

**Postpartum Depression Screening in the Pediatric Emergency Department**

by

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### Abstract

**Problem:** The Pediatric Emergency Department at an academic tertiary care center does not routinely screen mothers for postpartum depression, despite 60% of Maryland mothers reporting signs and symptoms, with only 8% receiving formal diagnosis and treatment. Undiagnosed, thus untreated postpartum depression has negative impacts not only for the mother but also for children which can last from infancy through adulthood, and ultimately lead to more emergency department visits for both the mother and child.

**Purpose:** The purpose of this quality improvement project was to implement postpartum depression screening using the Edinburgh Postnatal Depression Scale (EPDS) to mothers of children under 12 months of age who present to the pediatric emergency department and provide referrals for formal diagnosis and treatment to those who screen positive.

**Methods:** Postpartum depression screening using the EPDS was implemented in a pediatric emergency department over 15 weeks. The tool was administered to biological mothers of patients less than 12 months of age, who were not critically ill at presentation. The nurse collected and scored the tool, inputting the results into the electronic health record using a dot phrase. A positive screen was a score  $\geq$  to 10 or a positive answer to the suicidal ideation question. If a positive screen was detected, a social work referral was completed. The social worker evaluated and provided mental health resources for the mother. Weekly chart audits were completed to track compliance and positivity rates.

**Results:** 250 mothers were screened using the EPDS. Compliance with screening was 60%, with 97% of positive screens receiving a social work referral. 38 (17%) of the completed screens were positive. Of the positive screens, 6 (16%) mothers reported suicidal ideations.

**Conclusions:** Screening for postpartum depression using the EPDS in the pediatric emergency department is feasible. It is also an opportune setting for identifying at-risk mothers and providing mental health resources due to the availability of social work and psychiatric emergency services.

### **Postpartum Depression Screening in the Pediatric Emergency Department**

Postpartum depression (PPD) was not recognized as a mental health disorder by the American Psychiatric Association until 1994, however women and their children have been suffering from its impacts for centuries (American Psychiatric Association, 2000). Healthcare costs associated with PPD are 90% higher as compared to women who do not have the diagnosis and can be attributed to mental health and emergency department services by both the mother and child (Earls et al., 2019). In the U.S. it is estimated that one in eight women experience symptoms of PPD (Centers for Disease Control and Prevention, 2020). In Maryland, nearly 60% of mothers have reported signs and symptoms of postpartum depression, while only 8% received a formal diagnosis and treatment (Maryland Department of Health, 2014).

Undiagnosed, thus untreated PPD has negative effects on both the mother and her child/family through infancy and beyond including premature discontinuation of breastfeeding, delayed development, emotional and behavioral problems, delays in cognitive and speech development, an increased risk of developing attention deficit hyperactivity disorder and depression in adolescence (Mgonja & Schoening, 2016). Currently, the pediatric emergency department (PED) of a large, tertiary care, academic medical center does not routinely screen mothers for PPD. However, Jarvis et al. (2020) found that positive PPD screens in the PED can be as high as 27%, with nearly 7% of mothers reporting suicidal thoughts, and that infants of mothers who screened positive were more likely to have additional visits within the first six months of life.

The purpose of this quality improvement (QI) project was to implement postpartum depression screening using the Edinburgh Postnatal Depression Scale (EPDS) to mothers of

children under 12 months of age who presented to the PED and provide referrals for formal diagnosis and treatment to those who screen positive.

### **Literature Review**

A thorough review of the literature related to PPD screening in the PED was completed. The information is presented in an evidence review table (Table 1) and a synthesis table (Table 2). In total, there are five studies that examined PPD screening in pediatric settings that served as the basis for this QI project.

Emerson et al. (2014) conducted a level III prospective observational study that screened mothers in the PED using the EPDS. In this study, mothers were eligible for screening if their child was under four months of age. A positivity rate of 15.5% was found using a cut-off score of 10. A quality grade of B was assigned due to the sufficient sample size determined by a power analysis, generalizable results and clear conclusions.

Trost et al. (2016) also conducted a level III prospective observational study that implemented PPD screening using the EPDS in a pediatric medical-surgical unit. This study had the largest age group – screening mothers of children up to 12 months of age. With a cutoff score of 10, this study had the highest positivity rate – 28%. All mothers screened had their child admitted for less than 72 hours, making it unclear if stress due to hospitalization impacted the results. Since this study was not done in the PED, it is difficult to generalize these results despite the short hospitalization. A quality grade of B was assigned due to the sufficient sample size determined by power analysis, a significant literature review with discussion on limitations and definitive conclusions.

Birmingham et al. (2011) conducted a level III cross-sectional study that screened mothers for PPD in the PED using the EPDS screening tool. In addition to administering the

standard EPDS screening tool, a shorter 3-question version was also given to mothers to determine if it was as effective at detecting mothers at-risk for PPD. A cutoff score of 10 was used for the standard tool and the patient had to be under six months of age for the mother to be screened. A positivity rate of 23% was found, however there was no data collected regarding the number of women who had been screened previously. A quality grade of C was assigned as there was a sufficient sample size determined by power analysis, a comprehensive literature review, and definitive conclusions were given but recommendations for additional studies to determine if screening in the PED improved child health outcomes and overall quality of life was advised.

Jarvis et al. (2020) conducted a level IV pilot cohort study and found that 25% of mothers screened positive for PPD using the EPDS in the PED, with 10% reporting suicidal thoughts. In addition, they found that most of the mothers who screened positive had not been screened previously. A quality grade of C was assigned as there was no power analysis, making it unclear if the sample size was adequate.

Stock et al. (2013) conducted a level III prospective observational study that screened mothers in the PED using the EPDS. 16% of mothers screened positive, despite their cut-off score being 13, rather than 10 like the rest of the studies. Because of this difference, a quality score of B was assigned as it would be hard to generalize their findings, especially given that this study was completed in Australia. In this study, mothers were eligible for screening if their child was less than six months of age. It was also noted that over half of the mothers screened reported that they had never been screened previously.

Current evidence supports PPD screening in the PED as positivity rates are shown to be as high as 28% (Trost et al., 2016). The EPDS was the screening tool utilized as it has an 86% sensitivity, 76% specificity and is the most common tool used for PPD screening (Lorenzo et al.,

2017). A positive screen is defined as any score greater than or equal to 10 and/or a positive answer to the question addressing suicidal ideation. Similar to the studies reviewed, mothers who screen positive will receive a social work referral so that mental health resources can be provided for formal diagnosis and treatment as well as support groups in the community.

### **Theoretical Framework**

Beck's Theory of Postpartum Depression (Figure 1) is a middle range practice theory that was selected to better understand the practice problem of postpartum depression. This theory encompasses four stages: encountering terror, dying of self, struggling to survive, and regaining control (Beck, 1993). Each of these concepts are related, with emphasis that regaining control only happens after the woman has experienced one or more of the previous three concepts. The EPDS screening tool is a self-reporting tool completed by the mother, which includes a question about thoughts of self-harm – a concept specifically addressed in Beck's theory. With initiation of PPD screening in the PED, struggling mothers can be identified which enables them to start the "regaining control" concept and receive treatment if needed.

The Conceptual Framework of Complex Innovation Implementation (Figure 2) is the implementation process framework that was applicable for this QI project. Helrich et al. (2007) describes the components of this framework including management support, financial resource availability, implementation policies and practices, innovation-values fit, champions, implementation climate and implementation effectiveness. Innovation-values fit is the perceived fit between the innovation and organizational values which was applicable to this QI project as the identified site is part of the Baby Friendly Health Initiative that encourages mothers to breastfeed. PPD has been shown to cause premature discontinuation of breastfeeding, thus the organization will want to adopt this intervention as it will contribute to their Baby Friendly

recognition (Mgonja & Shoening, 2016). Unit champions were identified, who promoted the QI project with the organizational key stakeholders. The innovation-values fit, and champions contributed to the implementation climate which is defined as the perception of the innovation by the organizational members as a priority to the organization. Management support was crucial for the success of this QI project and communication with unit staff and social work was incorporated. Implementation policies and practices are formal organizational actions that ensure user skills, create incentives and/or identify and address barriers. To address this component, education during unit orientation and daily huddles was instituted throughout the implementation period. All aspects of this framework contributed to the final QI project implementation effectiveness, which is defined as the constancy and quality of innovation use.

### **Methods**

This QI project took place in a 20-bed PED of a large, tertiary care, academic medical center. On average, there are 33 patients under 12 months of age who are evaluated in the PED each week, with approximately 30 registered nurses who were available to administer and score the screening tool – alerting social work if a consult is necessary. The EPDS was available in English and Spanish (Appendices A and B). If the mother was illiterate, the registered nurse would verbally ask the questions on the screening tool to the mother and score the screen. An interpreter service (available 24/7) was utilized by the staff, if necessary.

Postpartum depression screening was implemented in the PED using the EPDS screening tool. All biological mothers of children under 12 months of age, who were triaged an emergency severity index (ESI) of 3, 4 or 5 were eligible. The mothers did have the choice to decline the screening. After the triage nurse assigned the ESI, a paper EPDS was given to the mother with a pencil to complete in the patient room or while in the waiting room. After completion, the



bedside nurse would collect and score it. A score greater than or equal to 10, the screen was considered a positive screen. Any positive answer to the suicidal ideation question (question 10) was an automatic positive screen. The bedside nurse entered the results into a dot phrase (Appendix D) within the electronic health record (EHR) and contacted social work via phone or by the organization's secure messaging system. Social work would then come to the bedside to speak with mother and provide the necessary mental health resources prior to discharge.

There were several structure, process, and outcome measures used to track implementation progress, along with implementation tactics adjusted as needed. Structure measures included staff education (social work, nursing, and physicians) and the creation of the dot phrase into the EHR. Unit champions were identified who assisted in educating and training the other staff members prior to implementation. One on one education was done with a return demonstration of how to score a completed EPDS screen. A staff roster of completed training was maintained. A dot phrase was created by the project lead and based on feedback from the nurses, checkboxes were added instead of free text for each item. Three process measures were tracked which included the nurse compliance with administering and scoring the EPDS screening tool, the positivity rate, and the rate of acutely suicidal mothers. Incentives for staff compliance included a group incentive as well as individual incentives for the nurse and social worker who complete the most screens and/or referrals. Visual aids (Appendix E) were displayed on all computers in the PED reminding staff to complete the screen. Throughout implementation, chart reviews and audits were done, and data was shared with the PED staff on a bi-weekly basis either via email or in staff huddles. Feedback was provided to identified staff members who inconsistently screened mothers, and solutions to the barriers identified were discussed/implemented. The outcome measure was the referral to social work. Tactics for this

measure included an assessment for readiness, staff feedback, providing an incentive, and providing data reports. This combination of tactics ensured that nurses contacted social work and social work provided the needed resources.

An excel sheet was utilized to track education of staff. This was updated with the addition of new staff members throughout the implementation period. Data collection was performed on a weekly basis via chart reviews. The reviewer used the completed dot phrase to obtain the needed data which included: completion of screen (if no, why?), the score, if there was a positive response to the suicidal ideation question, if social work was contacted (and if so, the name of the person), and nurse completing the screen. Nurses and social workers were assigned a pseudo identifier, which was linked to their name in a separate file. The pseudo-identifier was recorded on the data management spreadsheet (Appendix C). Run charts were created to identify any runs, shifts, or trends. All patient data collected was de-identified and kept on a password-secured laptop. All completed EPDS screens were stored in a folder within a badge-access only room on the unit and did not contain any identifying information. Once the reviewer collected the data each week, the completed screens were placed in the locked container to be shredded. Prior to implementation, the information was submitted to the institutional review board and received a non-human research designation.

### **Results**

A total of 250 mothers were screened over the 15-week implementation period. There was a total of 417 eligible mothers – making the screening compliance 60% (Figure 3). Of the 250 completed EPDS screens, 38 were positive (17%; Figure 4). 6 of these mothers answered positively to the question regarding suicidal thoughts – indicating that 16% of the positive

screens were acutely suicidal (Figure 5). Social work was able to provide resources to mothers who screened positive 97% of the time – with only one missed opportunity.

Throughout implementation, there were no significant trends or shifts for nurse compliance, social work referral compliance, positivity rate or rate of acutely suicidal mothers. However, a run above the median was noted between week 6 and 7 for nurse compliance, with an increase in compliance from 62% to 75%, only to drop in week 8 to 24%. This decline was reflective of 4 travel nurses starting on the unit who had not received education. After education was provided, the compliance increased to 63% the following week. A run was also noted for the positivity rate during weeks 4, 5, and 6 – all points occurring over the median of 5% positive. Social work referral compliance was 97%, indicating that no additional tactics were needed for this measure.

There were many unexpected barriers during the QI project implementation. The COVID-19 pandemic was a significant barrier as the PED experienced staff shortages in both nursing and social work. Social work reported that there were limited mental health appointments available within the community, as the demand for those appointments had significantly increased during the pandemic. Staff interviews were conducted to determine the barriers to screening compliance. The most common response was being too busy with their assignment to follow-up on completed screens. Nurses also reported that they would forget to document the score in the EHR, despite the screening being completed. As previously noted, there was a significant decrease in compliance when the unit suffered from high staff turnover. During this time, two of the unit champions resigned and multiple travel nurses started. An additional unit champion was identified and emphasis on education and re-education was completed. This did result in an increase in screening compliance. Another barrier identified was

the difficulty using paper screening. While the EPDS is a self-reporting tool, many staff reported that it would be easier if screening was completed electronically so that completed screens were not lost. This option was explored during the planning phase; however, it was determined that there was not enough time to secure the donation of tablets, install the technology and educate staff prior to the start of the project implementation. Currently, no registration or forms are completed electronically by the patient in the PED – only in ambulatory clinics throughout the organization.

### **Discussion**

This QI project was successful in identifying mothers with signs and symptoms of postpartum depression. Because the EPDS does not formally diagnose patients, a social work referral was required to provide outpatient mental health resources for formal diagnosis and treatment. This is easily achievable in the PED setting – where social workers are staffed 24 hours a day, 7 days a week. With the expertise of the social workers, mothers were able to be provided with resources based on their individual needs – whether it be mental health providers, support groups and/or assistance programs.

The results of this project are comparable to the current evidence of implementing EPDS screening in the PED. Positivity rates reported in the literature ranged from 15-28%; whereas this QI project had a positivity rate of 17%. It is possible that the positivity rate would differ if screening compliance was higher. The lower positivity rate may also be attributable to the age range of the eligible patient's mothers. In this project, the mother was eligible for screening if less than 12 months postpartum, while some studies used less than 6 months, or in one study less than 4 months postpartum. Only one study in the literature review reported on acutely suicidal

screens. That study had a 7% acutely suicidal screening rate – significantly lower than the results of this QI project which was 16%.

One factor that may have limited the internal validity of this QI project is the screening administration by the triage nurses. Despite visual reminders and storing the blank EPDS screens in the triage area, many of the triage nurses reported that they often forgot to provide the screen to the mother. After discussion with the triage nurses, many reported that the mother would do or say something that would remind the triage nurse to complete the screening. Examples include inattention to the crying child, fixation on a minor chief complaint/symptom, overbearing during triage nurse physical assessment, and inappropriate or soiled clothing. This unconscious bias may have limited the internal validity of this project especially given the low screening compliance.

### **Conclusion**

Screening for postpartum depression using the EPDS in the PED is achievable. At-risk mothers were identified, and social work was able to provide community and mental health resources to the identified mothers prior to discharge. Due to the availability of social work and psychiatric emergency services, the PED serves as an opportune setting for postpartum depression screening. Mothers were accepting of the screening, and those who screened positive were willing to speak with a social worker about the available resources within the community.

Measures are needed to ensure sustainability of postpartum depression screening in this setting. The most important sustainability measure would be integrating a best practice advisory into the EHR to remind nursing to complete the screening for eligible mothers. This integration should also include a drop box when the nursing staff selects screening completed to enter the score and answer the question regarding suicidal ideations. Any positive screen should result in

an automatic referral to social work – similar to other screenings done through the EHR in the PED.

Other settings considering implementation of PPD screening should ensure that the above sustainability tactics are available, including electronic completion of the EPDS screen by the mother. This will improve the ease of screening by decreasing the time required by nursing staff to manually evaluate completed screens and contact social work. Future QI projects are needed to determine use and satisfaction of resources provided to the at-risk mothers, which could be done by organizational administrators completing a follow-up phone call or email.

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depression in mothers bringing infants to the emergency department. *Archives of Disease in Childhood*, 98(1), 36-40. doi: 10.1136/archdischild-2012-302679

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Screening for maternal postpartum depression during infant hospitalizations. *Journal of Hospital Medicine*, 11(12), 840-846. doi:10.1002/jhm.2646



**Table 1**

*Evidence Review Table*

<b>Citation:</b> Stock, A., Chin, L., Babl, F. E., Bevan, C. A., Donath, S., & Jordan, B. (2013). Postnatal depression in mothers bringing infants to the emergency department. <i>Archives of Disease in Childhood</i> , 98(1), 36-40. doi: <a href="https://doi.org/10.1136/archdischild-2012-302679">10.1136/archdischild-2012-302679</a>					Level III
<b>Purpose / Hypothesis</b>	<b>Design</b>	<b>Sample</b>	<b>Intervention</b>	<b>Outcomes</b>	<b>Results</b>
<p>“To determine the prevalence of postnatal depression (PND) in mothers of young infants presenting to the emergency department (ED).”</p>	<p>Prospective, observational study</p>	<p><b>Sampling Technique:</b> Convenience</p> <p><b>Eligible Participants:</b> 236 mothers of infants aged 14 days to 6 months with an Australian Triage Scale (ATS) category of 3, 4 or 5 who presented to the ED when a social worker was available (Mon.-Fri. 0800-2200, Sat. &amp; Sun. 1400-2200).</p> <p><b>Excluded:</b> Australian Triage Scale (ATS) category of 1 or 2 due to time-critical conditions, mothers of infants less than 2 weeks old, non-English-speaking, previously enrolled mothers, and mothers seen by a doctor prior to being approached by researcher.</p>	<p><b>Control:</b> N/A</p> <p><b>Intervention:</b> Administer the Edinburg Postnatal Depression Scale (EPDS) screening tool to mother of infants 14 days to 6 months of age who presented to the ED and triaged with an ATS category of 3, 4, or 5.</p> <p><b>Intervention Fidelity (describe the protocol):</b> Researcher approached eligible mothers in the waiting room by using the tracker board. If the mother consented, she was given the EPDS and demographic questions to complete. The researcher would score the EPDS. A score greater than or equal to 13 was considered positive. If</p>	<p><b>Primary Outcomes:</b> EPDS score (score of greater than or equal to 13 was considered a positive screen).</p> <p><b>Secondary Outcomes:</b> Reasons for presenting to the ED, number of women who had not been previously screened, answered positively to question 10, had a positive screen and accepted a social work assessment, screened positive and declined a social work assessment, and accepted a referral from social work to community services.</p> <p><b>Measurement Tool:</b> EPDS is a 10-item self-report questionnaire, where each item has four options, scored from 0 to 3. Total scores range from 0 to</p>	<p><b>EPDS Scores:</b> Scores ranged from 0 to 26. Mean score of 7.7 (SD 5.5; median 6 [IQR 4-10.5]). 16% of mothers screened positive (95% CI 11.2% to 21.8%). Within the positive group, the mean score was 17.5 (SD 3.8) and the median was 17 (IQR 14-21).</p> <p><b>Reason for Presentation:</b> 16% were for respiratory concerns, 11% were for fever. Of the positive screens, 16% of the infants presented with a chief complaint of crying baby.</p> <p><b>Previous Screening:</b> 53% of the mothers had not been previously screened</p> <p><b>Referral:</b> 8 of the 32 mothers who screened</p>

		<p><b>Accepted:</b> 200 (88% participation rate)</p> <p><b>Power Analysis:</b> Sample size determined to be 200 based on a 10% community prevalence of PND; 95% CI between 6% and 14%.</p> <p><b>Group Homogeneity:</b> N/A</p> <p><b>Demographic Info:</b> Mean infant age of 3.6 months, mean maternal age of 30.9 years (range 17-43; 53% between the age of 30 and 39). 60% of mothers had a vaginal delivery. Only 7% reported to be a single parent. 52% were university educated.</p>	<p>the mother had a positive screen, or if she answered positively to the suicidal ideation question (question 10), the doctor was informed, and a social work assessment was offered. If the social work assessment was declined, the doctor would address the positive screen during his/her consultation. All mothers were offered a maternal care pack, regardless if they consented to the study or not.</p>	<p>30. A score greater than or equal to 13 was considered positive. A positive answer to the suicidal ideation question (question 10) is an automatic positive screen. Sensitivity of 86% and specificity of 76%, however it is not a validated diagnostic tool, only a screening tool (Lorenzo et al., 2017).</p>	<p>positive declined consultation with a social worker – 5 stated that they were already receiving treatment. Social work referred 56% of the interviewed (24 from the positive group and 3 from the negative group) to community services.</p> <p><b>Suicidal Ideation:</b> 7 of the 168 women with a negative screen answered positively to question 10 (4%, 95% CI 1.7%-8.4%).</p>
<p><b>Citation:</b> Emerson, B., Bradley, E., Riera, A., Mayes, L., &amp; Bechtel, K. (2014). Postpartum depression screening in the pediatric emergency department. <i>Pediatric Emergency Care, 30</i>(11), 788-792. doi: <a href="https://doi.org/10.1097/PEC.0000000000000260">10.1097/PEC.0000000000000260</a></p>					<p>Level III</p>
Purpose / Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“This study aimed to determine the prevalence of and risk factors for postpartum depression (PPD) in mothers of young infants presenting to the pediatric emergency department (PED).”</p>	<p>Prospective, observational study</p>	<p><b>Sampling Technique:</b> Convenience</p> <p><b>Eligible Participants:</b> 223 mothers with infants under 4 months of age who presented to the tertiary care PED</p>	<p><b>Control:</b> N/A</p> <p><b>Intervention:</b> EPDS screening tool given to mothers who qualified for study. Additional information collected included socioeconomic, demographic and child</p>	<p><b>Primary Outcome:</b> Score of the EPDS (greater than or equal to 10 was considered a positive score).</p> <p><b>Secondary Outcomes:</b> scores of the EPDS subscales (anxiety,</p>	<p><b>EPDS Scores:</b> Scores ranged from 0-25 with a mean score of 5.24. Thirty-one mothers screened positive, making the prevalence 15.5%. Of the positive screens, the mean score was 13.6. Only 3 of the 31 mothers who</p>

		<p><b>Excluded:</b> Patients without biological mother present, if the mother was unable to complete the form in English or Spanish, or those who declined enrollment.</p> <p><b>Accepted:</b> 200 mothers</p> <p><b>Power analysis:</b> Sample size determined to be 200 based on an estimated 15% prevalence of PPD in similar populations, providing a 95% confidence interval between 10% and 20%.</p> <p><b>Group Homogeneity:</b> N/A</p> <p><b>Demographic Info:</b> Mean maternal age was 26.8 years (range 15-41). 90 (45%) were first-time mothers. 22 (11%) were primarily Spanish speaking. Majority of participants (89%) had a high school diploma or higher education.</p>	<p>temperament information.</p> <p><b>Intervention fidelity (describe the protocol):</b> Study personnel identified all potential participants and administered the EPDS screening tool to mothers who presented to the PED with their child under 4 months of age, who were not critically ill. If the mother scored greater than or equal to 10, she was offered a social work consult and was given mental health resources. Mothers who screened positive were contacted via telephone one month later by a member of the study team to assess their current mood, use of resources, and need for further support.</p>	<p>depression and mini screen)</p> <p><b>Measurement tool:</b> EPDS is a 10 question Likert scale, self-reported PPD screening tool. The maximum score is 30, and a score over 10 is considered positive. Sensitivity of 86% and specificity of 76%, however it is not a validated diagnostic tool, only a screening tool (Lorenzo et al., 2017).</p>	<p>screened positive opted for social work/psychiatric evaluation.</p>
<p><b>Citation:</b> Trost, M., Molas-Torreblanca, K., Man, C., Casillas, E., Sapir, H., &amp; Schragger, S. (2016). Screening for maternal postpartum depression during infant hospitalizations. <i>Journal of Hospital Medicine</i>, 11(12), 840-846. doi:<a href="https://doi.org/10.1002/jhm.2646">10.1002/jhm.2646</a></p>					<p>Level III</p>
<p><b>Purpose / Hypothesis</b></p>	<p><b>Design</b></p>	<p><b>Sample</b></p>	<p><b>Intervention</b></p>	<p><b>Outcomes</b></p>	<p><b>Results</b></p>

<p>“We aimed to assess for postpartum depression at infant hospitalization and examine postpartum depression risk factors in this population.”</p>	<p>Prospective, observational study</p>	<p><b>Sampling Technique:</b> Convenience</p> <p><b>Eligible Participants:</b> 366 Mothers of infants &lt;1 year of age admitted to the medical-surgical unit and assigned to the pediatric hospitalist team.</p> <p><b>Excluded:</b> Mothers under 18 years of age. Mothers unable to speak and/or read English or Spanish. Mothers of infants &lt; 2 weeks of age. Mothers of infants who had already been hospitalized for &gt;72 hours were also excluded.</p> <p><b>Accepted:</b> 310 mothers</p> <p><b>Power analysis:</b> priori power analysis determined a sample size of 310 mothers was required to estimate the rate of PPD with 5% precision and 95% confidence level if assuming an estimated prevalence of 27.9% based on prior studies.</p>	<p><b>Control:</b> N/A</p> <p><b>Intervention:</b> Mothers completed demographic forms about their selves and their infants. 4 item Likert scale assessed self-perceived support from family. 10 item checklist was done on past mental health problems. Next, a maternal-infant bonding (MIB) scale was completed by the mother. Finally, the Edinburg Postnatal Depression Scale (EPDS) was given to the mothers to complete.</p> <p><b>Intervention fidelity (describe the protocol):</b> If the mother scored 10 or higher on the EPDS they were considered a positive screen. All mothers who screened positive had a social work consult. All social workers were educated on the study prior to implementation which included an educational handout, a referral sheet, and online resources for local</p>	<p><b>Primary:</b> Rate of PPD in this specific population and proportion of women previously unscreened who could be captured by inpatient screening.</p> <p><b>Secondary:</b> Proportion of women with poor maternal-infant bond. Identify maternal or infant factors associated with positive PPD screening. Determine if in-hospital interventions resulted in formal PPD diagnosis, use of recommended referrals, improved maternal-child bond and decreased symptoms of depression over time.</p> <p><b>Measurement tool:</b> EPDS is a 10 question Likert scale, self-reported PPD screening tool. The maximum score is 30, and a score over 10 is considered positive. Sensitivity of 86% and specificity of 76%, however it is not a validated diagnostic tool, only a screening tool (Lorenzo et al., 2017). MIB</p>	<p><b>Rate &amp; Screening of PPD:</b> 87 (28%) mothers were EPDS+. 14.6% of mothers had appropriate prior screening</p> <p><b>MIB:</b> Higher EODS scores were associated with higher (worse) MIB scores (p &lt; 0.001)</p> <p><b>Maternal Factors:</b> potential risk factors for positive screens were poor social support (OR: 3.58; 95% CI: 1.95-6.59) and history of a prior psychiatric diagnosis (OR: 5.07; 95% CI: 2.65-9.72). No difference in maternal age, relationship status, breastfeeding rates or number of children or people living in the home.</p> <p><b>Infant Characteristics:</b> Infants of EPDS+ mothers were more likely hospitalized for neurologic illness (P = 0.008)</p> <p><b>Follow Up:</b> 10 of 21 (48%) mothers who screened EPDS+ later</p>
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		<p><b>Group Homogeneity:</b> N/A</p> <p><b>Demographic Info:</b> Average age of 28.17 years. 68.3% were Hispanic/Latina. 45.2% were married. Average infant age of 4.24 months old, 81.9% were born term (&gt;37 weeks) and 64.8% were previously healthy.</p>	<p>mental health clinics accepting PPD patients and helpline numbers. Any mother who answered “Yes, quite often” or “Sometimes” or “hardly ever” to the statement “The thought of harming myself has occurred to me” would be interviewed and treated per a suicidality operating protocol. All mothers enrolled were contacted via telephone at 3 and 6 months post enrollment to be rescreened using the EPDS and MIB tools. Mothers who screened positive again or newly positive were provided counseling and referral via phone.</p>	<p>questionnaire has been proven valid and reliable. One study showed Cronbach’s alpha coefficients were 0.879 and 0.584, respectively (Ohara et al., 2016).</p>	<p>screened negative. 70% of those mothers reported talking with their physician or using provided referral resources in the interim. Mothers utilizing appropriate follow-up had reduction in scores compared to those not (F(1,19) = 5.743, P = 0.027). All scores decreased over time (F(1,19) = 11.54, P = 0.0030). Two (33%) mothers who converted from EPDS- to EPDS+ had infants readmitted in the follow-up period.</p>
<p><b>Citation:</b> Jarvis, L. R., Breslin, K. A., Badolato, G. M., Chamberlain, J. M., &amp; Goyal, M. K. (2020). Postpartum depression screening and referral in a pediatric emergency department. <i>Pediatric Emergency Care</i>, 36 (11), e626-e631. doi: <a href="https://doi.org/10.1097/PEC.0000000000001499">10.1097/PEC.0000000000001499</a></p>					<p>Level IV</p>
Purpose / Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“To determine the (1) proportion of screened postpartum depression (PPD)-positive mothers, (2) associated risk factors, and (3) impact of PPD screening in a pediatric emergency department (PED).”</p>	<p>Pilot cohort study</p>	<p><b>Sampling Technique:</b> Convenience sample</p> <p><b>Eligible Participants:</b> 373 Mothers presenting with infants 6 months or younger with nonemergent complaints (emergency severity index 3-5).</p>	<p><b>Control:</b> N/A</p> <p><b>Intervention:</b> Mothers completed a computerized survey that included the EPDS screening tool</p> <p><b>Intervention Fidelity (describe the</b></p>	<p><b>Primary:</b> To estimate proportion of PPD screen-positive mothers and identify associated risk factors.</p> <p><b>Secondary:</b> Explore maternal acceptance and attitudes towards screening at enrollment</p>	<p><b>Positive Screens:</b> 57 mothers (27%) screened positive, with 14 mothers (7%) reporting suicidal thoughts. 47% of all participants had never been screened previously – 58% of the positive screens had</p>

		<p><b>Excluded:</b> Mothers of infants presenting with higher acuity complaints, or who did not speak English or Spanish, and mothers who did not give birth to the child (adoptive mothers).</p> <p><b>Accepted:</b> 209</p> <p><b>Power Analysis:</b> None provided</p> <p><b>Group Homogeneity:</b> N/A</p>	<p><b>protocol):</b> Participants completed a self-administered, tablet-based survey which included the EPDS, basic sociodemographic information and previously identified risk factors for PPD. If they scored 10 or greater, it was considered a positive screen. Support interventions were provided by social work based on the EPDS results. All mothers received the March of Dimes book on PPD and the mothers who screened positive also received a local PPD regression resource handout. Mothers who answered anything other than “never” to the question regarding suicidal thoughts were assessed by a physician for active suicidal ideation and the need for crisis intervention services including possible inpatient hospitalization. A one-month follow up phone survey was completed for all mothers who consented.</p>	<p>and one-month follow-up. Examine ED utilization differences between PPD screen-positive and PPD screen-negative mothers.</p>	<p>never been screened before and 40% of the mothers reporting suicidal thoughts had never been screened before. Infants of mothers who screened positive for PPD were more likely to have additional ED visits within the first 6 months of infant life compared with mothers who screened negative (aOR 1.29, 95% CI). Current unemployment status (aOR 2.76, 95% CI) and first time motherhood (aOR 2.76, 95% CI) were associated with a positive screen.</p> <p><b>Perception of Screening:</b> 73% of the women answered affirmatively to being asked about PPD by the doctors and nurses</p> <p><b>Follow Up:</b> Mothers who screened positive reported during the 1-month follow up that they think PPD screening in the ED was important for the baby’s health (92%) and the mother’s health (95%). They reported</p>
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					positive impact of screening including increased access to support (83%), seeking help from their doctor (31%) and 17% seeking help from a mental health professional. 83% reported overall improvement in symptoms
<p><b>Citation:</b> Birmingham, M., Chou, K., &amp; Crain, E. (2011). Screening for postpartum depression in the pediatric emergency department. <i>Pediatric Emergency Care, 27</i>(9), 795-800. doi: 10.1097/PEC.0b013e31822c1454</p>					Level III
Purpose / Hypothesis	Design	Sample	Intervention	Outcomes	Results
<p>“To determine whether a 3-question version of the Edinburgh Postpartum Depression Scale (EPDS) performs as well as the full EPDS in screening for postpartum depression in a pediatric emergency department (PED)”</p>	<p>Cross-sectional study</p>	<p><b>Sampling Technique:</b> Convenience sample</p> <p><b>Eligible Participants:</b> All mothers of infants younger than 6 months presenting to the PED</p> <p><b>Excluded:</b> Mothers of patients triaged to the highest level of acuity or who did not speak English or Spanish.</p> <p><b>Accepted:</b> 195</p> <p><b>Power analysis:</b> sample size of 200 would give a 95% confidence interval around a sensitivity of 95%+/- 5% for the 3 questions version of the</p>	<p><b>Control:</b> N/A</p> <p><b>Intervention:</b> PPD screening using both the standard EPDS screening tool, as well as the 3-question version of the EPDS screening tool. Additional information on demographics, health problems, insurance status, social support, food and housing security was also gathered.</p> <p><b>Intervention fidelity (describe the protocol):</b> After the PED encounter, the mother was asked demographic</p>	<p><b>Primary:</b> Score on the full EPDS</p> <p><b>Secondary:</b> Determine whether certain maternal, infant, and sociodemographic characteristics may be associated with a positive screen for PPD on the EPDS</p> <p><b>Measurement tool:</b> On the standard EPDS screening tool, a score above 10 had sensitivity of 90% or better for correctly identifying mothers with PPD and a sensitivity of about 80%. On the shortened version, each of the questions was scored 0-</p>	<p><b>EPDS Scores:</b> 45 mothers (23%) screened positive using the standard tool, while 34% screened positive using the shortened version (p &lt; 0.001)</p> <p><b>Shortened Version:</b> Compared with the full version, the 3-question EPDS had a sensitivity of 100% (95% CI), specificity of 86% (95% CI), negative predictive value of 100% (95% CI) and positive predictive value of 68% (95% CI).</p> <p><b>Sociodemographic Factors:</b> 3 factors were significant in predicting</p>

		<p>EPDS versus the full version – assuming that the prevalence of PPD would be 40%</p> <p><b>Group Homogeneity:</b> N/A</p>	<p>information and given the 3-question form of EPDS. She was then given the standard EPDS (10 question) form. An interview by the treating provider was then completed (blinded to the results of the EPDS) to determine his/her impression of the presences of depressive symptoms in the mother solely based on the clinical encounter. After the interview, the provider reviewed the responses to the EPDS and if the mother answered positively to the question related to self-harm, the attending PED physician determined whether emergency intervention was needed for the mother. All mothers who scored 10 or higher were contacted by telephone and given a referral for outpatient psychiatric evaluation.</p>	<p>3 and the total was weighted by a constant (3.33) for that the same cutoff value of 10 or more for screening positive could be used.</p>	<p>a positive EPDS score including: number of children under 5 years in the home (OR 1.6, 95% CI), having concerns about food (OR 5.5, CI 95%), and housing concerns (OR 5.2, CI 95%).</p> <p><b>Provider Impression:</b> Of the 45 mothers who screened positive, only 14 were flagged by providers as possibly depressed (sensitivity 31%, 95% CI). Of the 150 mothers who screened negative, providers determined that 137 did not have depressive symptoms (91% specificity, 95% CI). Positive and negative predictive values were 52% and 82%, respectively based on provider impression of depression symptoms.</p> <p><b>Infant data:</b> 39% diagnosed with viral respiratory illness. 19% had vomiting, diarrhea or constipation. 18% were diagnosed as “worried well” (mother worried, but not abnormality was</p>
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					found). 9% had non-specific rashes. No association between final diagnosis of infant and screening positive on the EPDS.
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**Table 2**

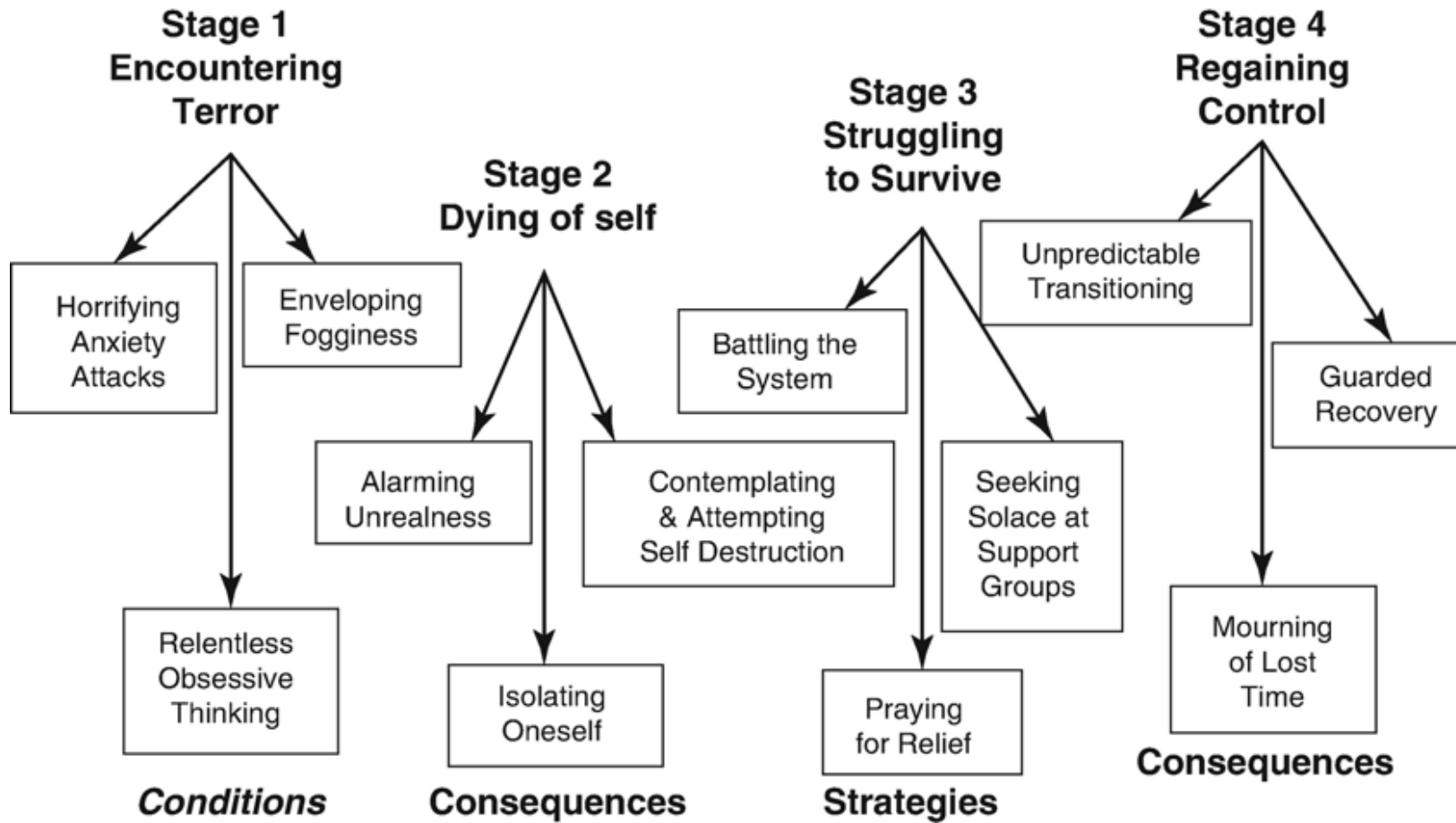
*Synthesis Table*

<b>Evidence Based Practice Question (PICO):</b> In mothers who present to the pediatric emergency department (PED) with their child under twelve months of age, does implementing the Edinburgh Postnatal Depression Scale (EPDS) improve detection of postpartum depression and thus referral for formal diagnosis, as compared to no standardized screening?			
<b>Level of Evidence</b>	<b># of Studies</b>	<b>Summary of Findings</b>	<b>Overall Quality</b>
<b>III</b>	<b>4</b>	<p>All level III studies used the Edinburgh Postnatal Depression Scale (EPDS) to screen mothers for postpartum depression in the pediatric setting. All screening was done in the pediatric emergency department, aside from Trost et al. (2016) which screened in the pediatric medical-surgical unit. In each of the studies, infants could not be considered critically ill in order for the mother to be screened. All studies made an automatic positive screen if the mother answered positively to question 10 which is about suicidal ideation – regardless of score total. Positivity rate for screening was greater than 15% in all studies. Several women refused social work referral or consultation in each study. All studies concluded that PPD screening in this setting was feasible and acceptable.</p> <p>Emerson et al. (2014), Trost et al. (2016), and Birmingham et al. (2011) all used a cutoff EPDS score of greater than or equal to 10.</p> <p>Stock et al. (2013) had a 16% positivity rate. An EPDS score of greater than or equal to 13 as a positive screen. Infants had to be under 6 months of age. Over half of the women who were screened reported never being screened previously.</p> <p>Emerson et al. (2014) had a 15.5% positivity rate. Infants had to be under 4 months of age. There was no data collected in regard to previous screening, which was something included in the other studies.</p>	<p><b>Stock et al. (2013): B</b>, this prospective observational study had a sufficient sample size, determined by power analysis. While the screening positivity rate was similar to those of other studies, the EPDS cutoff score was higher (13 as opposed to 10), so it would be difficult to generalize the results. This study was also done in Australia, making it unclear if the results could be generalized to the United States. Limitations of the study were discussed in detail. Clear conclusion that screening and social work referral were acceptable in the ED setting and that this setting is one in which maternal mental health can be assessed and resources are available.</p> <p><b>Emerson et al. (2014): B</b>, this was a prospective observational study that had a sufficient sample size determined by a power analysis. Thorough review of the literature was completed and referenced. Results of the study were consistent with other similar studies in regard to the screening positivity rates. Limitations of the study were discussed and are similar to the limitations identified in similar studies (convenience sample, exclusion of mothers who presented with critically ill infants and unable to identify exact prevalence as PPD requires formal diagnosis from a mental health provider). Concludes the PPD screening in this setting is acceptable and feasible.</p> <p><b>Trost et al. (2016): B</b>, a prospective observational study that had a large sample size, determined by power analysis. There was a significant literature review completed and referenced throughout. The infants of these mothers had all been hospitalized for &lt; 72 hours, so it is unclear if stress due to hospitalization impacted the results. Since this study occurred on the medical-surgical pediatric unit, it would be difficult to generalize the results to the PED even though all patients had been hospitalized &lt; 72 hours. Significant discussion on the</p>

		<p>Trost et al. (2016) had a 28% positivity rate. The age group for this study was under one year, which was older than the other studies. Nearly 60% of women had not been appropriately screened before.</p> <p>Birmingham et al. (2011) had a positivity rate of 23%. The age group for this study was under 6 months of age. There was no data collected in regard to the percentage of women who had been screened previously.</p>	<p>limitations of the study was completed. Definitive conclusion of PPD screening at all medical encounters within the child’s first year of life.</p> <p><b>Birmingham et al. (2011): C</b>, this cross-sectional study did not have a sufficient sample size per the power analysis that was performed. A comprehensive literature review was completed, and limitations of the study were discussed. This study did have a fairly definitive conclusion that the 3-question EPDS was as effective as the standard EPDS screening tool in recognizing mothers at risk for PPD. Recommendations were aimed at additional studies to determine if screening in the PED improve maternal and child health outcomes and improve the overall quality of life.</p>
<p>IV</p>	<p>1</p>	<p>Jarvis et al. (2020) found that approximately one in four mothers screen positive for postpartum depression using the EPDS in pediatric emergency departments, with 1 in 10 reporting suicidal thoughts. In addition, most of the mothers who screened positive had not been screened previously. Currently unemployed and first-time mother were factors associated with positive screens.</p>	<p><b>Jarvis et al. (2020): C</b>, this pilot cohort study included articles that had scientific evidence. There was no power analysis performed so it is unclear if the sample size was adequate. Results of this study were consistent with those of other studies. The only result that did not coincide with out similar studies was that parity did not have an effect on PPD risk. This study was performed in a single ED, so the results may not be generalizable. There was also a low participation rate, and mothers with infants who presented with emergent conditions were not included. Recommendation for more studies on PPD screening in the PED – no definitive conclusion given but alludes to importance of screening for PPD in the PED.</p>

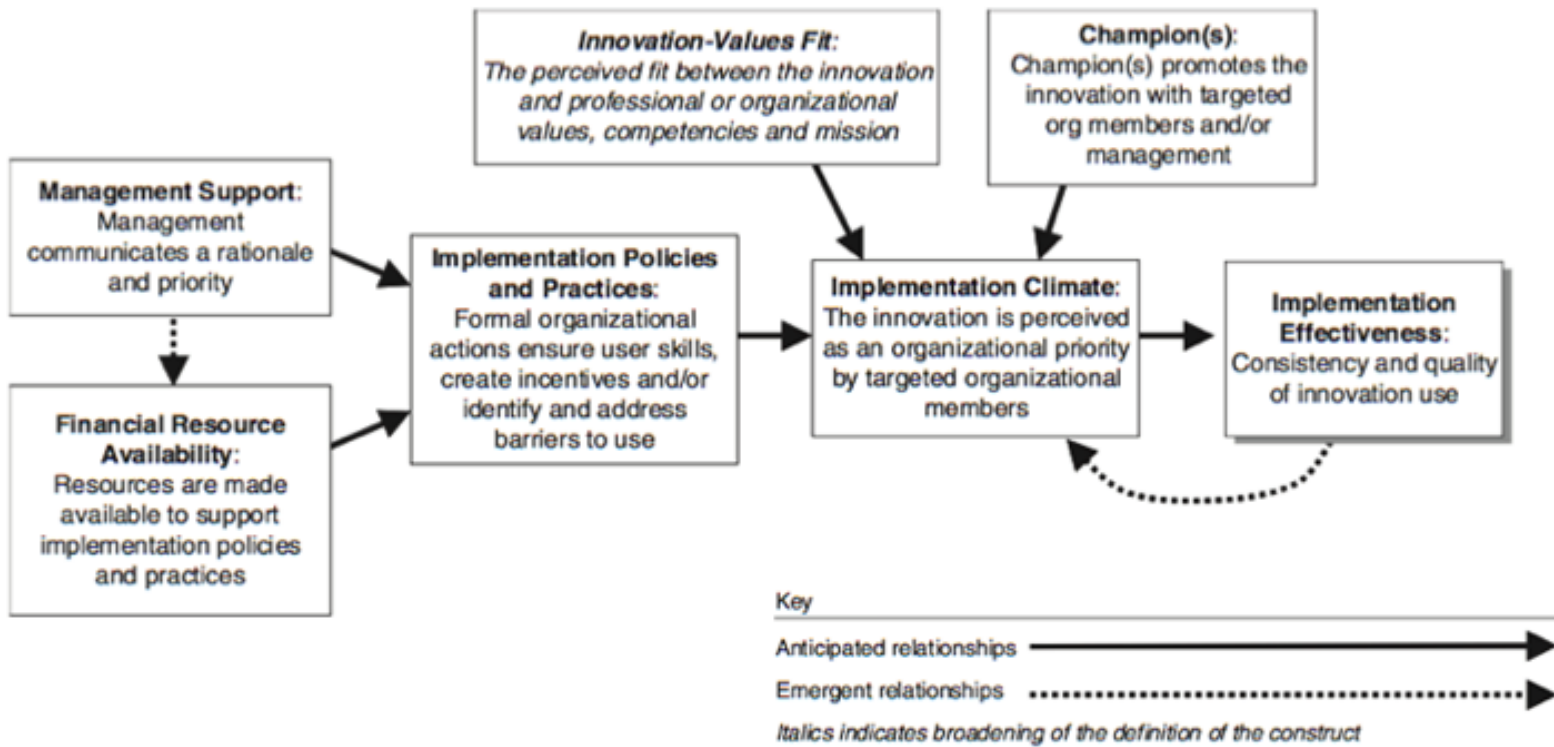
**Figure 1**

*Beck's Theory of Postpartum Depression*



**Figure 2**

*Conceptual Framework of Complex Innovation Implementation*



**Figure 3**

*EPDS Screening Compliance*

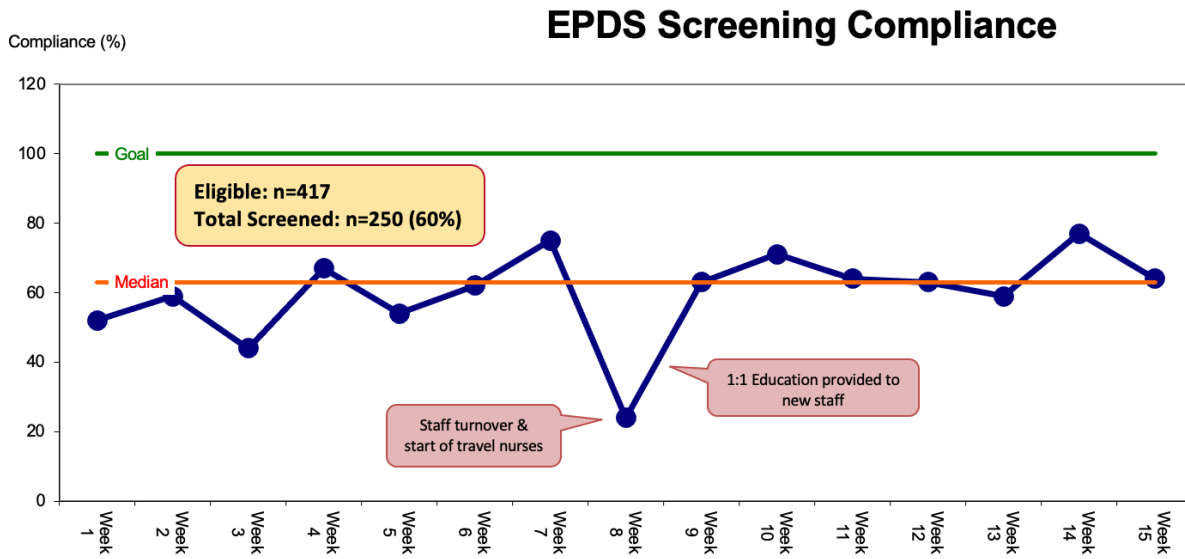
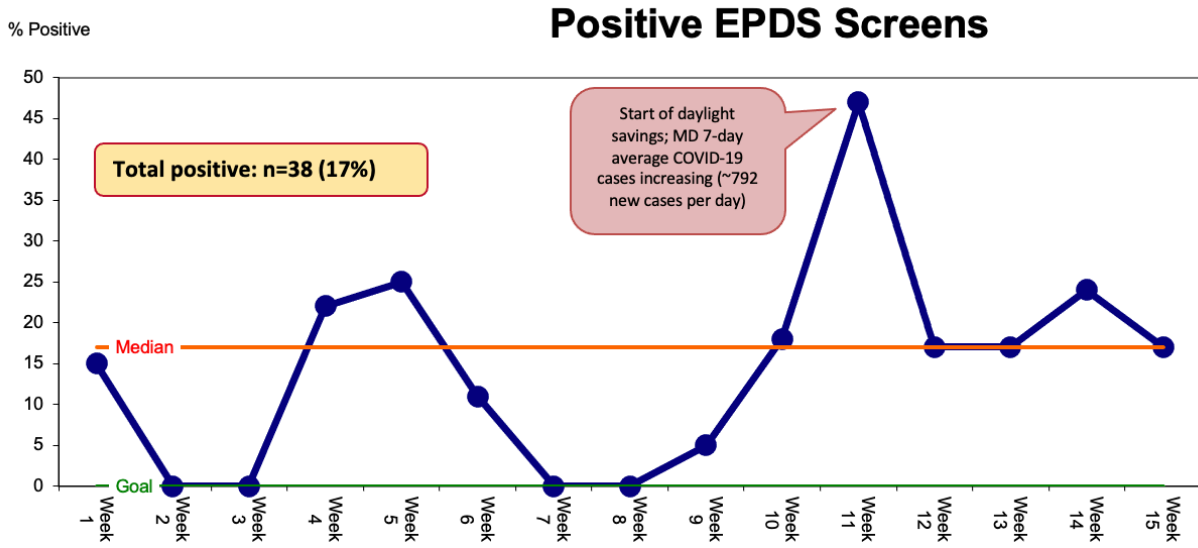


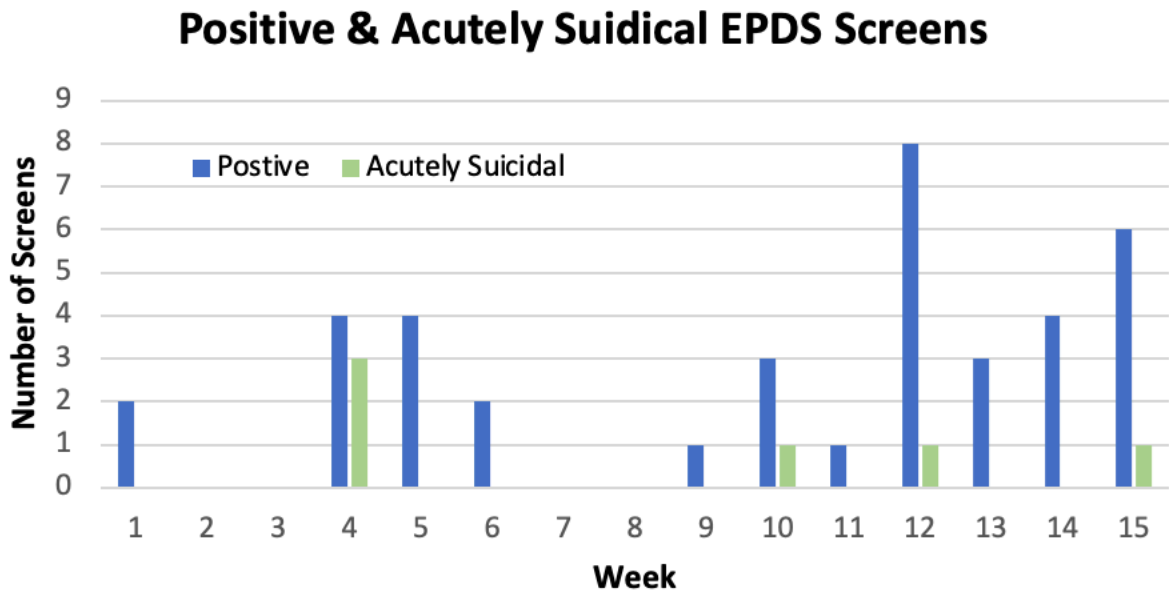
Figure 4

Positive EPDS Screens



**Figure 5**

*Positive and Acutely Suicidal EPDS Screens*





## Appendix A

## Edinburgh Postnatal Depression Scale (English)

**Edinburgh Postnatal Depression Scale<sup>1</sup> (EPDS)**

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

Here is an example, already completed.

I have felt happy:

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

In the past 7 days:

- |  |  |
|--|--|
| <p>1. I have been able to laugh and see the funny side of things<br/>           ___ 0 As much as I always could<br/>           ___ 1 Not quite so much now<br/>           ___ 2 Definitely not so much now<br/>           ___ 3 Not at all</p> <p>2. I have looked forward with enjoyment to things<br/>           ___ 0 As much as I ever did<br/>           ___ 1 Rather less than I used to<br/>           ___ 2 Definitely less than I used to<br/>           ___ 3 Hardly at all</p> <p>*3. I have blamed myself unnecessarily when things went wrong<br/>           ___ 3 Yes, most of the time<br/>           ___ 2 Yes, some of the time<br/>           ___ 1 Not very often<br/>           ___ 0 No, never</p> <p>4. I have been anxious or worried for no good reason<br/>           ___ 0 No, not at all<br/>           ___ 1 Hardly ever<br/>           ___ 2 Yes, sometimes<br/>           ___ 3 Yes, very often</p> <p>*5. I have felt scared or panicky for no very good reason<br/>           ___ 3 Yes, quite a lot<br/>           ___ 2 Yes, sometimes<br/>           ___ 1 No, not much<br/>           ___ 0 No, not at all</p> | <p>*6. Things have been getting on top of me<br/>           ___ 3 Yes, most of the time I haven't been able to cope at all<br/>           ___ 2 Yes, sometimes I haven't been coping as well as usual<br/>           ___ 1 No, most of the time I have coped quite well<br/>           ___ 0 No, I have been coping as well as ever</p> <p>*7. I have been so unhappy that I have had difficulty sleeping<br/>           ___ 3 Yes, most of the time<br/>           ___ 2 Yes, sometimes<br/>           ___ 1 Not very often<br/>           ___ 0 No, not at all</p> <p>*8. I have felt sad or miserable<br/>           ___ 3 Yes, most of the time<br/>           ___ 2 Yes, quite often<br/>           ___ 1 Not very often<br/>           ___ 0 No, not at all</p> <p>*9. I have been so unhappy that I have been crying<br/>           ___ 3 Yes, most of the time<br/>           ___ 2 Yes, quite often<br/>           ___ 1 Only occasionally<br/>           ___ 0 No, never</p> <p>*10. The thought of harming myself has occurred to me<br/>           ___ 3 Yes, quite often<br/>           ___ 2 Sometimes<br/>           ___ 1 Hardly ever<br/>           ___ 0 Never</p> |
|--|--|

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

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

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

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**SCORE:** \_\_\_\_\_

Appendix B

Edinburgh Postnatal Depression Scale (Spanish)

**Escala Edinburgh para la Depresión Postnatal**

Como usted está embarazada o hace poco que tuvo un bebé, nos gustaría saber como se siente actualmente. Por favor MARQUE (✓) la respuesta que más se acerca a como se ha sentido durante LOS ÚLTIMOS 7 DÍAS y no sólo como se ha sentido hoy.

A continuación se muestra un ejemplo completado:

- Me he sentido feliz:
- Sí, todo el tiempo \_\_\_\_\_ 0
  - Sí, la mayor parte del tiempo  1
  - No, no muy a menudo \_\_\_\_\_ 2
  - No, en absoluto \_\_\_\_\_ 3

Esto significa: "Me he sentido feliz la mayor parte del tiempo" durante la última semana. Por favor complete las otras preguntas de la misma manera.

- 1. He podido reír y ver el lado bueno de las cosas:

  - Tanto como siempre he podido hacerlo \_\_\_\_\_ 0
  - No tanto ahora \_\_\_\_\_ 1
  - Sin duda, mucho menos ahora \_\_\_\_\_ 2
  - No, en absoluto \_\_\_\_\_ 3
- 2. He mirado al futuro con placer para hacer cosas:

  - Tanto como siempre \_\_\_\_\_ 0
  - Algo menos de lo que solía hacerlo \_\_\_\_\_ 1
  - Definitivamente menos de lo que solía hacerlo \_\_\_\_\_ 2
  - Prácticamente nunca \_\_\_\_\_ 3
- \*3. Me he culpado sin necesidad cuando las cosas marchaban mal:

  - Sí, casi siempre \_\_\_\_\_ 3
  - Sí, algunas veces \_\_\_\_\_ 2
  - No muy a menudo \_\_\_\_\_ 1
  - No, nunca \_\_\_\_\_ 0
- 4. He estado ansiosa y preocupada sin motivo alguno:

  - No, en absoluto \_\_\_\_\_ 0
  - Casi nada \_\_\_\_\_ 1
  - Sí, a veces \_\_\_\_\_ 2
  - Sí, muy a menudo \_\_\_\_\_ 3
- \*5. He sentido miedo o pánico sin motivo alguno:

  - Sí, bastante \_\_\_\_\_ 3
  - Sí, a veces \_\_\_\_\_ 2
  - No, no mucho \_\_\_\_\_ 1
  - No, en absoluto \_\_\_\_\_ 0
- \*6. Las cosas me oprimen o agobian:

  - Sí, la mayor parte del tiempo no he podido sobrellevarlas \_\_\_\_\_ 3
  - Sí, a veces no he podido sobrellevarlas de la manera \_\_\_\_\_ 2
  - No, la mayoría de las veces he podido sobrellevarlas bastante bien \_\_\_\_\_ 1
  - No, he podido sobrellevarlas tan bien como lo hecho siempre \_\_\_\_\_ 0
- \*7. Me he sentido tan infeliz, que he tenido dificultad para dormir:

  - Sí, casi siempre \_\_\_\_\_ 3
  - Sí, a veces \_\_\_\_\_ 2
  - No muy a menudo \_\_\_\_\_ 1
  - No, en absoluto \_\_\_\_\_ 0
- \*8. Me he sentido triste y desgraciada:

  - Sí, casi siempre \_\_\_\_\_ 3
  - Sí, bastante a menudo \_\_\_\_\_ 2
  - No muy a menudo \_\_\_\_\_ 1
  - No, en absoluto \_\_\_\_\_ 0
- \*9. Me he sentido tan infeliz que he estado llorando:

  - Sí, casi siempre \_\_\_\_\_ 3
  - Sí, bastante a menudo \_\_\_\_\_ 2
  - Ocasionalmente \_\_\_\_\_ 1
  - No, nunca \_\_\_\_\_ 0
- \*10. He pensado en hacerme daño:

  - Sí, bastante a menudo \_\_\_\_\_ 3
  - A veces \_\_\_\_\_ 2
  - Casi nunca \_\_\_\_\_ 1
  - No, nunca \_\_\_\_\_ 0

Edinburgh Postnatal Depression Scale (EPDS). Texto adaptado del *British Journal of Psychiatry*, Junio, 1987, vol. 150 por J.L. Cox, J.M. Holden, R. Segovsky.

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

**SCORE:** \_\_\_\_\_

**Appendix C**

Data Collection Spreadsheets

PARTICIPANT	EPDS SCORE	+ TO QUESTION 10? (1=YES; 0=NO)	SW CONSULT? (1=YES; 0=NO)	CODED NURSE ID	CODED SW ID
1					
2					
3					
4					
5					

WEEK	TOTAL <12 MONTHS	COMPLETED SCREENS	POSITIVE SCREENS	SUICIDAL SCREENS	TOTAL SW REFERRALS
8/30/21					
9/6/21					
9/13/21					
9/20/21					
9/27/21					
10/4/21					

**PPD Screening in the PED Education**

CODED RN NUMBER	NURSE	EDUCATION DATE
1		
2		
3		
4		
5		

**Appendix D**

EPDS Dot Phrase

EPDS Screen Completed:  Yes  No

If no, why?

- Biological mother not with patient
- Mother declined
- Other (explain): \*\*\*

EPDS Score: \*\*\*

Positive answer to questions 10?  Yes  No

Social Work Contacted?  Yes  No

Name of Social Worker: \*\*\*

**Appendix E**

Visual Aid Placed on Computers

