>	<p>The study provided education on PPD regarding signs and symptoms and the impact on infants</p> <p>Confirms the need to educate providers on risk factors for PPD and the EPDS to identify positive screenings requiring further evaluation</p> <p>Confirms that providers need to be confident in their ability to screen for PPD due to the peak prevalence at 4 months postpartum and women seeking help outside the 6-week postpartum visit</p>

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
Liu et al., 2024	Comparison of the EPDS and PHQ-9 in the assessment of depression among pregnant women: Similarities and differences	Cross Sectional Study	<ul style="list-style-type: none"> <li>-Detection rate of prenatal depression using the EPDS was 30.2% and 28.2% using the PHQ-9</li> <li>-The most central symptom in the EPDS network was “sad or miserable”</li> <li>-The most central symptom in the PHQ-9 was fatigue</li> <li>-For both scales, “sad” was the most important symptom</li> <li>- Psychological symptoms may be more influential in assessing depression using the EPDS</li> <li>-Physical symptoms may be more influential in assessing for depression using the PHQ-9</li> </ul>	<p>Confirms the need to educate providers on the EPDS as an additional tool to use in practice when evaluating perinatal women due to its potential higher detection of perinatal depression and unique format of assessing for psychological symptoms of depression and anxiety while minimizing emphasis on somatic symptoms that may coincide with the normal perinatal symptoms</p>
Moore Simas et al., 2023	Postpartum depression- New screening recommendations and treatments	Literature Review	<ul style="list-style-type: none"> <li>-Perinatal depression affects 1 in 7 perinatal women</li> <li>-Perinatal depression is underdetected and undertreated: &gt;75% of those who screen positive receive no treatment</li> <li>-Depression screening is recommended during pregnancy, postpartum, at well child visits, and well-woman visits</li> <li>-2 most widely used screeners are PHQ-9 and EPDS</li> <li>-PHQ-9 and EPDS are used for symptom monitoring to guide treatment</li> <li>-1 in 5 women who screen positive for perinatal depression may have bipolar disorder: must rule out bipolar</li> <li>-Psychotherapy is first line treatment for mild depression</li> <li>-Pharmacotherapy for moderate to severe – hesitancy to treat due to effects on fetus</li> <li>-Undertreatment can lead to preterm birth, low birth weight, preeclampsia, impaired bonding affecting neurodevelopment, challenges with support systems, and suicide</li> <li>-SSRI/SNRI most commonly prescribed</li> <li>-Brexanolone approved in 2019 for moderate to</li> </ul>	<p>Underpins the significance of postpartum depression and the existing problems with underscreening and undertreating</p> <p>Offers recommendations and guidelines for screening and treating perinatal depression including pharmacotherapy and resources to assist in the process</p> <p>Confirms the need to educate providers on the significance of perinatal depression and the need to properly screen, diagnose and treat to improve perceived benefit and increase confidence and knowledge surrounding this disorder</p>

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
			severe depression in 3 <sup>rd</sup> trimester or within 4 weeks postpartum Significant improvement in depression symptoms within 24 hours 60 hour IV infusion, inpatient admission required, costs more the \$34000 per patient to treat -Zuranolone approved in 2023 for postpartum depression Oral nightly pill for 14 days Symptom improvement as early as 3 days lasting 45 days Limited data on follow up needs, long term remission, and insurance coverage -Perinatal Psychiatry Access Programs: new model to help any clinician caring for perinatal women to address mental health concerns Training and tool kits Clinician to clinician telephone psychiatric consultation Linkages to community mental health resources Technical assistance to integrate mental health care into workflow	
Park & Kim, 2023	Predictive validity of the Edinburgh postnatal depression scale and other tools for screening depression in pregnant and postpartum women: a systematic review and meta-analysis	Systematic Review and Metal Analysis	-1831 pregnant women from 9 studies <ul style="list-style-type: none"> <li>• Pooled sensitivity and specificity of the EPDS were 0.81 and 0.87 respectively</li> </ul> -515 Postpartum women <ul style="list-style-type: none"> <li>• Pooled sensitivity and specificity of the EPDS 0.79 and 0.92 respectively</li> </ul> -EPDS compared to PHQ-9 <ul style="list-style-type: none"> <li>• sROC curve of EPDS (0.86)</li> <li>• sROC curve of PHQ-9 (0.74)</li> </ul> -For EPDS, pooled sensitivity was slightly higher in pregnant women and pooled specificity was slightly higher in postpartum women	Confirms the need to educate providers on the importance of using the EPDS for both pregnant and postpartum women to screen for depression as the EPDS may provide more predictive validity than other depression screening tools

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
			<ul style="list-style-type: none"> <li>• EPDS is suitable for both depression during postpartum and pregnancy</li> </ul>	
Perazzo et al., 2024	Improving parental mental health in the perinatal period: A review and analysis of quality improvement initiatives	Quality Improvement Initiatives Review and Analysis	<p>-A review on the effect of PMADs on parents and their offspring and how quality improvement interventions can increase screening, referral, and treatments</p> <p>-PPD prevalence of 13%</p> <p>-Onset of PPD can occur anytime within the first year after birth</p> <p>-Risk factors include</p> <ul style="list-style-type: none"> <li>• Parents of preterm infants: 40% suffer from depression, 48% anxiety, and up to 49% PTSD</li> <li>• Low social support, intimate partner violence, single parent, marital discord</li> <li>• History of mental health disorder</li> <li>• Rate of PPD is higher among Black and Hispanic women and are less likely to be diagnosed and have barrier to access of care</li> </ul> <p>-Mothers with postpartum depression had depression more than one year later and anxiety up to 3.5 years later</p> <p>-Long term effects on infants</p> <ul style="list-style-type: none"> <li>• Higher rates of depression, anxiety, behavioral disorders</li> <li>• Social, emotional, and intellectual problems</li> </ul> <p>-Barriers to screening and diagnosis that clinicians report</p> <ul style="list-style-type: none"> <li>• Time constraints, funding, inadequate training in diagnosis and counseling, lack of parent educational resources</li> </ul> <p>-Successful interventions identified from several published QI initiatives to improve screening and referral for PMADs include:</p>	<p>Confirms that providing education to providers about PMADs and using a standardized screening tool (most commonly the EPDS) is a critical intervention to improve provider confidence to successfully screen for these disorders</p> <p>Also highlights the importance and perceived benefit of screening for and identifying PMADs to prevent complications by recognizing prevalence, onset, risk factors, and potential adverse consequences of untreated PMADs</p>

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
			<ul style="list-style-type: none"> <li>• Provider education</li> <li>• Standardized use of validated screening tool- EPDS</li> <li>• Development of screening guidelines</li> <li>• Audit tool-flag in EHR</li> <li>• Follow up phone calls for positive screens</li> <li>• Dissemination of the screening tool prior to encounter</li> <li>• Patient education and resources referral list</li> </ul>	
Rossi & Radney, 2022	Diagnosis and management of perinatal depression	Literature Review	<p>-Depression symptoms may last 3 years postpartum and increase risk of future major depressive episodes</p> <p>-The article highlights the risk factors and adverse consequences associated with perinatal depression</p> <p>-PD more likely to occur in women of color and ethnic minorities exposed to racial discrimination</p> <p>-Diagnosis of PD begins with screening</p> <p>-4 most common screening tools for PD include:</p> <ul style="list-style-type: none"> <li>• Edinburgh Postnatal Depression Scale: most commonly used in perinatal care – designed specifically to detect depression in pregnant and postpartum women. Also validated for male PPD</li> <li>• Postpartum Depression Screening Scale: validated for postpartum and antepartum depression disorders</li> <li>• Patient Health Questionnaire: comparable accuracy to EPDS in identifying PPD when compared to unstructured clinical diagnosis</li> <li>• Beck Depression Inventory II: measures depression severity. BDI-II score may overstate depression symptoms in postpartum individuals because it assesses moods and behaviors normally seen in this population</li> </ul> <p>-Follow up screening and continued monitoring of</p>	<p>Highlights the importance and perceived benefit of screening for and identifying PMADs to prevent complications by recognizing prevalence, onset, risk factors, and potential adverse consequences of untreated PMADs</p> <p>Confirms the need to educate providers specifically on the EPDS as it is the most used tool to identify PD</p>

Citation Information	Title of Document or Instrument	Type of Evidence	Main Outcomes of Findings	Relevance to Project
			<p>those diagnosed with PD</p> <ul style="list-style-type: none"> <li>-CBT is first line treatment for PD – usually paired with pharmacological treatment because CBT takes times to be effective</li> <li>-Sertraline is first line antidepressant due to low levels of Sertraline in breastmilk and not detected in serum of infants</li> <li>-Other treatment interventions include acupuncture, massage, meditation, exercise, and diet</li> <li>-Screening should be performed in family care, pediatric, and obstetric settings</li> </ul>	
Viguera, 2023	Postpartum depression: Adverse consequences in mothers and their children	Literature Review/Evidence-Based Clinical Resource	<p>-A review of adverse consequences of PPD in mothers and their children</p> <p>-Consequences for mother</p> <ul style="list-style-type: none"> <li>• Impaired bonding with infant- less likely to tell stories or play</li> <li>• Marital discord</li> <li>• Suicidality- leading cause of death during postpartum, although very rare (1 to 5 in 100,000)</li> <li>• Thoughts of harming baby</li> <li>• Recurrent depressive episodes occur in 40-50% of women</li> </ul> <p>-Consequences for offspring</p> <ul style="list-style-type: none"> <li>• Lower rates of breastfeeding</li> <li>• Developmental disturbances- poor growth, smaller total gray matter volumes</li> <li>• Difficult temperament</li> <li>• Problematic sleeping patterns</li> <li>• Issues with emotional regulation and social behavior/competence</li> <li>• Attachment issues – insecure attachment</li> <li>• Cognitive impairment- deficits in executive functioning, intelligence, poorer/delayed</li> </ul>	<p>Highlights the importance of the topic related to adverse consequences of undiagnosed and untreated PD</p> <p>Confirms the need to educate providers on the importance of properly screening for PD to promote early identification and treatment to prevent adverse consequences</p>

<b>Citation Information</b>	<b>Title of Document or Instrument</b>	<b>Type of Evidence</b>	<b>Main Outcomes of Findings</b>	<b>Relevance to Project</b>
			language skills <ul style="list-style-type: none"><li>• Externalizing and internalizing psychopathology- oppositional defiant disorder, conduct disorder, anxiety, depression, ADHD</li></ul>	

## References

- Accortt, E.E, Haque, L., Bamgbose, O., Buttle, R., & Kilpatrick, S. (2022). Implementing an inpatient postpartum depression screening, education, and referral program: a quality improvement initiative. *American Journal of Obstetrics & Gynecology MFM*, 4(3), 100581–100581. <https://doi.org/10.1016/j.ajogmf.2022.100581>
- American Association of Colleges of Nursing. (AACN). (2006). *The essentials of doctoral education for advanced nursing practice*. <https://www.aacnnursing.org/portals/42/publications/dnpessentials.pdf>
- American College of Obstetricians and Gynecologists. (ACOG). (2023). Screening and diagnosis of mental health conditions during pregnancy and postpartum: ACOG clinical practice guideline No. 4. *Obstetrics and Gynecology*, 141(6), 1232-1261. <https://doi.org/10.1097/AOG.0000000000005200>
- America’s Health Rankings. (n.d.). *Postpartum depression in Arizona*. United Health Foundation. [https://www.americashealthrankings.org/explore/measures/postpartum\\_depression/AZ](https://www.americashealthrankings.org/explore/measures/postpartum_depression/AZ)
- American Psychological Association. (APA). (n.d.). *Edinburgh postnatal depression scale*. APA PsycTests. <https://doi.org/10.1037/t01756-000>
- Andrade, C. (2020). Sample size and its importance in research. *Indian Journal of Psychological Medicine*, 42(1), 102–103. [https://doi.org/10.4103/IJPSYM.IJPSYM\\_504\\_19](https://doi.org/10.4103/IJPSYM.IJPSYM_504_19)
- Byatt, N., Carter, D., Deligiannidis, K.M., Epperson, C.N., Meltzer-Brody, S., Payne, J.L., Robinson, G., Silver, N.E., Stowe, Z., Van Niel, M.S., Wisner, K.L., & Yonkers, K.A. (2018). *Position statement on screening and treatment of mood and anxiety disorders during pregnancy and postpartum*. American Psychiatric Association. <https://www.psychiatry.org/getattachment/c5db4e7b-6405-4655-aecb-bc79d5efb4ea/Position-Screening-and-Treatment-Mood-Anxiety-Disorders-During-Pregnancy-Postpartum.pdf>
- Champion, V. L. & Skinner, C. S. (2008). The health belief model. In K. Glanz, B.K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 45-65). John Wiley & Sons, Inc.
- Cohen, J. L., & Daw, J. R. (2021). Postpartum cliffs—Missed opportunities to promote maternal health in the United States. *JAMA Health Forum*, 2(12), e214164–e214164. <https://doi.org/10.1001/jamahealthforum.2021.4164>
- Cox, J., Holden, J., & Sagovsky, R. (1987). Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry*, 150(6), 782–786. <https://doi.org/10.1192/bjp.150.6.782>

- Dagher, R.K., Bruckheim, H.E., Colpe, L.J., Edwards, E., & White, D.B. (2021). Perinatal depression: Challenges and opportunities. *Journal of Women's Health, 30*(2), 154-159. <https://doi.org/10.1089/jwh.2020.8862>
- Denova. (n.d.). *About us*. <https://www.denova.com/about/>
- Dunn, H. (2024). Ethical decision-making: exploring the four main principles in nursing. *Nursing Standard, 39*(8), 53-57. <https://doi.org/10.7748/ns.2024.e12346>
- Institute for Healthcare Improvement. (IHI). (n.d.). *How to improve: Model for improvement*. <https://www.ihl.org/resources/how-improve-model-improvement>
- Janz, N.K., & Becker, M.H. (1984). The health belief model: A decade later. *Health Education Quarterly, 11*(1), 1-47. <https://doi.org/10.1177/109019818401100101>
- Johnson, A., Stevenson, E., Moeller, L., & McMillian-Bohler, J. (2021). Systematic screening for perinatal mood and anxiety disorders to promote onsite mental health consultations: A quality improvement report. *Journal of Midwifery & Women's Health, 66*(4), 534-539. <https://doi.org/10.1111/jmwh.13215>
- Lamere, K., & Golova, N. (2022). Screening for postpartum depression during infant well child visits: A retrospective chart review. *Clinical Pediatrics, 61*(10), 699-706. <https://doi.org/10.1177/00099228221097272>
- Liu, W., Li, W., Wang, Y., Yin, C., Xiao, C., Hu, J., Huang, L., Huang, F., Liu, H., Chen, Y., & Chen, Y. (2024). Comparison of the EPDS and PHQ-9 in the assessment of depression among pregnant women: Similarities and differences. *Journal of Affective Disorders, 351*, 774-781. <https://doi.org/10.1016/j.jad.2024.01.219>
- Maternal Mental Health Leadership Alliance. (2023). *Suicide and overdose are the leading cause of death for new mothers; Screening could change this*. <https://tinyurl.com/3j8b67ht>
- Mental Health America. (2024). Access to care. In *The State of Mental Health in America*. <https://mhanational.org/the-state-of-mental-health-in-america/data-rankings/access-to-care/>
- Moore Simas, T.A., Whelan, A., & Byatt, N. (2023). Postpartum depression—New screening recommendations and treatments. *JAMA: The Journal of the American Medical Association, 330*(23), 2295-2296. <https://doi.org/10.1001/jama.2023.21311>
- Park, S.H. & Kim, J.I. (2023). Predictive validity of the Edinburgh postnatal depression scale and other tools for screening depression in pregnant and postpartum women: a systematic review and meta-analysis. *Archives of Gynecology and Obstetrics, 307*(5), 1331-1345. <https://doi.org/10.1007/s00404-022-06525-0>
- Perazzo, S. I., Hoge, M. K., Shaw, R. J., Gillispie-Bell, V., & Soghier, L. (2024). Improving parental mental health in the perinatal period: A review and analysis of quality

- improvement initiatives. *Seminars in Perinatology*, 48(3), 151906–151906.  
<https://doi.org/10.1016/j.semperi.2024.151906>
- Ramirez G.M., Davidson, S., Perez, A., Glidden, M., Rubio, V., Rouamba, A., & Celaya, M.F. (2024). *Maternal mortality in Arizona, 2018-2019*. Arizona Department of Health Services. <https://www.azdhs.gov/documents/prevention/womens-childrens-health/reports-fact-sheets/mm-2018-2019.pdf?v=20240327>
- Rosenman, R., Tennekoon, V., & Hill, L.G. (2011). Measuring bias in self-reported data. *International Journal of Behavioural & Healthcare Research*, 2(4), 320-332.  
<https://doi.org/10.1504/IJBHR.2011.043414>
- Rossi, N. M., & Radney, L. (2022). Diagnosis and management of perinatal depression. *Nursing for Women's Health*, 26(4), 318–330.  
<https://doi.org/10.1016/j.nwh.2022.05.007>
- U.S. Food & Drug Administration. (2019). *Institutional review boards (IRBs) and protection of human subjects in clinical trials*. <https://www.fda.gov/about-fda/cder-offices-and-divisions/institutional-review-boards-irbs-and-protection-human-subjects-clinical-trials>
- U.S. Preventive Services Task Force. (2023). *Depression and suicide risk in adults: Screening*.  
<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/screening-depression-suicide-risk-adults#:~:text=Recommendation%20Summary&text=The%20USPSTF%20recommends%20screening%20for,as%20well%20as%20older%20adults.&text=The%20USPSTF%20concludes%20that%20the,as%20well%20as%20older%20adults>.
- Viguera, A. (2023). Postpartum depression: Adverse consequences in mothers and their children. *UpToDate*. [https://www-uptodate-com.ezproxy2.library.arizona.edu/contents/postpartum-depression-adverse-consequences-in-mothers-and-their-children?search=postpartum%20depression%20adverse%20effects&source=search\\_result&selectedTitle=1%7E150&usage\\_type=default&display\\_rank=1](https://www-uptodate-com.ezproxy2.library.arizona.edu/contents/postpartum-depression-adverse-consequences-in-mothers-and-their-children?search=postpartum%20depression%20adverse%20effects&source=search_result&selectedTitle=1%7E150&usage_type=default&display_rank=1)