CREATING PATHWAYS OF CARE: A MULTIDISCIPLINARY APPROACH TO INCREASING SCREENING AND TREATMENT OF POSTPARTUM DEPRESSION WITHIN A RURAL HEALTH CLINIC

A DOCTOR OF NURSING PRACTICE CAPSTONE PROJECT SUBMITTED TO THE SCHOOL OF NURSING & DENTAL HYGIENE, UNIVERSITY OF HAWAII AT MANOA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF NURSING PRACTICE

NOVEMBER 2014

By

Holly T. Kralj

DNP Committee:

Dr. Maureen Shannon, Chairperson
Dr. Debra Mark
Dr. Kathleen Kendall-Tackett

Keywords: Postpartum depression, PMAD, PPD, Screening, Butte County, Rural Health Clinic

ABSTRACT

BACKGROUND: Postpartum depression (PPD) is the number one complication of childbirth, with prevalence rates of approximately 15% in the US; however, rates as high as 40-60% for women living in poverty have been reported**.** Though validated screening tools and effective treatment exists, it is largely unrecognized. Consequences impact not only the mother but her infant as well and can have long term deleterious effects. Butte County First 5 has identified PPD as a maternal health focus area.

METHODS: Based on a community needs assessment and a literature review, educational sessions were developed to increase screening and treatment of PPD within a rural health center in Northern California. During the four educational sessions, 32 providers and staff received information on PPD, instructions on screening with the Edinburg Postnatal Depression Scale (EPDS), triage/treatment guidelines, lactation safety information on common psychiatric medications, and community resources for PPD. Outcomes were measured by pre- and post-session surveys and by deidentified chart and referral data.

OUTCOMES: Of the 16 providers who completed post-surveys, 81% stated the sessions changed their PPD screening or treatment practices, and 100% found the information helpful. These sessions also resulted in a 133% increase in referrals for postpartum mental health issues. Integrating treatment into a preexisting home visitation program reduced evaluation and treatment waiting times from three to four months to seven to ten days, with a 97% breastfeeding continuation rate for women receiving treatment.

CONCLUSION: Building interdisciplinary triage/treatment pathways and holding educational sessions for providers and staff within a rural health resulted in an increase in screening for PPD by obstetric and family practice providers and a decrease in waiting time for evaluation and treatment of affected women.

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CHAPTER 1—EXECUTIVE SUMMARY

BACKGROUND OF PROBLEM:

While the birth of a baby is often thought of as a joyous and celebrated time, perinatal mood and anxiety disorders (PMAD's) are the most under-diagnosed complication of the perinatal period (Gaynse et al., 2005). The term PMAD includes both prenatal and postpartum depression, obsessive-compulsive disorder, posttraumatic stress disorder, bipolar I and II and very rarely psychosis. Postpartum depression (PPD) is the number one complication of childbirth, with prevalence rates of approximately 15% in the US; however, rates are reportedly as high as 40-60% for women living in poverty (Dennis et al., 2008). Although validated screening tools exist, they are rarely used in outpatient obstetrical settings, and although effective treatment options are available, misinformation abounds, further complicating issues. Lack of provider awareness about PMAD's can increase the feelings of shame and stigma experienced by women suffering from difficult postpartum adjustments, and misinformation regarding the safety of antidepressant medications often leads to early weaning, further exacerbating the depression and interrupting breastfeeding which carries so many benefits for both mother and baby (Misiri & Kendrick, 2007).

Public Health Impact/ Consequences of Untreated PMAD's including PPD:

Maternal

- Increase risk of substance abuse (Santoro & Peabody, 2010)
- Multiple poor obstetric outcomes including: low attendance at prenatal care, preterm labor, low birth weight (Misiri & Kendrick, 2007)
- Impaired bonding (Barr, 2008)
- Suicide --Second leading cause of death in perinatal period (Lindahl et al., 2005)
- Decreased breastfeeding rate (Earls, 2010)

Infant/Child (Earls, 2010)

- Higher cortisol and norepinephrine serum levels
- Social, language and cognitive delays
- Impaired bonding and attachment
- Poor sleep/increased crying/difficulty with self-regulation
- Higher risk of abuse/neglect
- Lower immunization rate
- Shorter duration of breastfeeding
- Long term behavior and cognitive issues noted including ADD, impulsivity, poor school performance

PROJECT BACKGROUND:

First 5 Butte County is a commission funded by the Proposition 10 tobacco tax to "fund early childhood development, health care, parent education, and other programs that improve services for families with children from a prenatal stage through age five" (First 5, 2013). It has identified PMAD's as a maternal health improvement focus.

- Butte County has one of the highest rates of methamphetamine abuse in the State of California (BCPHD, 2008)
- Issues of multigenerational drug abuse, poverty, domestic violence, sexual exploitation
- High rates of preexisting and postpartum mental health issues
- Issues with access to mental health care and overall integration of care between OB/CNM's, behavioral health and pediatricians.
- Lack of standardized screening for perinatal mood and anxiety disorders
- Lack of resources for women experiencing difficult adjustments

PROGRAM PROPOSAL:

In order to meet the needs of pregnant and parenting women in Butte County, a number of interventions have been proposed by the First 5 Maternal Health Advisory group. For the purposes of this project, the focus will be on increasing the screening and treatment of PPD by perinatal practitioners within a rural health clinic, as well as creating triage and treatment guidelines.

Interventions for this project included:

- Conducting educational sessions to increase screening for PPD by obstetrician/gynecologists (OB/GYN's), CNM's and pediatricians utilizing the Edinburgh Postnatal Depression Screening (EPDS) tool
- Developing a triage and referral protocol for positive screens
- Developing initial treatment guidelines with information regarding pregnancy and lactation safety to share with perinatal providers
- Expanding Healthy Mothers Home Visitation services to include front-line screening and treatment for PPD in collaboration with clinic psychiatrists as part of the community-based services.

EXPECTED SHORT-TERM OUTCOMES:

- Increased perinatal providers' knowledge and comfort with PPD screening and treatment or referral
- Increased screening rate using EPDS at 2 to 6 weeks postpartum by OB providers
- Increased screening rates using EPDS at well-baby appointments by pediatric providers
- Increased referral rate to behavioral health providers for treatment and support
- Decreased waiting time for women to receive assessment and treatment of PPD
- Continuation of breastfeeding for women receiving treatment for PPD

ORGANIZATIONAL SETTING/BARRIERS AND FACILITATORS:

The setting for this project is a Federally Qualified Health Center (FQHC) in rural, Northern California. The clinic is designated to provide services to low-income, medically underserved clients receiving MediCal and Medicare for their health care services. The FQHC provides services to approximately 9000 clients per month including: primary care for children and adults, dental, radiology, physical therapy, pharmacy, as well as a full range of specialty services. The pediatric department is staffed by three pediatricians (MD's), one physician's assistant (PA), and two nurse practitioners (NP's) who collectively see approximately 800 children per month. One of the specialty services offered is behavioral health, which is staffed by two psychiatrists (MD's), a psychiatric NP, and a psychiatric registered nurse (RN) who see

approximately 1100 clients per month. Current waiting times for new patients referred to the Behavioral Health Department are three to four months (FRHC Monthly Data Report, n.d.).

The clinic also houses a Comprehensive Perinatal Service Program (CPSP) which provides health education, psychosocial support, and nutritional counseling to low-income women. Services are available to women with MediCal from the time of diagnosis of pregnancy until eight weeks postpartum. The CPSP program is staffed by three RN's, two NP's, one registered dietician (RD), and one licensed clinical social worker (LCSW), as well as ancillary staff, student interns from the local university, and volunteers. The CPSP program conducts approximately 300 visits per month. The clinic is affiliated with a local hospital where over 1000 babies are born per year.

The target audience of the educational intervention included the OB providers (MD's and CNM's), the pediatric providers, and the staff of the CPSP program (approximately 20 perinatal service providers). The goal was to increase awareness of PMAD's and formal screening with the EPDS in order to facilitate timely evaluation and treatment for depression in postpartum women. Triage pathways and treatment guidelines were developed and shared to increase provider comfort with screening, and treatment strategies for PPD. By increasing provider comfort and knowledge, it was hoped that women would have better access to care. It was also hoped that integrated pathways of care would enhance multidisciplinary collaboration and communication between OB, pediatric, and behavioral health care providers.

Healthy Mothers within the FQHC is in an ideal position to lead the community in regards to the screening and treatment of PPD. Because the program is housed within a FQHC, clinicians receive additional reimbursement for seeing women with MediCal, making this program economically feasible. Additionally, as an integrated clinic, there are specialty services

in place to provide care for obstetric, pediatric and mental health needs. However, the primary barrier is lack of communication among disciplines, lack of OB and pediatric comfort with maternal psychiatric issues and medications, and lack of screening and identification of women in need of services.

RECOMMENDATIONS:

It is in the best interest of Butte County perinatal women that Healthy Mothers and the Rural Health Clinic take the lead on expanding screening and access to these much needed mental health services. By increasing provider awareness of the importance of screening for PMAD's, as well as increasing provider knowledge and comfort with psychiatric medications in pregnancy and lactation, it is hoped that women suffering from PPD will receive knowledgeable, compassionate care that seeks to maintain the breastfeeding dyad when appropriate. Additionally, creating triage pathways and increasing communication between the disciplines of obstetrics, pediatrics and behavioral health will benefit women, children and families in the Butte County area.

CHAPTER 2—PROBLEM

BACKGROUND OF PROBLEM

Perinatal mood and anxiety disorders are a serious public health issue that impacts not just women, but their children and families as well. The incidence of these disorders is estimated to be between 13-20% of all childbearing women, but rates in certain high risk groups such as teens, women of low socioeconomic status, and minority groups are estimated to be between 40-60% (Dennis, Ross & Herzheimer, 2008; Earls, 2010; Sharma, Burt & Ritchie, 2010; Sit et al., 2009). The term "perinatal mood and anxiety disorders" (PMAD) encompasses several distinct psychiatric issues that can occur anytime within pregnancy or the first year postpartum (DiFlorio et al., 2012; Smith & Kipnis, 2012). Postpartum depression, either major or minor, is the most common disorder, but antenatal depression and anxiety, postpartum obsessive-compulsive disorder, posttraumatic stress disorder (PTSD), postpartum bipolar disorder, and postpartum psychosis are grouped within the PMAD category (DiFlorio et al., 2012; Smith & Kipnis, 2012). Although other disorders will be touched upon, because of the prevalence and greater focus in the literature on postpartum depression (PPD), interventions related to the prevention and treatment of PPD will be the primary focus of this review.

There are a number of risk factors associated with the development of PPD, including: personal or family history of PPD or depression, history of menstrual related mood disorders, unplanned or undesired pregnancy, low socioeconomic status, relationship discord, trauma related to the birth experience, current or past physical or sexual abuse, infant with health problems, and lack of social support (Dennis & Creedy, 2004; Dennis & Hodnett, 2007; Gaynes et al., 2005; Gurber et al., 2012). It is noteworthy that a history of bipolar disorder puts women at

much higher risk of perinatal mood disorders and is the single greatest risk factor for the rare but devastating complication of postpartum psychosis (DiFlorio et al., 2012).

The causes of perinatal mood and anxiety disorders are multifaceted, but it is presumed that symptoms have, at least in part, a biochemical basis. It has long been believed that the rise of estrogens and progesterone throughout pregnancy, and then abrupt drop after the delivery of the placenta, create in the postpartum period a time when women not only have to navigate the complex psychosocial changes of motherhood but also have to adjust to the single greatest hormonal shift experienced in their lifetime (Skalkidou et al., 2012). Research has also shown that there are lower levels of gamma-aminobutyric acid (GABA) and norepinephrine in a woman's cerebrospinal fluid at the time of giving birth, and women with PPD have lower platelet serotonin levels than non-depressed women (Skalkidou et al., 2012). Additionally, postpartum thyroiditis is a common disorder, with hypothyroidism associated with depressed mood, and hyperthyroidism with anxiety. Postpartum thyroiditis should be ruled out for women experiencing signs of depression or anxiety (Skalkidou et al., 2012). Additionally, postpartum thyroiditis occurs in 5-10% of women (Stagnaro-Green, 2012), with hypothyroidism associated with depressed mood, and hyperthyroidism with anxiety. Postpartum thyroiditis should be ruled out for women experiencing signs of depression or anxiety (Skalkidou et al., 2012). Newer research focused on the underlying role of inflammation in the etiology of depression Physical pain, psychological stress and sleep deprivation all activate the releases of pro-inflammatory cytokines which cause inflammation. Breastfeeding is believed to be mood protective, with oxytocin increasing feelings of well-being and prolactin blunting the stress response cytokines (Kendall-Tackett, 2007). However, postpartum depression is a known risk factor for early

discontinuation of breastfeeding which can lead to a great number of other health sequelae for both the mother and child (Kendall-Tackett, Cong & Hale, 2011; Skalkidou et al., 2012).

As mentioned before, untreated perinatal mood and anxiety disorders can have devastating consequences. Women who are depressed during pregnancy often have fewer prenatal care visits, can have inadequate or excessive weight gain, are at higher risk for preterm labor or birth, are at risk for substance use, and are less likely to initiate or sustain breastfeeding (Dennis & Allen, 2008; Misiri & Kendrick, 2007; Santoro & Peabody, 2010).

Documented consequences for infants of mothers with untreated depression include: impaired bonding, changes in infant brain development, infant developmental and language delays, and potential for neglect or abuse (Earls, 2010). In the most serious cases, untreated depression can be deadly (Dennis et al., 2008). Tragically, suicide is the second leading cause of death during the perinatal period (Lindahl, Pearson & Colpe, 2005), and infanticide, though rare, is a reality as well. However, instances are almost always associated with postpartum psychosis, not with other PMAD's (PSI, 2010).

The negative impact of PPD on mothers and infants is well established, and while prevention is ideal, the next best thing is early screening and treatment. According to the American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health, more than 400,000 infants are born yearly in the US to mothers suffering with depression (Earls, 2010). The Committee calls it the "most undiagnosed obstetric complication in America" (2010, p. 1032). In 2000, the US Surgeon General issued a report calling for the early identification and treatment of mental health problems, and in 2004, the President's New Freedom Act stated, "…early screening, assessment and treatment of mental health problems must become a national goal" (Earls, 2010, p. 1034). Universal screening for PPD was

advocated by the World Health Organization in 2009; and the Patient Protection and Affordable Care Act of 2010 (Section 2952) provides support for screening with no share of cost for treatment (Horowitz et al., 2011; Santoro & Peabody, 2010). Screening has been shown to increase referral and treatment (Horowitz, et al., 2009; Santoro & Peabody, 2010; Smith & Kipnis, 2012; Yawn et al., 2012), yet lack of consensus regarding how and when to screen has created barriers to treatment. Many countries with socialized medicine recommend universal screening for postpartum depression (MacArthur, 2003), but the US struggles with conflicting recommendations from various leading health organizations.

THEORETICAL AND CONCEPTUAL FRAMEWORKS

Theoretical Framework

The theoretical framework for this project is based on attachment theory. Attachment theory, which is based on the work of developmental experts Ainsworth (1962) and Bowlby (1988), asserts that a child's relationship with his or her mother is integral to interpersonal development and feelings of security and worth. Infancy is seen as a critical period in bonding, and secure attachment is viewed at the foundation for social competence (Bretherton, 1992). Insecure attachment is associated with a host of negative consequences for the child including poor language skills, difficulty with impulse control, and interpersonal deficits (Ainsworth, 1962). Maternal depression, particularly in the postpartum period, can be a risk factor for disruption in bonding (Sluckin, 1998) due to less maternal responsiveness to infant cues (Murry et al., 1993; Barr, 2008). Increasing screening and treatment for PPD may facilitate strong maternal/infant attachment, as well as decreasing the burden of suffering for women experiencing PMAD's.

Conceptual Framework for Evidence-Based Model

Because one of the key identified barriers for the treatment of PMAD's is lack of screening (Earls, 2010; Horowitz et al., 2011; MacArthur, 3003; Yawn et al., 2012), a key component of improving the early recognition and treatment of these conditions is to implement practice changes with providers regarding screening and treatment of PMAD's. The John Hopkins Nursing Evidence-Based Practice Model (JHNEBP) utilizes the American Nursing Association's (ANA) Standards of Practice, as well as portions of the ANA Professional Performance Standards, to give a framework for evaluating and implementing organizational evidence-based change in nursing practice. The model consists of three specific components: Practice Question, Evidence, and Translation, or PET (Newhouse et al., 2007). The model starts with a PICO statement that defines: the patient, population or problem (P), the intervention (I), comparison with other interventions (C), and outcome of interest (O). This results in a clearly defined practice question (Newhouse et al, 2007). Once a question or focus is determined, a work group is formed which includes key stakeholders who can help guide the exploratory process and who also will be involved in implementing any desired change. Having key stakeholders involved is crucial in terms of organizational "buy-in" and project success (Newhouse et al., 2007). During the Practice Question phase, the group also narrows the scope of the practice question for the particular setting or population, assigns leadership responsibility, recruits an interdisciplinary team, and schedules team conferences (Newhouse et al., 2007). Next, the team complies, reviews, summarizes and evaluates the relevant research and then develops recommendations for a course of action. In the final phase (Translation), the team looks at whether the changes are feasible in the specified practice setting, and after consulting with and including key stakeholders, develops an action plan with a timeline. The practice change is then

implemented in a pilot project, the outcomes are evaluated and shared, and if the results are favorable, the changes are implemented on a wider scale. Finally, the results are shared with a larger audience, including the organization at large and the community affected (Newhouse et al., 2007). Key advantages of the JHNEBP model include its thoroughness, its systematic approach, and its attention to inclusion of key stakeholders.

BACKGROUND OF PROJECT

In Butte County, a focus group was formed under the leadership of Butte First 5 California and the Butte County Public Health Department (BCPHD) to look at issues regarding maternal mental health and ways to improve access to services for women and families. Butte County has a population who, in many respects, has greater psychosocial issues than is often reported in the general population. Butte County has one of the highest rates of methamphetamine abuse in the country. It is estimated that 80% of crimes committed and 50% of children in foster care are related to methamphetamine abuse (BCPHD, 2008). In families affected by methamphetamine abuse, domestic violence, sexual abuse, generational poverty, and underlying psychiatric issues are not uncommon. Young women raised in the dysfunction of substance abusing homes are now having children themselves and the experience of PPD as well as other PMAD's is common. Many lack social support and economic resources, and although counseling is available, childcare and transportation issues impair women's ability to seek treatment. This coupled with the community-wide lack of trained mental health professionals comfortable with prescribing psychotropic medications to pregnant or breastfeeding women creates a great barrier to care for those suffering from PMAD's. Interventions have been undertaken by Butte County's First 5 Commission to increase the knowledge and awareness of

the healthcare community as well as to provide counseling services to women deemed "high-risk" for postpartum adjustment complications. However, major barriers in the community remain regarding screening, diagnosis and treatment of PMAD's. In order to better understand the known evidence regarding postpartum depression, a literature search was undertaken with the PICO statement:

"What interventions prevent or treat postpartum depression?"

LITERATURE REVIEW AND SYNTHESIS

An initial search of Cochrane Data Base with the search term "postpartum depression" yielded nine article titles; one of which had been withdrawn and one excluded due to a focus on docosahexaenoic acid (DHA) and breastfeeding. Next, a search of PubMed was performed using the search terms "postpartum depression" OR "perinatal mood and anxiety disorders" with the filters activated: clinical trial, randomized controlled trial, systematic reviews, meta-analysis, published in the last 5 years, humans, and English language. The results yielded 206 articles. An additional search phrase was added –AND- "prevention" OR "treatment" which brought the number of articles to a total of 155. Finally, the search term "AND interventions" was added which brought the number of articles to 39. Studies that focused on sexual function, experiences of fathers, or specific populations such as mothers of multiples or infants in the neonatal intensive care unit, patients with human immunodeficiency virus or patients utilizing assistive reproductive technologies were excluded. Studies in non-Western countries or of specific ethnic groups not similar to the capstone focus population were also excluded. The reference lists of included articles were searched for relevant articles as well. Additional articles were obtained using the same search criteria from weekly PubMed search updates. The literature search focused

on articles with experimental designs with psychosocial adjustment or maternal depression as outcome measures as well as systematic reviews related to PPD. Quantitative and qualitative research articles were reviewed and graded using Mosby's Research Tool (MRT), and systematic reviews were analyzed using the Critical Appraisal Tool for Systematic Reviews (CATSR). Of the reviewed articles, 48 were synthesized based on relevance to the DNP Scholarly Inquiry Project and PICO statement. Several other studies and organizational position statements are included for background information. From the reviewed literature, three main subtopics emerged: 1) prevention, 2) screening and diagnosis, and 3) best treatment practices.

PREVENTION

Because of the multidimensional etiology of PMADs, it is highly unlikely that all cases will be preventable. However, many studies have explored modifiable risk factors and preventative interventions. Biological underpinnings have been examined in a number of studies and reviews regarding postpartum depression. In a Cochrane systematic review/meta-analysis, Dennis, Ross and Herzheimer (2008) examined the role of supplementation with natural and synthetic estrogens and progestins in the prevention and treatment of postpartum depression. Only two trials, with a total number of 229 women met inclusion criteria. Administration of synthetic progestin was associated with significantly higher risk of PPD ($p=0.0111$) (Lawrie, Hofmeyr, de Jager & Berk, 1998, p. 200). Conversely, treatment with estrogen was associated with a statistically significant improvement in depressive symptoms versus a placebo (95% CI -5.97 to -0.43) (Gregoire, et al, 1996, p. 332). However, estrogen therapy is associated with a significant reduction in milk supply so it is not an appropriate first-line treatment for most postpartum breastfeeding women (Hale, 2012).

In another review, Skalkidou, Hellgren, Comasco, Sylven & Poroma (2012) examined the biological aspects of PPD, reporting that that serum levels or serotonin and synaptic activity in most women returns to normal by six weeks postpartum. Serotonin is a critical neurotransmitter, and inadequate levels are implicated in many mood disorders including PPD (Maurer-Spurej, Pittendreigh & Misri, 2007). Regarding potential interventions to prevent the development of PPD, the authors note that breastfeeding appears to be protective. Thus, increasing rates of the initiation and duration of breastfeeding may be helpful in decreasing PPD in some women. One study reviewed found that there was an increased incidence of postpartum depression in women with vitamin D deficiencies (serum 25[OH]D < 32ng/ml), as well as an improvement in symptoms with supplementation (Murphy, Mueller, Hulsey, Ebeling & Wagner, 2010, p. 174). The authors also discuss the association of thyroiditis with mood and anxiety disorders and recommend laboratory testing to rule out underlying hormonal issues in those women with symptoms of depression or anxiety (Skalkidou, et al., 2012). Additional research associates Additional research associates inflammatory processes within the body with depression and suggests that interventions that have anti-inflammatory properties, such as long-chain omega-3's, selective serotonin reuptake inhibitors (SSRI's) and breastfeeding, may play a role in the prevention of PPD (Kendall-Tackett, 2007). Another Cochrane systematic review/meta-analysis evaluated the prevention of PPD through prophylactic antidepressant use. Only two trials met the authors' inclusion criteria of RCT's of "antidepressants alone or in combination with another treatment, compared with placebo or a psychosocial intervention in non-depressed pregnant women or women who had given birth in the previous six weeks depression" (Howard et al., 2009, p. 1). In one study (n=26), nortriptyline showed no benefit over placebo (Wisner et al., 2001), while in the other study (n=25), sertraline did show a

statistically significantly reduction in the occurrence of PPD (95% CI 0.01 to 0.084) (Wisner et al., 2004, p. 1291).

Social support has been repeatedly examined as an intervention to decrease the incidence of perinatal adjustment difficulties. In 2004, a Cochrane systematic review/meta-analysis was conducted by Dennis & Creedy evaluating psychosocial and psychological interventions for preventing postpartum depression. The authors looked at various psychological and psychosocial interventions versus usual pre- and postnatal care to determine what the effects were on the reduction of PPD. Included in the analysis were 15 trials, with over 7600 women who were either pregnant or in the first six-weeks postpartum. The meta-analysis found that postpartum interventions were more effective than those initiated for antenatal depression, and that individual interventions were more effective than group interventions. The authors also found that the most promising area of intervention to prevent PPD was intensive individualized postpartum support by midwives or public health nurses. Interventions aimed at high-risk mothers had a greater benefit than those aimed at the general population, and the authors also noted that, "Mothers who lacked social support were about two times more likely to develop postpartum depression than mothers with sufficient support" (Dennis & Creedy, 2004, p. 3). In 2008, Dennis & Allen conducted a Cochrane systematic review/meta-analysis evaluating non-pharmacological, psychological, and psychosocial interventions in the treatment of antenatal depression. However, the authors did not feel there was adequate data from their review to draw any conclusions or make recommendations based on the small sample size and, therefore, lack of generalizability of their findings.

Gagon and Sandall (2007) conducted a Cochrane systematic review/meta-analysis evaluating the impact of individual versus group prenatal education on a number of different

physical and psychosocial outcomes. They reviewed nine trials that included a total of 2284 women. They excluded studies with interventions directed exclusively to breastfeeding, PPD, improving maternal psychological health, or smoking cessation. Most studies had poor methodology with limited information about the study design or the implementations used, and no data were reported on anxiety, social support, or breastfeeding. Therefore, the authors determined that no consistent conclusions could be drawn from the analysis.

A number of individual studies have investigated interventions to prevent postpartum depression (PPD) with varying results. Dennis et al. (2008) conducted a multisite RCT in Ontario, Canada using the intervention of telephone peer support for women identified as high-risk for the development of PPD. The results indicated a significant difference between the groups (odds ratio 2.1, 95% CI 1.38 to 3.20), with the intervention group (n=221) having a rate of PPD that was almost half the rate of the control group (14% vs. 25%, respectively). The intervention group also reported an 80% satisfaction rate with the peer-support intervention (Dennis, et al., 2008, p. 5). Limitations of the study include the lack of validation for using the Edinburgh Postnatal Depression Scale (EPDS) over the phone, a setting with a nationalized health plan, and half the subjects being immigrant women.

Zlotnick, Miller, Pearlstein, Howard and Sweeny (2006) conducted a RCT investigating an antenatal intervention for the prevention of PPD in a cohort of high-risk women on public assistance in Rhode Island. The study utilized a brief intervention based on interpersonal therapy targeting improving social support and communication. The women in the intervention group (n=99) showed a significant decrease in PPD incidence at three months postpartum using the Beck Depression Inventory (4% vs. 20% in the control group, no p value stated, p. 1444). While

the results are encouraging, the study does not discuss the intervention in any detail, limiting ability to generalize results or replicate the program's interventions.

Gurber et al. (2012) conducted a longitudinal path model study in Switzerland investigating women's birth experiences and perceptions of caregiver support in relation to depression rates at three weeks postpartum. Of the 251 women in the cohort, 63% were primiparous and 27% were multiparous. Most of the women had midwives in attendance for their births, and only 5% had their partner present at the birth. The researchers used multiple tools, but PPD rates were assessed using EPDS at one and three weeks postpartum. Researchers found an acute stress response (ASR) rate of 44.7% at one week and 24.8% at three weeks in the cohort. In addition, PPD rates were 14.2% at week one and 12.6% at week three. Women's reports of caregiver support were related to better birth experience and lower ASR and PPD rates. Women with ASR were at increased risk for developing PPD and PTSD. Substantial comorbidity of PTSD, ASR, and PPD were seen. A significant association of ASR with extreme pain in childbirth and low perceived control was also observed ($p < 0.01$, p. 180), but this was not correlated with mode of delivery. Clinically, the results reinforce the importance of caregiver support and birth experience on postnatal adjustment. Limitations of the study include the fact that the study was conducted in another country with different medical and social norms, and the age of the subjects was significantly older than the proposed DNP project's target population, thereby limiting the generalizability of the results.

Bigelow et al. (2012) investigated the effect of mother-to-infant skin-to-skin contact (SSC) on mothers' physiological stress levels and symptoms of PPD in a Canadian, longitudinal cohort of 90 women. The researchers used the EPDS and the Center for Epidemiological Studies Depression Scale (CES-D) in conjunction with maternal salivary cortisol levels to examine the

effects of the intervention on mother's self-reported symptoms of PPD as well as physiological biomarkers of stress. At one week, mothers in SSC group scored significantly lower on depressive screening tools ($p < 0.007$), and differences continued to be reported at one month postpartum but to a lesser degree ($p < 0.078$). By three months postpartum, there were no differences in scores between the groups. In addition, no statistically significant difference was observed between groups in regards to maternal salivary cortisol levels at either one week or one month postpartum (Bigelow, et al, 2012, p. 375).

SCREENING AND DIAGNOSIS

Position statements from leading medical groups vary regarding screening for PPD or depression in general. The American College of Nurse-Midwifery (ACNM) issued a position statement on Depression in Women endorsing universal screening and treatment or referral for the treatment of depression as a part of routine perinatal or gynecological care. The organization called for midwives to be knowledgeable about depression care and resources, to advocate for integrated care and policies which provide greater postpartum visits and reimbursement for mental health services, citing statistics that depression affects women twice as frequently as men (12% vs. 6%) with suicide attempts two to three times more frequent in women than men (ACNM, 2002). However, the American College of Obstetricians and Gynecologists (ACOG) issued a position statement titled Screening for Depression during and after Pregnancy (2010) which did not support universal screening. While ACOG recognized the common incidence and consequences of lack of treatment, the committee stated that there was insufficient evidence to "support a firm recommendation for universal antepartum or postpartum screening" (p. 394). The committee did state that screening should be strongly considered and that clinicians should have

a process for referral and treatment of identified cases, noting that, “Women with current depression or a history of major depression warrant particularly close monitoring and evaluation” (ACOG, 2010, p. 394).

As caregivers to infants and children, and noting the impact of untreated maternal depression on pediatric health, the American Association of Pediatrics (AAP) Committee on Psychosocial Aspects of Child and Family Health released a Clinical Report titled Incorporating Recognition and Management of Perinatal and Postpartum Depression into Pediatric Practice (Earls, 2010). Noting the association of maternal depression with early cessation of breastfeeding, infant risks for language and developmental delays, poor infant state regulation, failure to thrive, attachment disorder, and long term behavior and psychosocial problems, the Committee proposed that screening for postpartum depression should be incorporated within pediatric well-baby visits during the first year of life. The AAP committee also discussed some of the barriers to screening, including doctors feeling inadequately prepared to screen for maternal depression, as well as lack of time, inadequate referral sources, lack of reimbursement, and concerns about liability. National trends as well as state-specific legislation requiring universal screening for PPD were also discussed. The report also noted that in Illinois, increasing pediatrician reimbursement by an additional $14 to screen mothers with the EPDS has resulted in increased maternal treatment referrals (Santoro & Peabody, 2010). In order to help facilitate screening, the report offers a CPT code (CPT 99420-“measure of risk in infant's environment”) for providers to use when utilizing the EPDS (Earls, 2010).

Several studies have been conducted exploring attitudes and practices of providers regarding the screening for PPD. LaRocco-Cockburn, Melville, Bell and Katon (2003) conducted a study of ACOG members to estimate screening frequency as well explore positive and negative

attitudes of obstetricians and gynecologists (OB/GYN's) which impact screening. Of the doctors surveyed, 44% reported often or always conducting depression screens, 41% sometimes, and 15% never. Most OB/GYN's did not use standardized screening tools with 81% responding that they used informal questions. Many of the answers received implied positive opinions about screening: 90% agreed screening improves detection, 79% agreed screening results in early diagnosis and treatment, 84% agreed treatment is effective, and 73% agreed depression is common enough that there should standardized screening. However, 24% of respondents felt their patients would not want them to investigate psychosocial issues, and 48% expressed concern that their patients would become more dependent on them if they asked about psychosocial issues. A small majority (56%) felt discussing psychosocial concerns required too much effort, and almost half (47%) felt screening would take too much time and that they did not feel adequately trained to treat depression (45%) (LaRocco-Cockburn, et al., 2003, p. 894). Interestingly, more than 50% of respondents did not feel they would be influenced by anything except an ACOG statement regarding depression screening. Barriers to screening noted in this study included: time constraints, inadequate reimbursement, screening not always leading to treatment, lack of provider training or comfort with depression treatment, and lack of trained mental health professionals for patient referral for treatment (LaRocco-Cockburn et al., 2003). Limitations of this study include only a 50% response rate which may have led to non-representative sample (self-selection bias), as well as the possibility that respondents may have over represented their screening rates. Additionally, the study was done in 2001 and may not reflect current attitudes and practices.

Similarly, Horwitz et al. (2007) examined pediatricians' perceived barriers to the identification and management of psychosocial issues in children and maternal depression. This

was a cross-sectional survey with a random sample of 1600 members of AAP, of whom 832 responded (n=745 eligible, 52% response rate). The primary barriers perceived by pediatricians in regards to maternal depression were: lack of training in treatment (74.5%), lack of time to treat (64.3%), concerns about liability (54%), unfamiliarity with screening instruments (60%), inadequate time to contact community mental health providers (55%), and too few community mental health resources (54%). Only 4.3% of pediatricians feared losing patients if they addressed maternal depression. Limitations of the study include only a 52% response rate, and the possibility that respondents self-selected creating a non-representative sample (with significantly more female than male respondents). There is also the possibility of response bias for socially desirable behaviors influencing the results. The authors concluded that that mothers "would not mind" or "would welcome" screening and referral services from their child's pediatrician for their own health issues and that, "Pediatricians are in a unique position to identify and treat or refer depressed mothers" (p. 209).

In 2006, Sanders conducted a survey of certified nurse midwives (CNM's) to determine their attitudes, knowledge and perceived ability regarding depression management. Attendees at the ACNM national conference were surveyed regarding attitudes and practices of depression screening, diagnosis, treatment and referral. Of the 887 surveys distributed, only 413 were returned (42.6% response rate). Of those returned, 88.6% agreed that CNM's are primary care providers, 86% felt women should be screened annually for depression, 64% felt a structured tool or interview should be used, 91% felt they could screen but only 59.3% felt they could manage depression due to furnishing or protocol issues. Of those who had furnishing privileges, 65.9% did prescribe psychotropic medications. Interestingly, although 49% reported always screening for domestic violence and 61.1% always screening for substance abuse, only 25.1%

reported always screening for depression (Sanders, 2006, p. 342). Positive attitude, perceived ability, knowledge, and educational level of the CNM respondents were all positively correlated with depression screening. Limitations of this study includes the fact that this was a convenience sample, that there was a low response rate (self-selection bias), and the fact that conference attendees may not be a representative sample of the greater population of CNM's.

Yawn et al. (2012) conducted a systematic review of postpartum depression screening programs with the goal of summarizing and exploring program components that led to success in screening and outcomes for women. The authors reviewed articles in English-language, peer reviewed journals between the years of 1998-2011. They only included articles that reported an intervention and outcome. Various PPD screening tools were seen in the literature, but the most common tools were the EPDS, the Patient Health Questionnaire (PHQ) 9- question or 2-question (PHQ-9 or PHQ-2) for screening. As a result of the literature search, 54 programs were identified, but only eight met criteria for inclusion in the authors' review. The programs focused on women from less than one week to six months postpartum. Five programs were limited to English literate patients, one program (set in Hong Kong) was limited to Chinese literate clients, and two programs (New Haven & Family Medicine) included English and Spanish speaking clients. Increased rates of PPD screening, referral and treatment were noted in two of eight studies, with two studies reporting no impact from universal screening, and two studies reporting improved process outcomes and maternal outcomes at 6 and 12 months postpartum. The programs that showed the most success had clear guidelines, with on-site evaluation and treatment initiation, and significant staff training and resources. The researchers found screening, without triage protocols and clinician discussions with clients regarding results, to be ineffective. Of the eight studies, only four reported maternal outcomes, with two showing

improvements and two not demonstrating improvements. Clinically important significant findings included the identification of major barriers to women receiving treatment for PPD including women having to go outside their usual care facilities for a formal evaluation and structured clinical interview to confirm their diagnosis and initiate treatment. Other barriers that were identified include: lack of reimbursement or incentives for clinicians to screen, increased time burden for clinic staff, limited role of the pediatrician in referral or treatment, lack of provider interest in educational programs, and lack of follow up programs. Limitations of the study included a lack of consistency in the screening methods, procedures and outcome measures used at the various clinical sites. Additionally, studies done in other countries, with differing medical systems and social norms, may have limited relevance or generalizability. However, the authors do note that with a "worldwide shortage of mental health professionals," it is important and feasible to integrate PPD screening and care into primary care sites (Yawn, et al., 2012, p. 7).

Several studies investigated innovative programs to increase the screening, recognition and treatment of PPD. Smith and Kipnis (2012) detail the implementation of a nurse-led PMAD program initiated in a rural Arizona hospital. In addition to educating clinicians and raising community awareness regarding PPD, they developed an innovative model and protocol for screening that used the EPDS to screen women on day two or three postpartum to identify potential adjustment issues. Although PPD is generally not determined until at least two weeks postpartum, the authors did find a high correlation with EPDS scores at two to three days postpartum and later scores at four to six week postpartum. Additionally, 25% to 35% of the women did not return for their six-week postpartum visit, so the authors felt their program offered a unique opportunity to screen while women were still in the hospital prior to discharge.

During the first four months of program, 300 mothers were screened, with a screen positive rate of 16.7%, which is consistent with published rates of PPD (Smith & Kipnis, 2012, p. 84). Limitations of the study include the fact that it is a descriptive study, and that screening in the first few days postpartum has not been validated formally. However, it does offer a low-cost, feasible approach to increasing maternal screening and awareness regarding PPD.

Horowitz, Murphy, Gregory and Wojcick in 2009 and again in 2011 described results from the CARE (Communicating and Relating Effectively) Study, which was a prospective National Institute of Health (NIH) funded RCT designed to implement best-practice recommendations for PPD. In this study, follow-up discharge nurses from two major Boston-area medical centers contacted 5169 postpartum women (14 to 49 years in age) by telephone to administer the EPDS, as well as question regarding whether they had been screened by their obstetrician or midwife for PPD. If nurses were unable to reach a woman by telephone by five weeks postpartum, then the EPDS was sent by mail. Anyone with a score of 10 or greater was offered a structured interview for formal diagnosis and treatment, and women with a score 13 or greater or any suicidal ideation were instructed to call their providers immediately. Of women screened, 13% scored 10 or greater, with prevalence higher on self-score by mail than over the phone. Greater prevalence of positive screens was observed in women with less than a high school education. Of the women who screened positive, 40% declined a formal interview. Of the 60% interviewed, 73% received a diagnosis of major or minor depression with a postpartum onset (Horowitz et al., 2009, p. 1433).

Several interesting findings emerged from the study: Out of 4419 screened women who saw a clinician at four to six weeks postpartum, only 63% reported being asked about their emotional adjustment. In women who screened positive for PPD who had seen a clinician and

been asked about emotional adjustment, 73% denied any symptoms of PPD during their visit. A few women with elevated EPDS scores who told their clinicians they "felt sad" (n=91) were not offered any intervention or follow up (Horowitz et al., 2009, p. 1433). Based on the findings of the study, the authors offered the following recommendations: 1) Clinicians should be aware that screening with free, reliable tool (EPDS) is feasible and only takes 5-10 minutes to administer; 2) Four to six weeks postpartum is the ideal time for screening, but screening can occur anytime throughout the first year at pediatric or primary care visits; 3) Clinicians should discuss scores and clarify results with women; and 4) Effective protocols begin with educating clinicians regarding PPD and its effects (Horowitz et al., 2009). In their second study, the authors also recommend using the EPDS due to validity, accessibility, and wide usage, and they suggested a cut-off of 10 or greater to increase sensitivity of PPD screening to 90%. They also suggested screening with the Structured Clinical Diagnostic Interview by an advanced practice registered nurse as the gold standard for PPD diagnosis (Horowitz et al., 2011).

BEST TREATMENT PRACTICES

Misiri and Kendrick (2007) conducted a literature review of 113 articles on the treatment of PMAD's using the PubMed and MEDLINE databases. Keywords included the following: perinatal, pregnancy, postpartum, depression, anxiety, pharmacologic, nonpharmacologic, psychotherapy, and treatment. The purpose of the review was to investigate the nonpharmacologic and pharmacologic treatments for PMAD's and to discuss the importance of weighing the risks and the benefits of exposing the fetus or baby to maternal mental illness as opposed to exposure to antidepressant medications. Pharmacologic interventions included treatment with: Bupropion, trazadone, mirtazapine, venlafaxine, citalopram, escitalopram,

sertraline, paroxetine, fluoxetine, as well as the tricyclic antidepressants (TCA's): clomipramine and nortriptyline. Psychotherapeutic interventions addressed included: cognitive behavioral therapy (CBT), interpersonal therapy (IPT), and whether individual and group therapy was more effective. Other non-pharmacologic interventions addressed included: light therapy, exercise, massage, acupuncture, and St John's Wort. Details regarding the authors' inclusion and exclusion criteria were not specified.

The article discussed the risks of fetal teratogenicity in pregnancy with psychotropic medications, but also discussed the fact that failure to treat PMAD's can lead to multiple obstetric complications, including: self-medication, substance abuse, impaired bonding, long term effects for infant, increased fetal cortisol levels, preterm labor, and low birth weight. The authors' review found that non-pharmacological treatments, and most specifically CBT, had success rates as effective as medication for mild-moderate depression (52-97% symptom remission) (Misiri & Kendrick, 2007, p. 491). CBT and IPT were the most effective psychological treatments and individual therapy was more effective than group interventions. Results with alternative treatments were promising but mixed. Bright-light therapy showed efficacy after three to five weeks of treatment with 7000 lux in one study (Oren, et al., 2002), while in another, it took up to 10 weeks of treatment before results were significant (Epperson, et al., 2004). In yet another study, there were no significant treatment results demonstrated (Corral, Kuan & Kostaras, 2000). Exercise and massage were both shown to significantly decrease symptoms of depression and anxiety (Da Costa, et al., 2003; Onozawa, et al., 2001). St John's Wort, while often used, has not been well studied in pregnancy or breastfeeding; therefore, the authors could not come to any conclusion regarding its efficacy or safety (Klier, et al., 2006).

Acupuncture was shown to decreased depressive symptoms, with effects sustained for 10 weeks, but only one study met the review criteria (Manber, et al., 2004).

Regarding pharmacologic treatment, the authors found that women who stopped taking antidepressants in pregnancy had a 75% relapse rate. However, it is notable that 26% of women who stayed on antidepressants experienced relapses as well (Cohen, et al., 2006). All psychotropic medications cross the placenta, but fetal effects are varied. Tricyclic antidepressants (TCA's) were reported as effective and safe but carried many unwanted maternal side effects. Monoamine oxidase inhibitors (MAOI's) were associated with intrauterine growth retardation (IUGR) and recommended to be avoided when possible. Selective serotonin reuptake inhibitors (SSRI's) and serotonin-norepinephrine reuptake inhibitors (SNRI's) are the most commonly used psychotropic medications during pregnancy and lactation, and lower levels of placental blood concentration in pregnancy and infant serum concentration in breastfeeding infants is seen with sertraline and paroxetine versus citalopram and fluoxetine. In fact, though all SSRI's transfer to the breast milk, sertraline and paroxetine are non-detectable in infant serum. In lactation, fluoxetine has the highest concentration in infant's serum of the SSRI's. However, no serious side effects from SSRI's during lactation have been reported, and all are considered compatible with breastfeeding. In regards to SNRI's, venlafaxine has shown no teratogenicity; however, there are two reported cases of neonatal seizures in infants exposed prenatally. Despite these reports, there have been no other long term adverse effects noted, and it is considered compatible with breastfeeding. Mirtazapine showed no apparent teratogenicity but did have an increased rate of miscarriage when used early in pregnancy. No data were available about the effects of infant exposure to Mirtazapine through breastfeeding. In the atypical antidepressants, bupropion showed higher rates of miscarriage but no reported issues with infant exposure

through breastfeeding. Trazadone had no incidences of undesirable effects in pregnancy, but there was very limited data available (Misiri & Kendrick, 2007).

The authors concluded that, while medication use in pregnancy and lactation is controversial and not without risk, leaving maternal mental illness untreated has adverse consequences, not only for the mother but also for the fetus or infant as well (Misiri & Kendrick, 2007). In mild to moderate cases of unipolar depression, psychotherapy should be considered. However, in severe cases, or cases not responding to psychotherapy, adding pharmaceutical therapy may be needed. All pharmacologic treatment of PMAD's needs careful risk/benefit analysis, but no choice is risk-free. The fetus or infant either bears the risk of exposure to the antidepressant or to consequences of maternal depression. While the authors state that non-pharmacological treatments show promise, more evidence is needed to determine efficacy and sustainability. "Current best practice should involve a consensual process whereby patients are presented with the current knowledge, engaged in decision making, and closely monitored regardless of their choice of treatment" (Misiri & Kendrick, 2007, p. 495).

SUMMARY

"Given the prevalence of child psychosocial problems and maternal depression, as well as their importance for children's health, the continued under identification and minimal management...is puzzling" (Horwitz et al., 2007, p. 209).

There is a great deal of literature regarding the consequences of untreated maternal depression, both for the woman and her child. There seems to consensus, regarding the importance of identification and treatment, but there does seem to be a lack of agreement regarding where and when women should be screened, what tool should be used and who should

conduct the screening. The lack of clear and integrated national guidelines further adds to the difficulty of treatment decisions, and even within this literature review, the most solid evidence (meta-analyses) offered limited evidence to assist with in determining the best approaches to evidence-based practice. Studies of pregnant and breastfeeding women are inherently fraught with ethical and logistical difficulties, so much of the evidence is drawn on empirical or case and cohort data. However, within this literature review some key information did emerge as summarized below.

In the prevention of postpartum depression, breastfeeding and social support appear to be protective (Dennis & Creedy, Kendall-Tackett, Cong & Hale, 2011; Skalkidou et al., 2012), as does a positive birth experience (Allen et al., 2011; Gurber et al., 2004) and extended postpartum visitation with midwives or public health nurses (Dennis & Creedy, 2004; MacArthur, 2003). Preventative treatment with sertraline may be a possibility for women at high risk for PPD who do not have a history of bipolar disorder (Howard et al., 2009). Also, programs with CBT-based interventions and mother-infant skin-to-skin contact may be helpful (Zlotnick et al, 2006; Bigelow et al., 2012).

Early screening and referral for identified issues is important, and the evidence suggests that the EPDS is the preferred method of screening with a cut-off of 10 or greater as a positive screen (giving a 90% sensitivity rate) (Horowitz, et al., 2011). While the EPDS is not diagnostic, there is significant evidence that requiring a formal structured clinical interview can be a barrier for the initiation of treatment for many women (Gaynes et al., 2005; Horowitz et al., 2011; Santoro & Peabody, 2010; Yawn et al., 2012). There is controversy regarding universal screening, but the bulk of the literature and expert opinions support it (ACNM, 2002; Gaynes et al., 2005; Earls, 2010; Santoro & Peabody, 2010; Sharma, Burt & Ritchie, 2010). The literature

also indicates the importance of integrating screening into primary care and pediatric practices where women are typically already interfacing for care (ACNM, 2002; Earls, 2010; Horowitz et al., 2011; Yawn et al., 2012). Screening by phone or mail may be options, as may early screening while women are still in the hospital after birth (Dennis et al, 2008; Horowitz et al., 2011; Smith & Kipnis, 2012). It is extremely important to educate women and families regarding the signs and symptoms of PMADs and how to access treatment. It is equally important to educate obstetric and pediatric caregivers regarding screening, diagnosis and treatment.

Treatment options are dependent upon the severity of symptoms, whether the woman is pregnant or breastfeeding, and the comfort and desires of the woman. For breastfeeding women, SSRI's are considered safe and compatible with breastfeeding (Misiri & Kendrick, 2007), with sertraline having some advantages over the others (Hale, 2012). However, the choice of medications will depend on the patient's history and preferences. Paroxetine should be avoided in pregnancy due to risks of fetal cardiac defects (Misiri & Kendrik, 2007). Bipolar depression is a far more complicated disorder with higher rates of severe disease and should be managed by a mental health professional (Sharma et al., 2010). Psychotherapy, especially CBT, has been shown to be very effective and should be considered the first line treatment in absence of severe symptoms (Misiri & Kendrik, 2007; Zlotnick et al., 2006). Individual therapy appears to be more effective than group therapy for treatment of PPD (Dennis & Creedy, 2004). Alternative therapies such as massage, acupuncture, light therapy and exercise may be helpful, and there is evidence that dietary supplementation with vitamin D and/or long-chain omega 3's may decrease depressive symptoms (Dennis & Allen, 2008; Kendall-Tackett, 2007; Misiri & Kendrik, 2007; Skalkidou et al., 2012). When a mother is experiencing depression, there is no risk-free treatment course; the fetus/infant is either exposed to the risks of the treatment or to the risk of untreated

maternal depression the consequences of which can be substantial. Women and families need to be educated about these risks and supported in their treatment choices.

CHAPTER 3—METHODS

INTRODUCTION

This chapter will discuss the practice change undertaken by this Doctor of Nursing Practice (DNP) Project, including the operational definitions, setting and sample, PICO statement, methodology, ethical considerations, and limitations of the project.

Postpartum depression (PPD) is the number one complication of childbirth, with prevalence rates of approximately 15% in US, but rates as high as 40-60% have been reported for women living in poverty (Dennis et al., 2008). Although validated screening tools exist, they are rarely used in outpatient obstetrical settings, and although effective treatment options are available, misinformation abounds, further complicating issues. Lack of provider awareness about PPD can increase the feelings of shame and stigma experienced by women suffering from difficult postpartum adjustments, and misinformation regarding the safety of antidepressant medications often leads to early weaning, further exacerbating the depression and interrupting the breastfeeding dyad which carries so many benefits for both mother and baby (Misiri & Kendrick, 2007). Based on the review of literature and a community needs assessment, this quality improvement (QI) project focused on increasing the screening and treatment of PPD by perinatal practitioners within a rural health clinic.

OPERATIONAL DEFINITIONS

Comprehensive Perinatal Service Program (CPSP): A program administered through Maternal, Child and Adolescent Health (MCAH) Public Health Program that includes enhanced prenatal care, health education, nutrition services, and psychosocial support for up to 60 days after delivery of an infant. The goal of CPSP programs is to decrease the incidence of low-birth

weight infants, improve pregnancy outcomes, and to lower health care costs by preventing catastrophic illness in infants and children. Services are funded by Federal Title V MCH Block Grant Funds and Medicaid Funds (CDPH, 2014).

Edinburg Postnatal Depression Scale (EPDS): A 10-item self-administered questionnaire that has been validated for screening pregnant and postpartum women for depression with a sensitivity of 74-88% and specificity of 87-93% (Cox, Holden & Sagovsky, 1987).

Federally Qualified Rural Health Center (FQHC): Federally designated "safety net" providers such as community health centers that receive enhanced reimbursement for providing primary care services in medically underserved rural communities (CMMS, 2013).

Perinatal Mood and Anxiety Disorders (PMADs): Psychiatric disorders which occur during pregnancy or within the first year following the birth of a baby or end of a pregnancy. Specific disorders can include depression, anxiety, obsessive-compulsive disorder, posttraumatic stress disorder, bipolar disorder, and postpartum psychosis (PSI, 2010).

Postpartum Depression (PPD): A psychiatric disorder which occurs after the birth of a baby or the end of a pregnancy that is characterized by feelings of irritability, appetite and sleep disturbances, crying or sadness, loss of interest in previously enjoyed activities, and possible thoughts of self-harm (PSI, 2010). For the purposes of this project, PPD is defined as a score of 10 or greater on the EPDS in a woman from two weeks to one year postpartum, or who otherwise self-identifies as feeling depressed.

SETTING

The setting for this project is a FQHC in rural, Northern California. The clinic is designated to provide services to low-income, medically underserved clients with MediCal and Medicare health care coverage. The FQHC has approximately 9000 client visits per month with services that include: primary care for children and adults, dental care, radiology, physical therapy, pharmacy services, as well as a full range of specialty services. The pediatric department is staffed by three pediatricians (MD's), one physician's assistant (PA), and two nurse practitioners (NP's) who collectively see approximately 800 children per month. One of the specialty services offered is behavioral health which is staffed by two psychiatrists (MD's), a psychiatric NP, and a psychiatric registered nurse (RN) who see approximately 1100 clients per month. Current wait times for new behavioral health patient visits are three to four months (FRHC Monthly Data Report, n.d.).

The clinic also houses a Comprehensive Perinatal Service Program (CPSP) that provides health education, psychosocial support, and nutritional counseling to low-income women. Services are available to women with MediCal from the time of diagnosis of pregnancy until eight weeks postpartum. The CPSP program is staffed by three RN's, two NP's, one registered dietician (RD), and one licensed clinical social worker (LCSW), as well as ancillary staff, student interns from the local university, and volunteers. The CPSP program conducts approximately 300 visits per month. The clinic is associated with a local hospital where over 1000 babies are born per year. There are five OB/GYN's and five CNM's currently with active medical staff privileges.

SAMPLE/POPULATION

The target audience of the educational intervention includes the obstetrical providers (MD's and CNM's), the pediatric providers, and the staff of the CPSP program (approximately 20 perinatal service providers). All perinatal staff and providers associated with the FQHC were invited to participate in this QI project with the hope of increasing awareness and formal screening with the EPDS in order to facilitate timely evaluation and treatment for depression in postpartum women. The women served by the clinic are low-income pregnant or postpartum women receiving Medi-Cal (Medicaid) insurance. While they are not direct participants in the project, they are the patient population that it is hoped will be positively affected by the outcome of the educational intervention and triage/treatment/referral pathways.

EVIDENCE-BASED PRACTICE CHANGE

Postpartum depression is an under-diagnosed public health issue that can have devastating effects on women, infants and families. Universal screening for PPD was advocated by World Health Organization in 2009; and the Patient Protection and Affordable Care Act of 2010 (Section 2952) provides support for screening with no share of cost (Horowitz et al., 2011; Santoro & Peabody, 2010). There is controversy regarding universal screening, but the bulk of the literature and expert opinions support it (ACNM, 2002; Gaynes, et al., 2005; Earls, 2010; Santoro & Peabody, 2010; Sharma, Burt & Ritchie, 2010). The evidence suggests that the EPDS is the preferred method of screening with a cut-off of 10 or greater as a positive screen for the presence of depressive symptoms (giving a 90% sensitivity rate) (Horowitz, et al., 2011). While the EPDS is not diagnostic, there is significant evidence that requiring a formal structured clinical interview can be a barrier for the initiation of treatment for many women (Gaynes, et al.,

2005; Horowitz et al., 2011; Santoro & Peabody, 2010; Yawn et al., 2012). The literature also points to the importance of integrating screening into primary care and pediatric practices where women are typically already interfacing for care (ACNM, 2002; Earls, 2010; Horowitz et al., 2011; Yawn et al., 2012).

Because screening has been shown to increase referral and treatment (Horowitz, et al., 2009; Santoro & Peabody, 2010; Smith & Kipnis, 2012; Yawn et al., 2012), the focus of this project was to increase screening for PPD using the EPDS within a rural health clinic. Pre- and post-surveys were used in conjunction with educational interventions to increase knowledge and comfort of perinatal providers regarding screening and treatment of PPD in a rural FQHC. The goal was to determine current PPD screening practices, barriers to screening, and to increase screening and treatment/referral rates within the FQHC, as well as increasing provider comfort and knowledge regarding treatment options and community resources. Providers were provided with PPD tool kits and encouraged to screen postpartum women at the 2 and/or 6 week postpartum visits and/or at well baby visits within the first year using the validated EPDS screening tool.

Five attributes of innovations that can impact rates of adoption include: 1) Relative advantage, 2) Compatibility, 3) Complexity, 4) Trialability, and 5) Observability (Rogers, 2003). In order to increase implementation of the project goals and mitigate potential difficulties, the following steps and considerations were incorporated in the project plan: 1) Providers were given information about the benefits of screening with the EPDS versus other methods (Relative Advantage); 2) Showing compatibility of universal screening with the mission statement of the organization and the position statements of ACOG, AAP, and ACNM, as well as helping providers understand that screening for PPD is another opportunity for early detection and

treatment, similar to screening for gestational diabetes or chlamydia (Compatibility); 3) In order to decrease the complexity of the practice change, tool kits were given to provider offices which included preprinted EPDS screens, as well as resources and handouts to share with clients, and office support staff were trained to score the screens in order to decrease the time burden on providers (Complexity); 4) As this is a pilot project, the program will continue to adjust based on provider feedback and needs (Trialability); and 5) Because observability of positive outcomes is an important reinforcement for sustained practice change, providing feedback to providers regarding positive outcomes will be helpful (such as provider updates regarding number of women served by program, anonymous client success stories, and acknowledging offices which meet benchmarks for screening). Addressing these five areas in project planning and implementation helps increase the likelihood of innovation adoption and sustained practice change (Rogers, 2003).

TRANSLATING FRAMEWORK INTO PRACTICE

Because one of the key identified barriers for the treatment of PPD is lack of screening (Earls, 2010; Horowitz et al., 2011; MacArthur, 2003; Yawn et al., 2012), a key component of improving the early recognition and treatment of these conditions is to implement practice changes with providers regarding screening and treatment of PPD. The John Hopkins Nursing Evidence-Based Practice Model (JHNEBP) utilizes the American Nursing Association's (ANA) Standards of Practice, as well as portions of the ANA Professional Performance Standards, to provide a framework for evaluating and implementing organizational evidence-based change in nursing practice. The model consists of three specific components: Practice Question, Evidence, and Translation, or PET (Newhouse et al., 2007).

PRACTICE QUESTION

As stated before, the model starts with a PICO statement that defines: the patient, population or problem (P), the intervention (I), comparison with other interventions (C), and outcome of interest (O) that results in a clearly defined practice question (Newhouse et al., 2007). In order to meet the needs of pregnant and parenting women in Butte County, a number of interventions have been proposed by the First 5 Maternal Health Advisory group. Activities proposed have included: investigating current resources and gaps in care, educating obstetrical providers regarding screening and treatment of PMAD's, targeting pediatricians as first line screening for PMAD's in new mothers, developing postpartum support groups in each area with hospitals doing deliveries, and continuing to work on communication between the disciplines of obstetrics, pediatrics and behavioral health. As maternal mental health was chosen as a Butte First 5 focus area, a literature search was undertaken with the PICO statement:

"What interventions prevent or treat postpartum depression?"

Once a question or focus is determined, a work group is formed which includes key stakeholders who can help guide the exploratory process and who also will be involved in implementing any desired change. In this case, members of the advisory group formed included staff from Butte First 5, the director of the County Behavioral Health Department, the County Maternal/Child Public Health director, the nurse manager of a local hospital, a hospital social worker who specializes in maternal/child issues, a local pediatrician, a therapist who provides services to high-risk women in a First 5 funded home-visitation program, and a CNM/NP/International Board Certified Lactation Consultant (IBCLC) who is completing her DNP degree through the University of Hawai`i, Mānoa (UHM).

Having key stakeholders involved is crucial in terms of organizational "buy-in" and project success (Newhouse et al., 2007). Specifics regarding stakeholder roles, project interests, and priority focuses are detailed in Figure 1.

Person/Agency	Role	Interest in Project	Priorities
Self/DNP student/CNM	Project lead	DNP project for the program as well as desire to see improved perinatal mental health services in area	Successful completion of project
Public Health Department	Support, community awareness	Goal is to increase health of community—primary, secondary and tertiary prevention of disease	Reach of education and screening
OB Providers	Obstetric care and postpartum screening. May also provide medical treatment of PMAD's	Primary care of mother during pregnancy and immediate postpartum. May be providing medications and referrals as needed. Will greatly benefit from triage protocols and resource list	Having ability to have women receive behavioral health services when needed. Knowing current PMAD screening and treatment recommendations. Time concerns regarding screening, referrals, and accessing mental health services
Pediatric Providers	Pediatric care of infants	Maternal mental health impacts infant development. May serve as primary point of screening during first year postpartum due to frequency of well-baby visits	Safety and wellbeing of infants/children
Behavioral Health	Provision of diagnosis and treatment. Some counseling services. Consultation with other providers regarding treatment	Currently primary providers of mental health services. Due to funding and access issues, the department is overwhelmed with severely mentally ill clients	Increasing treatment options with OB/GYN's, CNM's and NP's providing front-line treatment for PMAD's with consultation and co-management as needed
Hospital OB Departments (Managers, RN's and LCSW's)	Direct care to women. Providers of perinatal education	Perinatal care providers	Accessibility of educational handouts and information for staff. Knowing triage/referral resources for PMAD's
IBCLCs	Lactation support	Knowledge of appropriate medications with lactation. Desire for pediatric providers to have current information regarding medications and breastfeeding to prevent unnecessary weaning	Keeping breastfeeding uninterrupted when possible

CPSP Providers (Healthy Mothers)	Provide perinatal support services including screening, counseling and lactation support	Focus of program is to provide health education, nutritional counseling and psychosocial support.. Will benefit from integrated screening and referral program as well as information regarding medications in pregnancy and lactation	Having referral resources when women need psychiatric care or counseling past the 8 week postpartum period
Pregnant and parenting women with PMAD's	Women receiving screening and care	Knowledge of providers and services available directly affect their ability to be well and thrive personally and as parents	Access to supportive, evidence-based care. Access issues including finances, childcare, transportation concerns

Figure 1. PPD project stakeholders

EVIDENCE

Next, the team complies, reviews, summarizes and evaluates the relevant research and then develops recommendations for a course of action. The review of literature, as detailed in Chapter 2, was completed by the DNP student and the results were synthesized and shared with other Butte First 5 work group members. In Fall of 2012, a literature review of PubMed and Cochrane Data Base was undertaken using the search terms "postpartum depression" OR "perinatal mood and anxiety disorders." Filters activated included: clinical trial, randomized controlled trial, systematic reviews, meta-analysis, published in the last 5 years, humans, and English language, which resulted in 206 articles. An additional search phrase added –AND- "prevention" OR "treatment" which narrowed the results to 155 articles. Another search phrase "AND interventions" was included which narrowed the results to 39 articles. Additional articles were obtained using the same search criteria from weekly PubMed search updates, and mining the reference lists of reviewed articles. Quantitative and qualitative research articles were reviewed and graded using Mosby's Research Tool (MRT), and systematic reviews were analyzed using the Critical Appraisal Tool for Systematic Reviews (CATSR). Of the reviewed articles, 48 were synthesized based on relevance to the capstone project and PICO statement.

Several other studies and organizational position statements are included for background information.

In addition to a literature review, a community needs assessment was undertaken by the DNP student in Spring 2013 to help determine appropriate project focus based on stakeholder needs. Information was gathered from stakeholder focus groups regarding issues facing the target population in accessing perinatal mental health services (Appendix A-Focus Group Guide). Insights regarding potential resources and concerns were also explored. Frequently mentioned issues included clients with pre-existing mental health issues, psychosocial stressors including transportation, housing, financial and childcare issues, and barriers to accessing services including perceived stigma and discomfort with asking for help and difficulty navigating an over-capacity behavioral health system. Priorities raised in regards to services for women included decreasing transportation and childcare barriers, and creating an environment where women felt supported without judgment. Stakeholders also stressed that having relationships with behavioral health in order to expedite appointments for women needing more psychological care would be extremely helpful.

TRANSLATION

In the final phase of the JHNEBP Model (Translation), the team evaluates whether the changes are feasible in the specified practice setting, and after consulting with and including key stakeholders, develops an action plan with a timeline. Based on the review of literature and the community needs assessment, this project focused on increasing access to mental healthcare for women with postpartum depression (PPD) by increasing perinatal providers' knowledge of and comfort with screening and treatment/referral options. This project consisted of an educational

intervention for perinatal providers in a rural health clinic to increase their knowledge about the screening for, diagnosis of, and treatment options for PPD, as well as existing community resources to assist women with this diagnosis. Additionally, triage and treatment pathways were created and shared, and a collaborative practice integrating first-line screening and treatment of PPD into a preexisting postpartum home visitation program was developed. The DNP Project is titled: *Creating Pathways to Care: A Multidisciplinary Approach to Expanding Screening and Treatment for Postpartum Depression in a Rural Health Center*

The JHNEBP Model calls for implementation of the proposed practice change in a pilot project (Newhouse et al., 2007), then outcomes are evaluated and shared, and if the results are favorable, the changes are implemented on a wider scale. The logic model for the project is shown in Figure 2. Intermediate and long-term expected outcomes are also listed as part of the overarching vision but will be outside the timeframe for the completion of this DNP project.

METHODS/PROCEDURE

This QI project consisted of an educational intervention directed at perinatal providers in a rural FQHC to increase screening for PPD as well as provider comfort and knowledge regarding treatment options and community resources. The setting was Healthy Mothers which is a perinatal program run through the Feather River Health Center, a federally designated rural health center (RHC). Objectives of the project were to determine the impact of the educational intervention on obstetric and pediatric provider knowledge of PMAD's, rates of screening and referral for PPD both pre- and post-intervention, impact of triage/treatment/referral pathways on accessibility of mental health services for postpartum women, and impact of provider knowledge regarding psychiatric medications and lactation on breastfeeding rates.

Inputs/ Resources	Activities	Outputs/ Participation	Short term Outcomes	Intermediate Outcomes	Long term Outcomes
Handouts, educational activities and protocols created by DNP student Collaborative support from Behavioral Health Info from ABM Protocols, *Emory WMHP* and *Hale's Medications and Mothers' Milk* regarding lactation safety	Educational activity to target OB/GYN's, CNM's and Peds regarding screening, treatment and referrals to Behavioral Health Screening/ triage protocols for PMAD's developed and shared with OB/GYN's, CNM's, Peds Protocols regarding treatment of PPD's with information on risk/benefits for pregnancy & lactation to share with OB's, CNM's and NP's	Number of OB/GYN's, CNM's and Peds attending educational activity Number of providers given PPD screening/triage protocol Percent of postpartum women screened with EPDS between 2 and 6 weeks pp and/or at pediatric visits Number of providers given PPD treatment recommendations Percent of women with positive screens who receive treatment Length of time from positive screen to PPD evaluation and treatment Percent of women treated for PPD who continue breastfeeding during treatment	Increased OB/CNM/Peds provider knowledge and comfort with screening and treating or referring Increased screening rate using Edinburgh (EPDS) at 2-6 weeks postpartum by OB providers Increased screening rate using EPDS at Well-Baby appointments by Peds providers Increased referral rate for treatment and support Decreased waiting time to get women in for assessment and treatment of PPD's Decreased scores on EPDS for women receiving treatment for PPD Continuation of breastfeeding for women receiving treatment for PPD	Sustained increase in screening, referrals and treatment as appropriate by providers at > 1 year post-interventions Sense of integration within community between OB providers and Behavioral Health providers measured by provider survey	Decreased postpartum depression Decreased child abuse Increased breastfeeding rates and duration

Figure 2. PPD project logic model

Between 3/4/2014 and 4/2/2014, four educational sessions (approximately 30 minutes in duration) were conducted with interested perinatal staff at the RHC regarding the importance of PPD screening (refer to outline of educational information in Appendix B). Voluntary participants completed an anonymous pre-intervention survey that included the UHM IRB approved consent form (refer to Appendices C and D). Participants received educational training regarding PPD screening using the EPDS (refer to Appendix E), treatment guidelines from the Academy of Breastfeeding Medicine (refer to Appendix F), information on lactation safety of common psychiatric medications (refer to Appendix G), and community resources for women with PMAD's (refer to Appendix H). Each provider office was also given a copy of Hale's *Medications and Mother's Milk 2012*. Additionally, the recommended PPD screening-triage guidelines were shared and discussed (refer to Appendix I). Providers were given both electronic and hard copies (tool kits) of the information and were encouraged to begin screening postpartum women at the 2 and/or 6 week postpartum visit or at pediatric well-baby appointments and referring women to Healthy Mothers who need further evaluation and/or treatment (refer to Healthy Mothers PPD Flyer—Appendix J).

In order to assess the impact of the educational session on provider knowledge, comfort and screening practices, the post-intervention survey (refer to Appendix K) was sent out through Survey Monkey two to three months after the educational sessions. All responses were anonymous and the information aggregated. Participation in the educational intervention and surveys was voluntary, and information obtained from survey data purposefully did not differentiate license type (RN versus MD versus advanced practice registered nurse [i.e., certified nurses-midwife, NP]) to avoid comparisons among disciplines. All efforts were taken to

insure to confidentiality and anonymity of participants in order to gain honest feedback regarding barriers to PPD screening.

Specific outcomes measured included: number of perinatal providers attending educational intervention, pre- and post-intervention knowledge and comfort regarding screening and treatment of PMAD's, percentage of women screened between 2 and 6 weeks postpartum and at well-baby pediatric visits (from anonymous provider survey), as well as time from positive screen to initiation of treatment, and breastfeeding rates for woman receiving treatment for PPD (from de-identified aggregated reports compiled by clinic support staff).

For the short-term impact/outcome evaluation, data were collected using the following methods (Timeline: 3/2014- 7/2014):

- Sign in sheets at educational events
- Pre- and post-intervention surveys for perinatal and pediatric providers re: knowledge, screening and treatment (Quantitative and Qualitative data)
- Screening rates using EPDS from survey data
- Referral rates from Healthy Mothers referral logs (Appendix K)
- Time from screen to evaluation/treatment from Healthy Mothers deidentified Referral Logs
- Breastfeeding rates from de-identified quality reports from Healthy Mothers

OUTCOME MEASURES

In order to determine the impact and effectiveness of the educational activities and triage/treatment protocols, an outcome evaluation examined provider knowledge regarding screening and treatment for PPD, accessibility of behavioral health services as well as impact on breastfeeding duration for women receiving treatment. Specific outcome measures addressed included: the number of OB/GYN's, CNM's, pediatric providers and other perinatal staff attending the educational activities and receiving the screening/triage guidelines; pre- and post-test knowledge scores regarding screening and treatment of PPD; percentage of postpartum

women screened with EPDS between 2 and 6 weeks postpartum and/or at well-baby visits; percentage of women with positive screens who received treatment; time from positive screen to evaluation/treatment before and after intervention, and percentage of women treated for PPD who continued breastfeeding during treatment. Based on these activities, it was expected that the following short-term outcomes would occur:

- Increased perinatal providers' knowledge and comfort with PMAD screening and treatment or referral
- Increased screening rate using EPDS between 2 and 6 weeks postpartum by OB providers
- Increased screening rate using EPDS at well-baby appointments by pediatric providers
- Increased referral rate to behavioral health providers for treatment and support
- Decreased waiting time for women to receive assessment and treatment of PMAD's
- Continuation of breastfeeding for women receiving treatment for PMAD's

ETHICAL CONSIDERATIONS

Protecting the well-being of human subjects is a key concern for all of healthcare. Though the population targeted by this intervention is the perinatal staff and providers at the FQHC, topics which impact perinatal women and infants, such as postpartum depression and lactation, require additional sensitivity. Care was take in designing the methodology to be sure all information regarding patients was aggregated and without identifying information (de-identified data reports run by office staff not involved in the project). Additionally, care was taken to ensure the confidentiality and rights of the perinatal staff and providers participating in the surveys. Participation was fully voluntary (refer to Consent Form—Appendix C), and all surveys were anonymous. Again, it was decided not to ask the role of providers (RN vs MD vs APRN) to avoid potential identification of subjects in the small population. Prior to implementing the project, the author completed the Collaborative Institutional Training Initiative (CITI) course in Health Information Privacy and Security (HIPS) for Clinicians, as well as the

Social and Behavioral Research course. The UHM IRB approved the project under exempt status. There was no expected risk to participants, and benefits included information on PPD, community resources, and expedited mental health referrals for clients.

LIMITATIONS

As with any quality improvement project, there are limitations in the design that may impact the interpretation and generalizability of the project findings. In order to accommodate the needs of providers in an evolving clinical environment, the project interventions have adjusted over the course of implementation. The focus was to achieve increased screening and treatment for PPD, but there was no purposeful control of variables. Because providers self-selected to participate and had the option to participate in any or none of the surveys, there may be selection bias and lack of generalizability of interpretations of results. The small sample size also limits generalizability of results. The survey instruments were reviewed by stakeholders and content experts, but they were not validated for reliability and only offer descriptive and trend data without risk adjustment or formal statistical analysis. Finally, the timeframes of the DNP program limit the ability to collect data over an extended period of time. It may be difficult to capture the impact of the project in the short-term outcomes, and long-term outcome will have to be analyzed outside the scope of the DNP program. Nonetheless, it is important to pilot programs to help steer future public health and quality improvement programs in order to improve the mental health and access to services for Butte County childbearing women. This project will offer insight into barriers to screening and potential solutions to increasing access to perinatal mental health care for this population of childbearing women.

SUMMARY

Postpartum depression is a serious public health issue that impacts women, infants, families and communities. It is under identified and often mismanaged. This DNP project's goal was to increase access to care for women with PPD served by a rural health clinic by increasing screening for PPD and facilitating receipt of care for women with evidence of PPD. This chapter details the methodology of this project including project plan, implementation procedure, data collection tools, analysis plan, ethical considerations, and project limitations. By increasing provider awareness of the importance of screening for PPD, as well as increasing provider knowledge and comfort with psychiatric medications in pregnancy and lactation, it is hoped that Butte County women suffering from PPD will receive knowledgeable, compassionate care that seeks to maintain the breastfeeding dyad when appropriate. Additionally, creating triage pathways and increasing communication between the disciplines of obstetrics, pediatrics and behavioral health will benefit women, children and families in the Butte County area.

CHAPTER 4—RESULTS

This DNP project sought to increase access to mental healthcare for women with PPD by developing integrated screening/triage/treatment/referral guidelines for use by perinatal providers in a northern California Rural Health Clinic (RHC). Between 3/4/2014 and 4/2/2014, four educational presentations were given which discussed PMAD's, screening with the EPDS, lactation safety information, community resources for women suffering with PMAD's, treatment information for PPD, and availability of services for treatment and management of PPD through Healthy Mothers (refer to Appendix B for outline of educational sessions). A total of 32 perinatal and family-practice providers and staff attended the sessions and received the screening-triage guidelines as well as the tool-kits for their offices. While initially, family practice providers were not targeted for the educational sessions, there was interest expressed by the primary care department who felt they were seeing a number of women coming in for depression or anxiety during the first year postpartum. Additionally, an educational session was conducted for approximately 30 labor and delivery RNs at the hospital affiliated with the clinic, and a presentation was given at the County Perinatal Public Health Council with 12 attendees from various disciplines. All survey data collected were anonymous and aggregated to look at overall trends. Based on the educational sessions and the development of a collaborative practice between Behavioral Health and Healthy Mothers to provide first line screening and treatment of PPD, it was expected that the following outcomes would occur:

- Increased providers' knowledge and comfort with PPD screening and treatment or referral
- Increased screening rate using EPDS between 2 and 6 weeks postpartum by obstetrical providers
- Increased screening rate using EPDS at well-baby appointments by pediatric providers
- Increased referral rate to behavioral health providers for treatment and support
- Decreased waiting time for women to receive assessment and treatment of PMAD's
- Continuation of breastfeeding for women receiving treatment for PMAD's

Data were collected from a pre-intervention survey given to the 32 perinatal providers and staff who attended sessions at the RHC, as well as a two to three month post-intervention survey which was distributed to the same attendees via SurveyMonkey. Of the 32 attendees, 23 returned the pre-educational survey (72% response rate), and 16 returned the post-educational survey (50% response rate). Of the respondents, 35% identified their primary practice area as obstetrics/gynecology (n=6), 31% as family practice (n=5), 11% as behavioral health (n=2), 15% as pediatric (n=3) and 8% as "other" or unspecified (n=1).

IMPACT OF EDUCATIONAL SESSIONS

Of the 16 post-educational survey respondents, 81% (n=13) said the information in the educational session impacted their screening or treatment practices, and all attendees answered that they found the tool kit helpful to varying degrees (100%, n=16). Open-ended question responses regarding how the sessions impacted their practices included, "More aware of local resources and screening tools," "I have some resource tools to provide patients," and "We are more unified as a Health Center in how we screen and treat PMAD's."

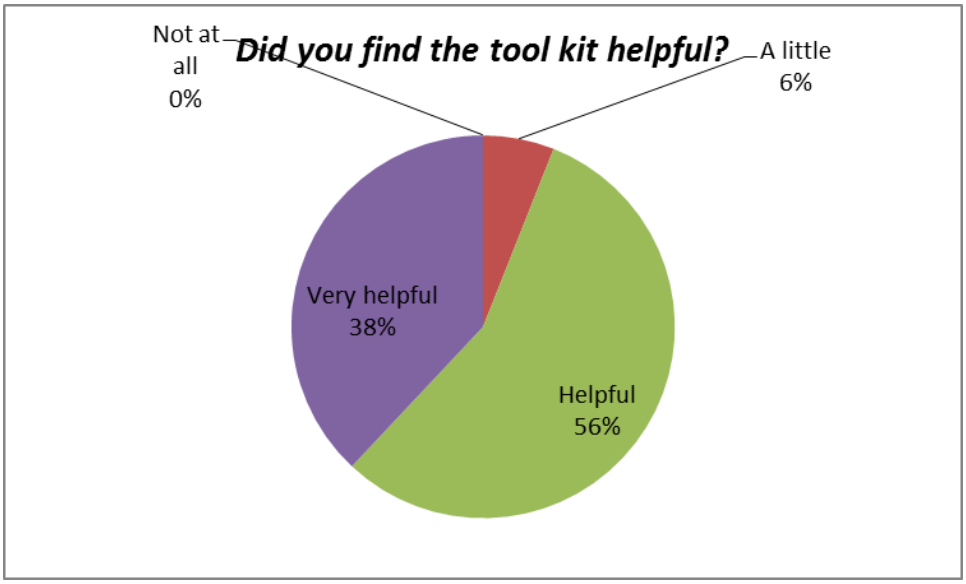

Figure 3. Reported helpfulness of PPD toolkits

In terms of clinician comfort with identifying and screening for PPD, there was a significant shift towards being “moderately” or “very comfortable” versus “not at all” or “somewhat comfortable” in the post-education survey data (n=16) compared to the pre-education survey data (n=23).

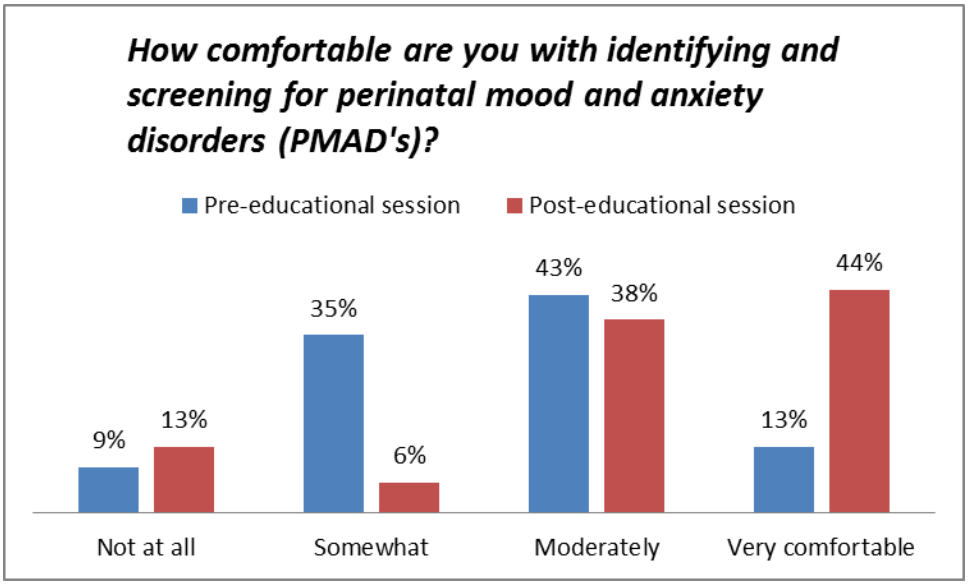

Figure 4. Provider comfort with PMAD screening

A positive trend was seen in regards to comfort with treating PMAD’s in the post-educational survey data as well. Pre-education data revealed that only 35% reported feeling “moderately” or “very comfortable” treating PMAD’s versus 69% reporting such comfort in the post-educational surveys.

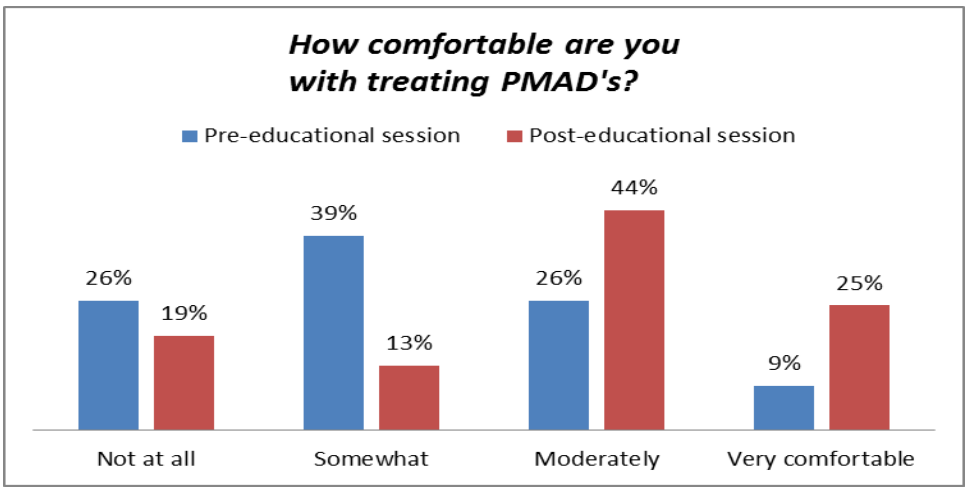

Figure 5. Provider comfort with treating PMAD's

In terms of knowledge regarding lactation and medications for PPD, the post-educational session surveys also showed a positive shift from 42% rating their knowledge as "not knowledgeable" or "somewhat" on the pre-education survey (versus 22% on the post-education survey) and 65% of respondents rating their comfort level as "moderately" or "very comfortable" post-education (versus 35% pre-education).

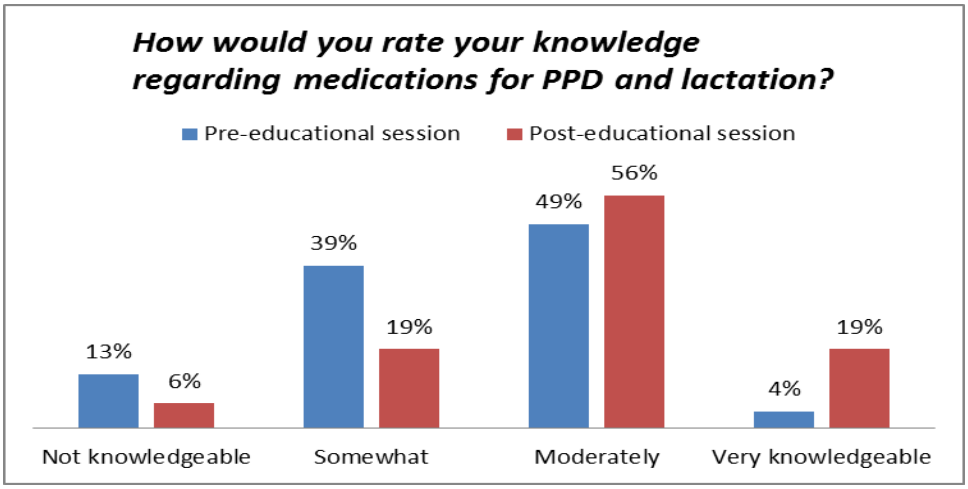

Figure 6. Provider knowledge of PPD medications and lactation

SCREENING BEHAVIORS AND METHODS

Prior to the educational sessions, providers were asked about PPD screening practices. Of the 23 respondents, 74% reported that they did screen women for PPD or other PMAD's. Of those screening women, 35% (n=6) reported screening less than 25% of the time, none reported screening 25-50% of the time, 24% (n=4) reported screening 50-75% of the time, and 29% (n=5) reported screening 75-100% of the time.

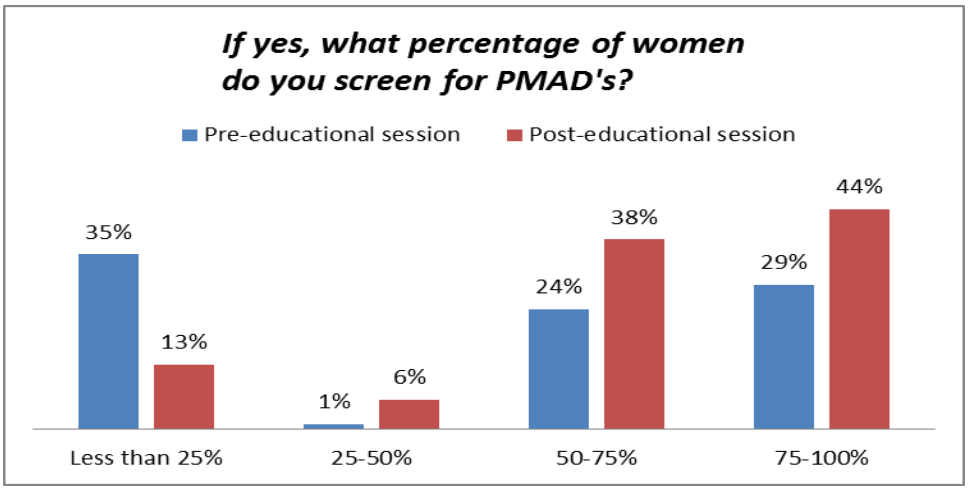

Figure 7. Rates of reported PMAD screening

The most common time for screening was at the 2 and/or 6 week postpartum appointment (76%, n=13) but other times were cited as well, including initial prenatal visit (41%, n=7), pediatric well-baby visits (24%, n=4), and "other" (18%, n=3). Respondents were allowed to choose multiple answers regarding timing of screening, so results do not equal 100%.

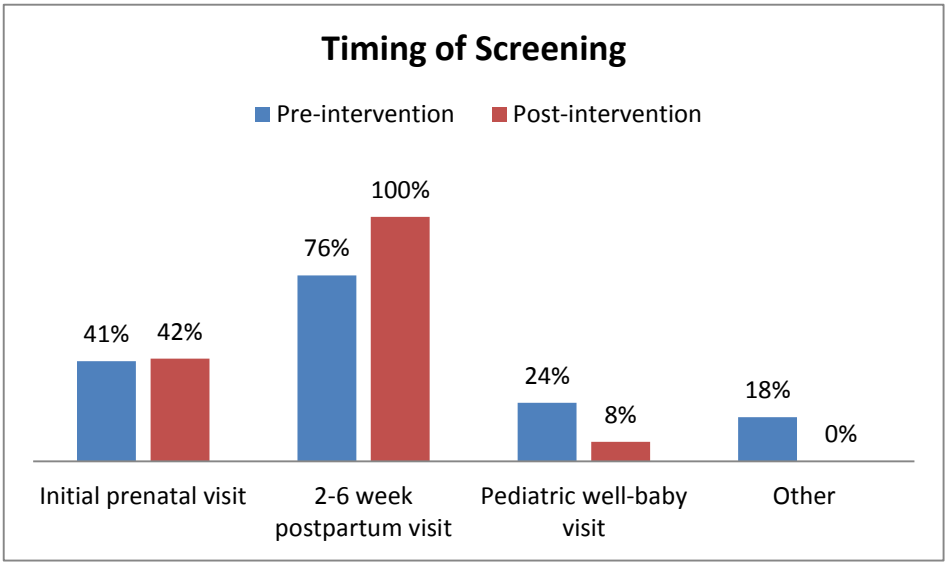

Figure 8. Timing of screening

The most commonly used screening tool was the EPDS (65%, n=11), but other methods that were used included: "informal method" (47%, n=8), "specific formal questions developed by our office" (18%, n=2), PHQ-2 (6%, n=1), PHQ-9 (6%, n=1), and "other" (12%, n=2). No one reported using the Beck Inventory (See Figure 9).

Following the educational sessions, there was no significant difference in the percentage of providers who reported screening (74% versus 76%), but there was a significant difference in the percentage of providers who reported screening 75-100% of the time (29% versus 44%). Additionally, there appeared to be a formalization of screening, moving away from "informal method" and "specific formal questions developed by our office" (65% pre-educational session versus 29% post-educational session), towards an increased use of the EPDS (65% pre-educational session versus 79% post-educational session).

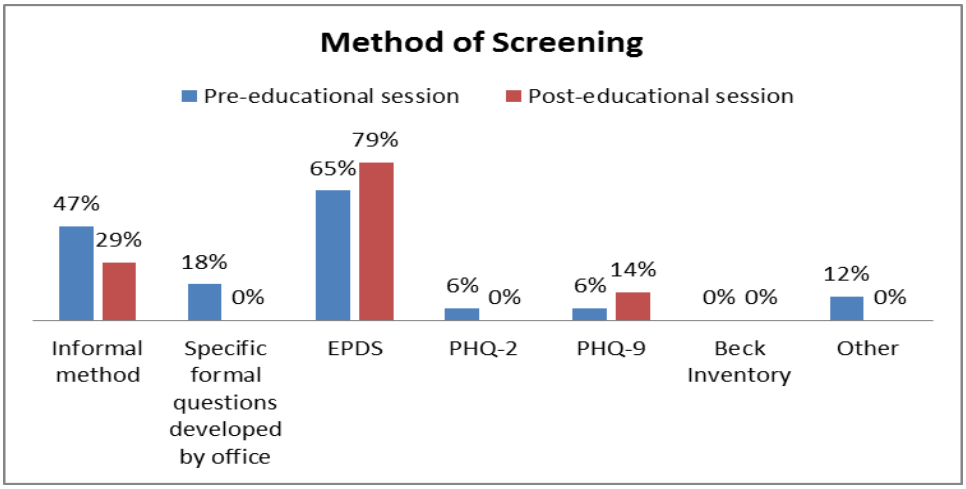

Figure 9. Method of screening

REASONS FOR NOT SCREENING

Reasons for not screening women for PPD were also examined in the surveys. In the pre-educational session survey, 26% of respondents (n=6) reported not screening women for PPD. Respondents were given multiple options for reasons and could choose as many as applicable. "Lack of time", "lack of knowledge" and "lack of places to refer for treatment" were all cited by half of respondents (n=3). "Concerns about liability" were cited by two respondents, and one respondent answered "not seeing the patient as much". None of the respondents cited "general discomfort" as a factor in their choice to not screen. Following the educational sessions, 24% of respondents reported not screening (n=5) which was a consistent proportion to the pre-education data. While "lack of time" and "lack of places to refer" remained the same in frequency of reasons cited for not screening, "concerns about liability" increased from 33% to 50%, and "not in my scope of practice" increased dramatically from 17% to 100% of providers who reported not screening women for PPD following the educational session. "General discomfort" was not

cited as a reason in either group of survey data, and "lack of knowledge" decreased dramatically from 50% to zero in the post-educational session surveys.

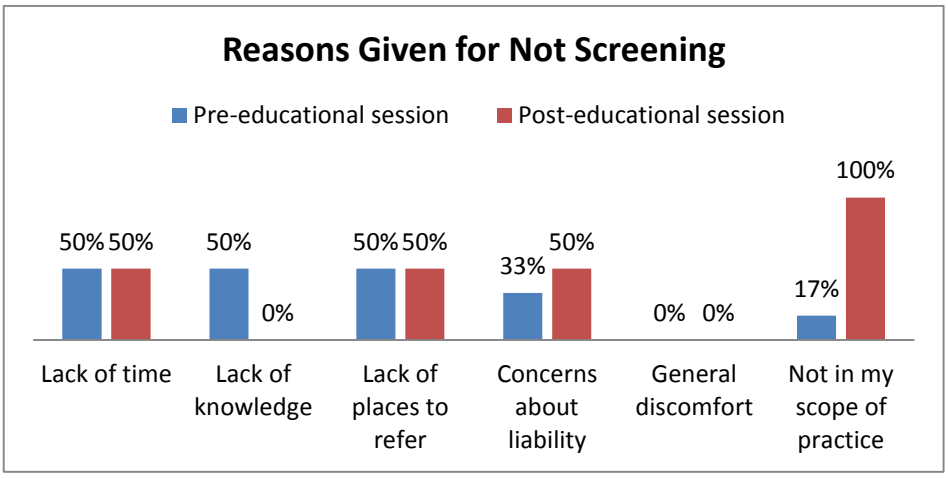

Figure 10. Provider reasons for not screening for PPD

Respondents were asked the open-ended question whether there was anything that would make them more likely to screen postpartum women for depression. Answers included: "Seeing patients more often postpartum," "No, would have to see the mother as a patient and that is out of pediatric scope of practice," "Easier access to counseling/therapists/in-home-visits," "No, I am aware of the importance of screening", and "Easier psych referral."

ACCESS TO CARE

Another important issue addressed in this project was access to care for women needing services for PPD. Prior to the project, women needing assessment and psychiatric medications were directed to the Behavioral Health Department, which had an approximate three to four month waiting period for new patients. Following the creation of a collaborative practice between the supervising psychiatrist and the home visitation NP's at Healthy Mothers, waiting time for evaluation and treatment for women referred for concerns regarding postpartum

adjustment decreased to 7-10 days (from de-identified Healthy Mothers referral log data). Additionally, following the development of the PPD screening and triage guidelines and provider educational sessions, Healthy Mothers saw a 133% increase in referrals for postpartum adjustment issues (15 visits in quarter prior to the educational sessions versus 35 visits in quarter following the educational sessions [refer to Appendix L]). It was also hoped that educating providers regarding safety of psychiatric medications with lactation would help decrease unnecessary weaning for women being treated for PPD. Healthy Mothers has six International Board Certified Lactation Consultants (IBCLC's) on staff and has a strong history of breastfeeding promotion and support. Though this was not measured pre-education, a post-education de-identified chart review showed a 97.4% breastfeeding continuation rate for women being treated for PPD.

SUMMARY OF RESULTS

Over the course of the project, 32 perinatal and family practice providers at FRHC participated in educational sessions regarding identifying and treating perinatal mood and anxiety disorders. As well, participants received information about lactation safety of psychotropic medications, screening guidelines using the EPDS, triage and referral guidelines, and information on community resources for Butte County women suffering with PPD. The following outcomes were observed:

- An increase in providers' knowledge and comfort with PPD screening and treatment or referral
- An increased rate of PPD screening with the EPDS between 2 and 6 weeks postpartum by obstetrical providers

- A 133% increase in referral to Healthy Mothers for behavioral health treatment and support
- A decrease in waiting time for women to receive assessment and treatment of PPD from three to four months to 7-10 days
- An unexpected interest in PMAD screening and treatment by Family Practice providers
- A 97.4% breastfeeding continuation rate for women receiving treatment for PPD through Healthy Mothers.

The goal of increasing screening for PPD of mothers of infants being seen at well-baby pediatric visits was not realized.

CHAPTER 5—DISCUSSION

The purpose of this project was to increase access to quality mental health care for women suffering with postpartum depression by increasing provider knowledge of screening and treatment recommendations as well as creating triage and referral pathways within a rural health center. Postpartum depression is a multifaceted disease that impacts not just mothers, but their infants and families as well. First 5 Butte County has identified perinatal mood and anxiety disorders (PMAD's) as a maternal mental health focus, and of the PMAD's, PPD is the most common, with an overall prevalence rate of approximately at 15% (PSI, 2010). Because women with PPD may be breastfeeding, it is crucial to have coordination and communication across the disciplines of obstetrics, pediatrics, lactation and behavioral health. Therefore, a multifaceted, multidisciplinary approach was needed to address this public health issue.

Because screening has been shown to increase referral and treatment for PPD (Horowitz, et al., 2009; Santoro & Peabody, 2010; Smith & Kipnis, 2012; Yawn et al., 2012), this project focused on increasing provider knowledge of PPD in general, as well as specific recommendations regarding screening with the EPDS at 2/or 6 week postpartum visits as well as at well-baby pediatric appointments. However, because of prohibitive waiting times for new patient appointments through the behavioral health department, it became clear that in order to increase screening for PPD within the rural health center, a triage and referral system was required in order to address positive screens and assist women with symptoms of PPD to receive further assessment and treatment. Therefore, prior to conducting educational sessions with providers within the rural health clinic, a partnership was developed between the behavioral health department and Healthy Mothers to expand a preexisting postpartum home visitation program to include front-line screening and treatment of PMAD's. Once the program protocols

and supervising agreements were in place, the focus of the project became provider educational sessions including PPD resource "tool kits" for provider offices. The tool kits included position statements from ACOG, ACNM, and AAP regarding the importance of screening for PPD, copies of the EPDS with instructions on administering and scoring, handouts for patients with signs and symptoms of PPD as well as community resources, triage guidelines including how to refer positive screens to Healthy Mothers for follow up, and lactation safety information on common psychotropic medications used for treating PMAD's. In March and April 2014, 32 perinatal and family practice providers at FRHC participated in four educational sessions regarding identifying and treating PPD. Pre- and post-session surveys were used to assess provider knowledge and comfort with screening and treatment of PPD, as well as screening practices and barriers to screening. Additionally, rates of referral to Healthy Mothers for behavioral health issues, including time from referral to first appointment, and breastfeeding discontinuation rates for women receiving treatment for postpartum adjustment issues through Healthy Mothers were obtained.

From the survey data, participants showed an increase in both knowledge and comfort with screening for, and identifying and treating PPD. There was also a notable formalization of screening with more providers using the EPDS after the educational sessions. Additionally, the surveys showed an overall trend towards more screening post-educational session, with 100% rates reported at the 2 and/or 6 week postpartum appointment by those providers who responded to the post-session survey.

Interestingly, a decrease in screening after the educational sessions was noted at pediatric well-baby visits per survey results. Although pediatric well-baby visits are an ideal time for screening, and an AAP task force has recommended integrating maternal PPD screening in such

visits (Earls, 2010), pediatricians have reported discomfort with conducting screening in prior studies (Horwitz et al., 2007; Yawn et al., 2012). Both in survey responses and in personal conversations, such discomfort was also seen in pediatric providers at the RHC. In the post-educational session survey, "not in my scope of practice" was the most common reason given for not screening, and "mother isn't my patient" was also mentioned in open-ended individual responses as a reason for not screening. Pre-educational session, "lack of time", "lack of knowledge", "lack of places to refer", "concerns about liability", and "not in my scope of practice" were all mentioned as barriers to screening. In the post-educational session surveys, "lack of knowledge" was no longer noted, but "concerns about liability" and "not in my scope of practice" both increased as responses. Interestingly, "general discomfort" was not cited as re reason for not screening either pre- or post-educational intervention; thus increasing provider knowledge and comfort with screening may not be the most effective approach for increasing maternal PPD screening by pediatric providers.

Integrating screening for and treatment of PPD into the preexisting postpartum home visitation program did prove to be an effective option for getting women into treatment more quickly, and utilizing nurse practitioners who are also IBCLC's yielded an impressive breastfeeding continuation rate, with less than 3% of clients discontinuing breastfeeding due to PPD treatment needs. Additionally, creating multidisciplinary partnerships between providers across the disciplines of obstetric, pediatrics, lactation, and behavioral health appears to have enhanced communications between these disciples within the rural health center.

IMPLICATIONS AND RECOMMENDATION

Increasing access to mental health care for postpartum women is important both for the suffering women and for their dependent infants. Increasing screening using the EPDS was shown in this QI project to increase referrals for evaluation and treatment of PPD within Feather River Health Center. Developing triage and treatment/referral pathways and tool kits with resources for providers was welcomed and overwhelmingly seen as helpful. Provider feedback by anonymous survey showed an increase in knowledge and comfort with screening and treatment, thus one recommendation would be to continue to offer brief trainings and support services for interested perinatal providers in the community, as well as those who are new to the community. Enlisting pediatric and obstetric doctors as change agents may also be useful in engaging some harder to reach medical offices (Rogers, 2003).

The resistance to screening seen within the pediatric discipline was disappointing but not surprising. Although clearly maternal depression negatively impacts the development of the infant in her care, the fact that the mother is not the patient of the pediatric office hinders the willingness and ability of pediatric providers to see screening for PPD as part of their scope of practice. This, coupled with an already stretched to capacity schedule and minimal, if any, reimbursement for screening and referral does not create an environment amenable to practice change adoption. Within the pediatric department at FRHC, there was certainly an understanding regarding the importance of recognizing and treating PPD, and providers and office staff expressed a willingness to give paper copies of the EPDS to mothers bringing their infants in for well-baby visits, but the office staff and pediatric providers were uncomfortable scoring and counselling mothers regarding the results. One viable option being discussed is housing an RN from Healthy Mothers in the pediatric department full-time who could provide lactation support

and PPD screening to mothers within the first year postpartum. Staffing, billing, and office space issues must be addressed to make this idea a reality, but certainly integrating CPSP programs into pediatric offices that serve low-income families is a promising approach to increasing PPD screening and treatment. It also is recommended that continued stakeholder discussions with pediatric providers be conducted to better understand barriers to maternal PPD screening and develop workable solutions.

Another recommendation from this project is the importance of targeting not only obstetric and pediatric providers for education on PPD, but family practice providers as well. The primary care department at FRHC is staffed primarily by family nurse practitioners (FNPs), and these advance practice nurses often see women during the first year postpartum for other health issues. Nationally, due to a lack of psychiatric specialists, primary care providers have had to take a lead role in diagnosing and treating many common mental health issues (Yawn et al., 2012). Because most primary care providers do not specialize in obstetrics or lactation, there may be discomfort or a lack of knowledge regarding best treatment approaches for PPD. Furthermore, since mental health issues can often present with somatic complaints (Misiri & Kendrick, 2009), raising awareness and index of suspicion for PPD within primary care clinics increases the likelihood of identifying women in need of treatment and support. Education regarding lactation safety of psychiatric medications also enables primary care providers to provide women with appropriate treatment options which support breastfeeding continuation whenever possible.

CONCLUSION

Educating providers and creating triage/treatment/referral pathways was shown in this QI project to increase provider comfort and knowledge regarding PPD. Moreover, integrating screening and treatment into a pre-existing postpartum home visitation program was shown to decrease waiting times for women to receive treatment for PMAD's. Utilizing nurse practitioner/lactation consultants as front-line providers was extremely effective for breastfeeding continuation during treatment, and integrating services into a CPSP program of a rural health center has proven to be a logistically and fiscally viable option to expand access to maternal mental health services. However, in order to sustain and expand screening throughout Butte County and the rest of the nation, legislative and organizational policy issues need to be addressed. Increasing billing incentives for providers to screen for PPD, integrating screening into billing requirements for insurance or into Centers for Medicare and Medicaid (CMS) core measures, and standardizing electronic health records (EHR's) to prompt providers to screen for PPD are just some examples of ways to increase screening and treatment of PPD on a systems level.

Butte County First 5 has partnered with the California Health Collaborative and a marketing group through California State University, Chico in order to further community efforts to support women experiencing PMAD's. One support group has already been launched and a second is planned for a neighboring Butte County community. A county-wide public health campaign is currently in the planning stage, and an on-line and telephone directory of services is also in progress. Based on the results of this scholarly inquiry project, additional training and tool-kits may be provided to perinatal and family practice providers outside of the rural health clinic. Project results will be shared with stakeholders attending the DNP oral defense, as well as

through targeted fact-sheets tailored to appropriate stakeholder needs. Project results have already been shared with administration within the rural health clinic. Finally, dissemination of the results of this pilot QI project through presentations at professional meetings and publication in professional journals will provide the opportunity for piloting this approach in other clinical practices.

Building interdisciplinary triage/treatment pathways and holding educational sessions for providers and staff within a rural health resulted in an increase in screening for PPD by obstetric and family practice providers. During the four educational sessions, 32 providers and staff received information on PPD and instructions on screening with the EPDS, as well as triage and treatment guidelines. Of the 16 who completed post-surveys, 81% stated the sessions changed their PPD screening or treatment practices, and 100% found the information helpful. These sessions also resulted in a 133% increase in referrals to Healthy Mothers for postpartum mental health issues. Integrating front-line treatment into a preexisting home visitation program reduced evaluation and treatment waiting times from three to four months to seven to ten days, and a 97% breastfeeding continuation rate for women receiving treatment. Based on qualitative and quantitative survey data, project intervention overall increased provider awareness and comfort with screening for and treating PPD as well as lactation safety of psychiatric medications and available community resources for affected women. Postpartum depression is a serious but treatable disease. Women suffering with PPD deserve competent and compassionate care, and their infants deserve to have their mothers functioning at their optimal level. Developing community triage and referral networks, increasing provider awareness, and increasing screening to enhance early recognition and treatment is ideal for best outcomes. Mothers and babies in our communities are depending on us.

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APPENDIX A—Focus Group Interview Guide

The target audience for this focus group interview is stakeholders involved in the care of pregnant or parenting women in Butte County.. The goal is to determine stakeholder beliefs on barriers to screening and treatment of PMAD's in Butte County as well as suggestions for program development:

Thank you all for joining me. I know everyone has busy schedules, and your being here really shows commitment to serving the needs of women in our community. As you all know, postpartum depression is a common but potentially serious complication for many Butte County women. In keeping with First 5's goals of strengthening families and decreasing risks for child abuse, we are looking at ways to increase access to mental health services for women in our community. My hope today is to get your feedback regarding priority needs, ideas for meeting those needs, and barriers to services.

1. What do you see as the biggest barriers for women with postpartum depression in terms of getting services?

Probes:

- Ask about services available
- Ask about screening
- Ask about barriers for women getting services (eg. transportation, childcare, lack of providers, insurance issues)

(*Transition*) Lack of social support is one of the most cited modifiable risk-factors for postpartum depression, so one of our thoughts is creating support groups for women who are having difficult transitions to motherhood.

2. Do you think support groups would work in this community?

3. What do you see as the needs of the community in this regard?

4. What do you see as potential barriers?

Probes:

- Ask about financial concerns/sustainability
- Ask about client concerns/acceptability of model
- Ask about liability concerns

5. In regards to screening, is there are specific tool or method any of you would suggest?

(Discuss tools based on suggestions raised, discuss benefits and issues with each, discuss advantage of using one tool in terms of continuity of care among community agencies)

6. Much of the literature suggests using the Edinburgh Scale as it is validated for PPD and is free to use. A number of home visiting agencies are currently using it. Do you feel using the EPDS would be a good idea? Why or why not?

7. Who would you suggest creating partnerships with to increase services?

Probes:

- Ask about community resources. Who would be most positively impacted by program? Where can we gather support and what type of support (financial, advertising, partnership with education or referrals)

8. Do you have any further suggestion to help increase screening rates for postpartum depression or resources for women suffering?

9. Where do we go from here? What do you think our next step should be?

(Discuss options, priorities; look for volunteers to head projects)

(Closing) I want to thank you all again for taking time to share your expertise and experiences. We are very lucky to have committed individuals like you working to better the community for women and children. I am excited to see where we can go from here and look forward to working more with you in the future. If you have any further questions or ideas, please don't hesitate to call me.

APPENDIX B-- Outline for PPD Educational Intervention

- Background of problem
    - Overview of PMAD's
    - Implications of untreated disease for women, infants and families
    - National, state, and local statistics
- Screening
    - Different screening tests
    - Benefits of using EPDS
    - Timing of screening
    - Specific instructions of using EPDS
- Treatment options
    - Counseling options
    - Non-medicinal treatments
    - Medications in pregnancy
    - Medication and breastfeeding
- Screening/referral guidelines
    - Discuss triage protocol
    - Discuss Healthy Mother's Home Visitation Program
    - Community Resources
- Plan for project follow up
    - Follow-up survey in 1-3 months
    - Data to be collected

APPENDIX C-- Consent to Participate in Project

Perinatal Provider/Staff Current Practice and Knowledge Regarding the Screening and Treatment of Perinatal Mood and Anxiety Disorders

My name is Holly Kralj, CNM, NP, IBCLC, and I am a graduate student at the University of Hawaii (UH). As part of my doctoral degree program, I am conducting a capstone project to investigate ways to increase screening and treatment for postpartum depression (PPD).

The purpose of my project is to investigate barriers to screening as well as the impact of provider education on screening and triage pathways on PPD screening rates. Participation in this project will involve a 15 minute educational intervention on screening and treatment of PPD and the completion of an anonymous pre- and post-survey. I am asking you to participate in this project because you are a perinatal service provider/staff at FRHC.

Project Description – Activities and Time Commitment: Participants will fill out anonymous pre-intervention surveys that will be provided at the educational session. Survey questions are primarily multiple-choice and fill-in. Completion of the survey will take approximately 5 minutes. The educational session will last approximately 15 minutes. Post-intervention surveys will be sent to you at 1 and 3 months following the educational session

Benefits and Risks: Direct benefits to participants include expanded information regarding screening and treating PPD, handouts with access to information about safety of psychiatric medications for pregnant and breastfeeding women, triage pathways and expedited Behavioral Health appointments for clients needing further evaluation and treatment, and information and handouts regarding community resources. There are no expected risks for participants.

Confidentiality and Privacy: All information obtained is anonymous and will be aggregated to look at current practices, as well as ways to increase screening and treatment of PPD in this community. You will not be asked to provide any personal information that could be used to identify you. Please do not include any personal information, such as your name, in your survey responses.

Voluntary Participation: Participation in this project is voluntary. You can freely choose to participate or to not participate in this survey, and there will be no penalty or loss of benefits for either decision. If you agree to participate, you can stop at any time without any penalty or loss of benefits to which you are otherwise entitled.

Questions: If you have any questions about this project, you can contact me at (530) 864-4061 or hkralj@hawaii.edu. You can also contact my faculty advisory, Dr. Maureen Shannon at (808) 956-5323 or maureens@hawaii.edu. If you have any questions about your rights as a research participant, you can contact the UH Committee on Human Studies at 808.956.5007 or uhirb@hawaii.edu.

To Access the Survey: The survey is attached and can be returned in the pre-addressed, stamped envelope. I will be sending another survey out to you in 1 and 3 months. Submittal of the surveys will be considered as your consent to participate in this project.

Please keep this page for your reference, and thank you in advance for your participation!

APPENDIX D--Provider Survey (Pre-Intervention)

1. How comfortable are you with identifying and screening for perinatal mood and anxiety disorders (PMADs)? Not at All Somewhat Moderately Very

2. How comfortable are you with treating PMADs?

   Not at All Somewhat Moderately Very

3. Do you have prescriptive authority? Yes No

4. What is your practice area? Peds OB/GYN Family Practice Behavioral Health

5. How would you rate your knowledge regarding medications for PPD and lactation?

   Not knowledgeable Somewhat Moderately Very knowledgeable

6. Do you currently screen women for postpartum depression or other PMAD's?

   Yes No

If yes, approximately what percentage of women do you screen,?

0-25% 25-50% 50-75% 75-100%

If yes, when do you screen women for PMAD's (mark all that apply)?

- Initial prenatal visit
- 2 or 6 week postpartum visit
- Pediatric well-baby visit
- Other_____

If yes, what method do you use to screen?

- Informal method
- Specific formal questions developed by our office
- Edinburgh Postnatal Depression Scale (EPDS)
- Patient Health Questionnaire-2 (PHQ-2)
- Patient Health Questionnaire-9 (PHQ-9)
- Beck Inventory
- Other_____

If no, what reasons factor into your decision not to screen?

- Lack of time
- Lack of knowledge regarding screening
- Lack of places to refer for treatment
- Concerns about liability
- Not in my scope of practice
- General discomfort
- Other:_____

APPENDIX E-- Edinburgh Postnatal Depression Scale

Edinburgh Postnatal Depression Scale [1] (EPDS)

Postpartum depression is the most common complication of childbearing. [2] The 10-question Edinburgh Postnatal Depression Scale (EPDS) is a valuable and efficient way of identifying patients at risk for "perinatal" depression. The EPDS is easy to administer and has proven to be an effective screening tool.
Mothers who score above 13 are likely to be suffering from a depressive illness of varying severity. The EPDS score should not override clinical judgment. A careful clinical assessment should be carried out to confirm the diagnosis. The scale indicates how the mother has felt ***during the previous week***. In doubtful cases it may be useful to repeat the tool after 2 weeks. The scale will not detect mothers with anxiety, neuroses, phobias or personality disorders.

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

SCORING

QUESTIONS 1, 2, & 4 (without an *)
Are scored 0, 1, 2 or 3 with top box scored as 0 and the bottom box scored as 3.
QUESTIONS 3, 510 (marked with an *)
Are reverse scored, with the top box scored as a 3 and the bottom box scored as 0.
Maximum score: 30
Possible Depression: 10 or greater
Always look at item 10 (suicidal thoughts)

Instructions for using the Edinburgh Postnatal Depression Scale:

1. The mother is asked to check the response that comes closest to how she has been feeling in the previous 7 days.
2. All the items must be completed.
3. Care should be taken to avoid the possibility of the mother discussing her answers with others. (Answers come from the mother or pregnant woman.)
4. The mother should complete the scale herself, unless she has limited English or has difficulty with reading.

[1] Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786.
[2] Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18,2002, 194-199

Edinburgh Postnatal Depression Scale 1 (EPDS)

Name: _____ Address: _____
Your Date of Birth: _____ _____
Baby's Date of Birth: _____ Phone: _____
As you are pregnant or have recently had a baby, we would like to know how you are feeling. Please check the answer that comes closest to how you have felt **IN THE PAST 7 DAYS**, not just how you feel today.

In the past 7 days:
1. I have been able to laugh and see the funny side of things
- ☐ As much as I always could
- ☐ Not quite so much now
- ☐ Definitely not so much now
- ☐ Not at all as usual

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

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

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

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

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

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

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

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

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

Administered/Reviewed by _____ Date _____

1 Source: Cox, J.L., Holden, J.M., and Sagovsky, R. 1987. Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry* 150:782-786 .
2 Source: K. L. Wisner, B. L. Parry, C. M. Piontek, Postpartum Depression N Engl J Med vol. 347, No 3, July 18, 2002, 194-199

APPENDIX F--Academy of Breastfeeding Medicine Protocol

BREASTFEEDING MEDICINE
Volume 3, Number 1, 2008

DOI: 10.1089/bfm.2007.9978

ABM Clinical Protocol #18: Use of Antidepressants in Nursing Mothers

THE ACADEMY OF BREASTFEEDING MEDICINE PROTOCOL COMMITTEE

A central goal of The Academy of Breastfeeding Medicine is the development of clinical protocols for managing common medical problems that may impact breastfeeding success. These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care. Variations in treatment may be appropriate according to the needs of an individual patient.

BACKGROUND

With estimates of between 5% and 25% of women experiencing depression in the postpartum year,[1–3] it is critical that healthcare providers consider all treatment options, including the risks and benefits for nursing mothers. Many healthcare providers recognize the short- and long-term negative effects that postpartum depression can have on mothers and infants.[4–6] Despite this, postpartum depression often goes undetected and untreated.[2] Postpartum depression is a treatable illness. Treatment options include psychotherapy (cognitive behavioral, interpersonal psychotherapy),[7–9] antidepressants,[8,10,11] or a combination of medication and therapy.[8] The choice and approach to treatment can be influenced by many factors, including the mother's wish to breastfeed. Women may not receive medication, or receive inadequate doses, because they are breastfeeding, or may decide not to breastfeed because they are concerned about medication use during lactation. Full consideration must be given to the risks of untreated depression, risks of the medication to the infant and mother, and the benefits of treatment. This Protocol discusses the importance of actively screening for and, when present, making the diagnosis of postpartum depression, how treatment can be determined, and specifically addresses the medications for which there is sufficient evidence to make recommendations and provide data (selective serotonin reuptake inhibitors [SSRIs] and tricyclic antidepressants [TCAs]/heterocyclics). We recognize that this is a complex issue, and that there are many other factors that impact the care of women with postpartum depression, but which are beyond the scope of this protocol to discuss.

CLINICAL APPROACH TO IDENTIFYING POSTPARTUM DEPRESSION

Postpartum depression is often missed by providers and mothers.[2,12–14] The symptoms of depression—depressed mood, sleep disruption, weight loss, fatigue, difficulty concentrating, anxiety, loss of interest in usual activities—can be difficult for mothers and providers to distinguish from the normal experiences of new mothers. It is also important to differentiate mothers suffering from postpartum depression from those with postpartum blues as misdiagnosis of such mothers can lead to unnecessary treatment. To distinguish symptoms of depression from the "baby blues," the timing (_2 weeks in duration, all day nearly everyday) and the severity (functional impairment)

must be evaluated.[15] For many women, acknowledgement offeelings other than happiness following the birth of their infant can be devastating and embarrassing. If mothers have thoughts of harming themselves or their infant, they are often afraid to bring these issues to their obstetrician, family physician, pediatrician, midwife, child health nurse, or other healthcare professional for fear that they will be labeled "crazy" or that their children will be taken away. Therefore, many women will not bring up their concerns or even identify them as a problem unless providers ask specific questions or use a screening tool (see Table 1). Depending upon the setting or the country, it is common for women to receive their peripartum and postpartum care from healthcare providers other than physicians. In these circumstances, communication between physicians and these other healthcare providers may be crucial to making an accurate diagnosis and initiating timely treatment.

TABLE 1. RECOMMENDATIONS FOR IDENTIFYING WOMEN WITH POSTPARTUM DEPRESSION

- The preferred method for identifying women with postpartum depression is the systematic use of a validated screening tool such as the Edinburgh Postnatal Depression Scale[16] or the Postpartum Depression Screening Scale[17–19] at the obstetrical postpartum visit and at well childcare visits in the postpartum year.
- Ask mothers if they feel down or anxious. Many women with postpartum depression report anxiety as a primary symptom rather than depressed mood or anhedonia. Excessive worrying about the baby's or mother's health should be explored.
- Ask mothers if they are having trouble sleeping even when they are exhausted and their child is sleeping[20] or if they are sleeping all the time and are unable to get out of bed.
- Ask mothers if they are losing or gaining weight. Many women with postpartum depression report a poor appetite, but they eat because they need to keep their strength up or for nursing. Some mothers will gain weight.
- Ask mothers directly but in an open, nonthreatening manner about thoughts or fears of harming their children. For example, "Many new mothers experience anxiety about their new infants. They may have thoughts that are unusual or frighten them such as fears that they may harm their baby. Does this ever happen to you?"[21] Mothers who experience intrusive thoughts do not wish to harm their children and avoid the topics of their fears (i.e., a mother is afraid her baby will drown therefore will not bathe the baby and has her partner bathe the infant). It is important to distinguish the woman with postpartum depression whose intrusive thoughts or fears of harming the infant are incongruent with the mother's wish to keep her infant safe from the woman with postpartum psychosis who is delusional and who may have thoughts of harming her infant to "save the infant from the devil or a life of torment." Delusional mothers are at great risk of harming their infants or themselves and must be immediately evaluated by a psychiatrist.[22]
- Ask mothers if they have concerns or questions about adapting to a new baby.
- Consider the mother's interactions with the infant, including the responsiveness of mom and baby.
- Difficulty in breastfeeding, or not enjoying breastfeeding, may be a warning sign that should be further evaluated.

CLINICAL APPROACH TO TREATING POSTPARTUM DEPRESSION

Once a woman is identified as suffering from postpartum depression, the choice of treatment must be considered. While no treatment is an option, it is not the preferred approach. Postpartum depression may last for months to years and can have long-term effects for the health and well-being of mothers and infants.[4,5,9,23] In breastfeeding women with mild to moderate depression, the first-line treatment, if available, is psychotherapy. Psychotherapy can be an effective treatment for women with

postpartum depression and carries no risks for the infants. Psychotherapy may also have the benefit of providing lasting changes in coping skills and adaptation to the new role of motherhood. If psychotherapy is unavailable or unacceptable to the mother, or the symptoms are severe, antidepressants are an effective option. The approach to choosing an antidepressant is based on a variety of factors. No antidepressant is proven safer or more effective than another in the postpartum period or during lactation. The majority of drugs including all antidepressants are excreted in breastmilk. Data to inform clinical decisions are derived primarily from case reports or case series. Therefore, the initial treatment choice should be based on an informed clinical approach that takes into account the patient's previous treatments for depression, the targeted symptoms, family history of depression and their experiences with antidepressants, current and past medical disorders, current medications, allergies, side effects of the medications, and maternal wishes. An individualized risk-benefit analysis of the treatments must be conducted (see Table 2).[28]

TABLE 2. RISKS AND BENEFITS OF ANTIDEPRESSANT TREATMENT IN LACTATING WOMEN

- The risks of untreated postpartum depression include:
    - ° persistence of symptoms
    - ° possible increase in severity of symptoms, including deterioration in functioning, and thoughts (or even actions) of self-harm or harm to others
    - ° relationship discord
    - ° impaired parenting
    - ° child neglect
    - ° effects on the child's development (including behavior, social, and cognitive).
- The risks of treatment with antidepressants include:
    - ° Maternal: side effects of the medication, potential drug interactions
    - ° Infant: exposure through breastmilk transmission; limited data on the long-term effects on child development
- The benefits of treatment include the resolution of depressive symptoms that, in turn, will potentially improve maternal self-esteem, parenting, maternal infant interaction, and child outcomes.[24]
- The medical and psychological benefits of breastfeeding to infants and mothers are well established.[25–27] Depressed mothers may benefit additionally from breastfeeding because of the sense of accomplishment and active, positive participation in their infant's care and development.
- The risks of breastfeeding for depressed mothers should be considered and may include:
    - ° Sleep deprivation due to total dependence on the mother may exacerbate or precipitate depressive symptoms.
    - ° If mothers are nursing and taking medications, the feelings of guilt and anxiety associated with exposing their infant to medication may exacerbate their depressive symptoms.

CLINICAL FACTORS AFFECTING ANTIDEPRESSANT CHOICE

- There is no algorithm for antidepressant treatment choices in postpartum or lactating women; however, articles by experts in the field provide clinical guidance.[28,29]
- Obtain a history of previous antidepressant treatment. In general, if a treatment was effective in the past and was tolerated, and there are no current contraindications, it is the likely first choice of treatment.
- Obtain a family history of treatment of depression. An immediate family member's history may be indicative of the mother's treatment response.
- Consider the primary symptoms that the medication will be targeting and the potential side effect profile of the antidepressant. For example, if the mother is particularly anxious, a medication that might heighten anxiety would not be the first choice. If the mother is experiencing hypersomnia, a

medication with sedation as a side effect would not be the first choice. If a mother has somatic complaints such as nausea or diarrhea, a medication that may induce diarrhea would not be the first-line treatment.

CHOOSING AN ANTIDEPRESSANT DURING BREASTFEEDING

When considering the use of any medication in a lactating woman, providers must consider the factors that influence infant serum levels, the most accurate measure of infant exposure. Factors affecting the passage of medication into breastmilk must be considered (route of administration, absorption rate, half-life and peak serum time, dissociation constant, volume of distribution, molecular size, degree of ionization, pH of plasma [7.4] and milk [6.8], solubility of the drug in water and in lipids, greater binding to plasma protein than to milk protein), factors affecting the amount of drug received by the infant (milk yield, colostrum vs. mature milk, concentration of the drug in the milk, how well the breast was emptied during the previous feeding), and an infant's ability to absorb, detoxify, and excrete the drug. Up-to-date information about medication use during lactation is available on TOXNET lactmed at http://toxnet.nlm.nih.gov. Most antidepressant studies provide milk levels, or milk to mother's plasma ratio, that are not constant and depend on factors such as dose, frequency, duration of dosing, maternal variation in drug disposition, drug interactions, and genetic background. Few studies provide infant serum levels, although they are the best measure of infant exposure. Most studies suggest that infant daily dosages (calculated based on maternal dose and milk levels) are safest if the level is 10% or less of the "therapeutic dose for infants (or the adult dose standardized by weight)."

SPECIFIC ANTIDEPRESSANTS

Data from a recent meta-analysis indicated that all antidepressants were detected in breastmilk but not all were found in infant serum.[30] Infant serum levels of nortriptyline, paroxetine, and sertraline were undetectable in most cases. Infant serum levels of citalopram and fluoxetine exceeded the recommended 10% maternal level in 17% and 22% of cases, respectively. Few adverse outcomes are reported for any of the antidepressants. There were an insufficient number of cases for all other antidepressants to make conclusions.

SSRIs

The SSRIs are the most widely prescribed antidepressant class and include citalopram (20–40 mg),escitalopram (10–20 mg), fluoxetine (20–80 mg), fluvoxamine (50–300 mg), paroxetine (20–60 mg), and sertraline (50–200 mg). SSRIs improve depression and anxiety by blocking the serotonin transporter and thereby increasing serotonin availability in the synapse. The medications are usually prescribed for depressive or anxiety disorders but may be prescribed for fibromyalgia, neuropathic pain, and premenstrual symptoms and disorders. Common maternal side effects include gastrointestinal distress, headaches, sexual dysfunction, nervousness, or sedation. Except for fluoxetine, which has a half-life of 4–6 days, most SSRIs have a half-life of 24–48 hours. A newer, related class of antidepressants, selective serotonin and norepinepherine reuptake inhibitors (SSNRIs or SNRIs), are becoming more widely used because of what appears to be better efficacy with fewer side effects, especially for neuropathic pain. Since the SSRIs have been in use longer and there are more data concerning lactation, this discussion will focus on the SSRIs. All SSRIs have been detected in breastmilk, although paroxetine[31–33] and sertraline[33–38] usually produced undetectable infant serum levels.[30] Neither of these medications has been found to exceed the recommended 10% maternal level. In contrast, fluoxetine,[39–44] in 22% of cases, and citalopram,[33,45,46] in 17% of cases, have exceeded the 10% maternal level.[30] There are virtually no case reports of escitalopram and few case reports of fluvoxamine[47–52] in nursing mothers, most likely because escitalopram is only recently available and fluvoxamine was indicated for obsessive compulsive disorder,

not depression, and therefore is not used as frequently. In most studies, no infant adverse events are reported for any of these medications. The few infant adverse events reported include uneasy sleep, colic, irritability, poor feeding, and drowsiness.[53–55] In one case, an infant seizure was reported during the time that the mother was taking fluoxetine.[56]
However, the relationship of fluoxetine to the reported seizure was confounded by other medication exposures, and infant serum concentration was not obtained. Although the association between fluoxetine and observed effects is uncertain, the long-term effects on neurobehavior and development from exposure to this potent serotonin reuptake blocker, or any of the SSRIs, during a period of rapid central nervous system development have not been adequately studied.[57] In addition, the reduced weight gain identified in one study may have clinical significance in some situations, and should be monitored carefully in any breastfeeding baby whose mother is on fluoxetine.[58] The U.S. Food and Drug Administration specifically advised the manufacturer to revise the labeling of fluoxetine to contain a recommendation against its use by nursing mothers.[59] The current labeling contains this revision. Bearing all this information in mind, sertraline and paroxetine are often the most likely to be prescribed, because of their low to zero concentrations in breastmilk. This is based on a presumption that there will be lower central nervous system effects compared to some of the other SSRIs with higher breastmilk concentrations.

TCAs/heterocyclics
The TCAs (amitriptyline, amoxapine, clomipramine, desipramine, doxepin, maprotiline, nortriptyline, protriptyline, and trimipramine) are one of the older classes of antidepressants. They are effective for the treatment of depressive and anxiety disorders and are often used in low doses for sleep and chronic pain. The therapeutic mechanisms are most likely related to the blockade of the norepinephrine transporter, which thereby increases norepinephrine availability in the synapses. These medications also block the dopamine and serotonin pumps, which may contribute to their therapeutic mechanisms. Unfortunately, they also block muscarinic cholinergic receptors, H1 histamine receptors, and alpha-1-adrenergic receptors, which most likely account for their wide array of unpleasant side effects. Despite being effective and inexpensive they are not used as frequently as SSRIs because of their side effects, which can include hypotension, sedation, dry mouth, urinary retention, weight gain, sexual dysfunction, and constipation. In addition, in an overdose, these medications can cause cardiac arrhythmias and death. Among this class of medications, only nortriptyline has a sufficient number of reported cases to comment on its use during lactation. In most cases, nortriptyline is undetectable in infant serum. Its metabolite has been detected, but no adverse events have been reported.[60–62] Insufficient numbers of cases have been reported on the other medications; however, use of doxepin is often cautioned because of a case report of hypotonia, poor feeding, emesis, and sedation in a breastfeeding infant that resolved after discontinuation of nursing.[63]

Other antidepressants
Other common antidepressants include mirtazapine, an antidepressant that works by blocking the presynaptic noradrenergic receptors that control norepinephrine and serotonin release, venlafaxine[33,64] and duloxetine, which are SNRIs, and bupropion, which is a norepinephrine and dopamine reuptake inhibitor. Sporadic case reports were found for these medications, [65,66] and there are an insufficient number to report significant outcomes for nursing infants. One case report of a seizure in an infant exposed to bupropion through breastmilk is published, but attributing causation is cautioned.[67]

Herbal/natural
St. John's Wort, an herbal medication, has been used for the treatment of mild to moderate depression for many years, especially in Europe. Its use as a treatment for depression is

controversial in the United States. Only one study of sufficient numbers was available for review.[68] In this study there were increased rates of colic, drowsiness, and lethargy in the St. John's Wort group compared to controls, but this was confounded by concomitant antidepressant treatment in the study group. No long-term effects were noted, and no effect on milk production. Omega-3 fatty acids are currently being studied as a treatment for depression during pregnancy and the postpartum period.[69] Omega-3 fatty acids appear to be of little risk to mothers and infants as they are natural essential elements of one's diet and are often depleted during pregnancy and breastfeeding. The primary negative side effect is the "fishy smell" and the lack of sufficient evidence at this time to consider it a treatment for depression. There is little or no evidence that ethnic or regional "medicines" are safe or effective; thus their use by healthcare providers is strongly cautioned.

RECOMMENDATIONS FOR ANTIDEPRESSANT TREATMENT IN LACTATING WOMEN

- Current evidence suggests that the risks of untreated maternal depression can have serious and long-term effects on mothers and infants and that treatment may improve outcomes for mothers and infants. Therefore treatment is strongly preferred.
- However, it is important not to label mothers who are only suffering from mild cases of "baby blues" as "depressed." We must make a distinction. If symptoms are mild, there is no reason to initiate antidepressant medication treatment in the first 2 weeks postpartum.
- When available and when symptoms are in the mild–moderate range, psychotherapy is the first line of treatment for lactating women as it carries no known risk for the infant. Mothers must be monitored and reevaluated. If they are not improving or their symptoms are worsening, antidepressant drug treatment must be considered.
- Psychotherapy in addition to antidepressant medication is recommended for women with severe symptoms.
- Women with moderate to severe symptoms may request only antidepressant drug treatment, and this must be considered as the benefits of treatment likely outweigh the risks of the medication to the mother or infant.
- There is no widely accepted algorithm for antidepressant medication treatment of depression in lactating women. An individualized risk-benefit analysis must be conducted in each situation and take into account the mother's clinical history and response to treatment, the risks of untreated depression, the risks and benefits of breastfeeding, the benefits of treatment, the known and unknown risks of the medication to the infant, and the mother's wishes.
- If a mother has no history of antidepressant treatments, an antidepressant, such as paroxetine or sertraline, that has evidence of lower levels in breastmilk and infant serum and few side effects is an appropriate first choice.
- If mothers have been successfully treated with a particular SSRI, TCA, or SNRI in the past, the data regarding this particular antidepressant should be reviewed, and it should be considered as a first-line treatment if there are no contraindications.
- Mothers should be provided the information regarding the known and unknown risks and benefits of the treatment to make an informed decision.
- Mothers should be monitored carefully in the initial stages of treatment for changes in symptoms, including worsening of symptoms. Specifically, women with histories of bipolar disorder, which may be undiagnosed, are at increased risk of developing a mood episode of depression, mania, or psychosis in the postpartum period. While this is rare, mothers and partners should be made aware of the symptoms to watch for such as increased insomnia, delusions, hallucinations, racing thoughts, and talking/ moving fast and contact their mental health provider immediately.

• Infants should be evaluated prior to the initiation of a new medication during breastfeeding and monitored carefully by the pediatrician, including carefully following growth. Serum levels are not indicated on a regular basis without a clinical indication or concern.
• Strategies that may be used to decrease infant exposure, but for which there is little evidence, include medication administration immediately after feedings and pumping and discarding the breastmilk obtained during the peak serum levels.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Despite many publications of antidepressants and breastfeeding, the scientific literature lacks both the breadth and depth for clinicians and mothers to make confident decisions about individual medications. Multiple reviews of the literature broadly suggest TCAs and serotonin reuptake inhibitors are relatively safe, and all recommend individual risk-benefit assessments. The literature suffers from a lack of any randomized clinical trials in lactating women for any class of antidepressant. The majority of studies are case reports or case series, and most have small samples sizes. Those studies that report larger samples (n _ 25) primarily report a variety of medications. Only six controlled studies (one retrospective,[70] five prospective[42,45,46,54,71]) were found that used a variety of controls—some control for depression, while others do not. None of the studies sufficiently controlled for level of depression. In addition, the case reports are limited by confounding with in utero exposure, the range of infant ages, inconsistencies in the timing of when samples were obtained, lack of information about the amount of medication in foremilk versus hindmilk, and no information about infant consumption as average breastmilk volumes are not provided. The majority of studies provide information about the amount of medication detected in breastmilk and maternal serum. Some studies also provide information about infant serum levels of medication. Few studies report infant behavioral outcomes.

ACKNOWLEDGMENTS

This work was supported in part by a grant from the Maternal and Child Health Bureau, U.S. Department of Health and Human Services.

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ABM protocols expire five years from the date of publication. Evidenced-based revisions are made within five years, or sooner if there are significant changes in the evidence.

Contributors
**Linda H. Chaudron, M.D., M.S.*
**Stephanie A.M. Giannandrea, B.A.*
Protocol Committee

Caroline J. Chantry, M.D., FABM
Co-Chairperson
Cynthia R. Howard, M.D., MPH, FABM,
Co-Chairperson
Ruth A. Lawrence, M.D., FABM
Kathleen A. Marinelli, M.D., FABM,
Co-Chairperson
Nancy G. Powers, M.D., FABM
*Lead author
For reprint requests: abm@bfmed.org

APPENDIX G--Lactation Safety Information

EMORY UNIVERSITY SCHOOL OF MEDICINE | Women's Mental Health Program
Department of Psychiatry and Behavioral Sciences

EMORY WMHP BLOG

Hale's Breastfeeding Safety Ratings: Part 1 – Rating System

Thomas Hale's *Medications and Mothers' Milk*, now in its 14th edition, has become the standard reference for rating the breastfeeding safety of medications. In this series, we will provide a summary of Dr. Hale's ratings and recommendations for the major classes of psychiatric medications. In this first entry in the series, we present the key components of Dr. Hale's lactation safety rating system.

One estimate of risk is provided by the level of exposure for a nursing infant. Dr. Hale reports the ***Relative Infant Dose (RID)*** for each medication as an index of the level of exposure. Expressed as a percentage, the RID is calculated by dividing the infant's total daily ingestion of a medication via nursing (expressed as mg per kg infant body weight) by the mother's daily dose of the medication (expressed as mg per kg maternal body weight). Dr. Hale advises that "a Relative Infant Dose of <10% is considered safe", though we would caution that this is a general observation that has never been objectively verified.

Earlier studies had utilized milk:plasma ratio as an index of the level of exposure, but milk:plasma ratios have been abandoned in favor of RID in recent years. We agree with Dr. Hale that "the milk:plasma ratio is virtually worthless" because it does not provide an estimate of the total amount of a drug that is transferred to a nursing baby.

Finally, Dr. Hale rates each medication according to a 5-category system of ***Lactation Risk Categories***. Hale's rating for each medication is determined by the degree to which the medication has been studied (NOTE: Newer and seldom-used medications typically have not been well-studied) and the level of risk that has been identified for the particular medication. Hale's risk categories include:

- **L1 SAFEST** – Drug has been taken by many breastfeeding women without evidence of adverse effects in nursing infants OR controlled studies have failed to show evidence of risk.
- **L2 SAFER** – Drug has been studied in a limited number of breastfeeding women without evidence of adverse effects in nursing infants.
- **L3 MODERATELY SAFE** – Studies in breastfeeding have shown evidence for mild non-threatening adverse effects OR there are no studies in breastfeeding for a drug with possible adverse effects.
- **L4 POSSIBLY HAZARDOUS** – Studies have shown evidence for risk to a nursing infant, but in some circumstances the drug may be used during breastfeeding.
- **L5 CONTRAINDICATED** – Studies have shown significant risk to nursing infants. The drug should NOT be used during breastfeeding.

Additional Thoughts from the Emory WMHP

- **MATERNAL (SIDE) EFFECTS PREDICT INFANT SAFETY CONCERNS** – This is an intuitive observation that is a helpful aid in directing the focus of your concern. If a medication causes sedation in the mother, then her nursing infant should be observed for sedation. If a medication causes appetite or weight loss, then her nursing infant's growth should be carefully monitored.
- **MATERNAL LAB MONITORING SHOULD ALSO BE PERFORMED FOR THE INFANT** – Numerous medications have safety concerns that require regular laboratory monitoring. For example, liver enzyme tests must be monitored for women taking valproate, carbamazepine, and nefazodone. Blood cell counts must be monitored for women taking valproate, carbamazepine, oxcarbazepine, and clozapine. Kidney function must be monitored for women taking lithium. We recommend that if a breastfeeding mother is taking a medication that requires laboratory monitoring, then these same laboratory tests should be monitored in her infant as well.
- **PREGNANCY EXPOSURE IS MUCH HIGHER THAN BREASTFEEDING EXPOSURE** – In our experience, the level of fetal exposure to a psychiatric medication during pregnancy is typically at least 10-fold higher than the level of exposure that occurs via nursing. Consequently, if a child has already been exposed to a medication throughout pregnancy, then nursing simply continues that same exposure at a much lower level.

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- **LONG-TERM EFFECTS OF BREASTFEEDING EXPOSURE ARE NOT YET WELL-STUDIED** – Dr. Hale's ratings focus upon risks identified during infancy when the child is still nursing. There may be developmental effects of nursing exposure that will not be evident until much later. For this reason, we recommend that you consider discontinuing nursing if you must begin taking a new medication.
- **"PUMPING & DUMPING" CAN REDUCE EXPOSURE TO OCCASIONAL MEDICATIONS** – Peak breast milk concentrations of a medication generally occur within the first hours following a dose. If you must take an "as needed" dose of a medication (e.g., sleep medication, pain medication), your baby's level of exposure to the medication can be reduced by following these steps: 1) maintain a supply of breast milk that you have pumped and stored; 2) take the medication immediately after a feeding; 3) at your baby's next feeding, bottle feed your baby some of the breast milk that you have previously stored (or formula); 4) at this time, pump breast milk from both breasts and discard (dump) that breast milk; 5) resume regular breastfeeding at the next feeding.

DJN – 2011.12.31

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EMORY WMHP BLOG

Hale's Breastfeeding Safety Ratings: Part 2 – Antidepressants

Thomas Hale's *Medications and Mothers' Milk*, now in its 14th edition, has become the standard reference for the breastfeeding safety of medications. In this series, we provide a summary of Dr. Hale's ratings and recommendations for the major classes of psychiatric medications. In this entry in the series, we summarize Dr. Hale's findings regarding the safety of ***Antidepressants*** during breastfeeding.

Lactation Category	Generic Name	Brand Name(s)	Antidepressant Class	Relative Infant Dose
L2 - SAFER				
L2	Amitriptyline	Elavil	Tricyclic	1.9% - 2.8%
L2	Amoxapine	Asendin	Tetracyclic	Not reported
L2	Citalopram	Celexa	SSRI	3.6%
L2	Clomipramine	Anafranil	Tricyclic	2.8%
L2	Desipramine	Norpramin	Tricyclic	0.3% - 0.9%
L2	Escitalopram	Lexapro	SSRI	5.2% - 7.9%
L2	Fluoxetine	Prozac	SSRI	7.7%
L2	Fluvoxamine	Luvox	SSRI	0.3% - 1.4%
L2	Imipramine	Tofranil	Tricyclic	0.1% - 4.4%
L2	Nortriptyline	Pamelor	Tricyclic	1.7% - 3.1%
L2	Paroxetine	Paxil	SSRI	1.2% - 2.8%
L2	Sertraline	Zoloft	SSRI	0.4% - 2.2%
L2	Trazodone	Desyrel	Atypical	2.8%
L3 – Moderately Safe				
L3	Bupropion*	Wellbutrin, Zyban	Atypical	0.2% - 1.9%
L3	Desvenlafaxine	Pristiq	SNRI	6.8% - 9.3%
L3	Duloxetine	Cymbalta	SNRI	0.1%
L3	Maprotiline	Ludiomil	Tetracyclic	1.4%
L3	Mirtazapine	Remeron	Atypical	1.6% - 6.3%
L3	Venlafaxine	Effexor	SNRI	6.8% - 8.1%
L4 – Possibly Hazardous				
L4	Nefazodone*	Serzone	Atypical	1.2%
L4	Selegiline	Emsam	MAOI	Not reported
L5 - Contraindicated				
L5	Doxepin*	Sinequan	Tricyclic	1.2% - 3.0%
Unrated				
Unrated	Isocarboxazid	Marplan	MAOI	
Unrated	Phenelzine	Nardil	MAOI	
Unrated	Protriptyline	Vivactil	Tricyclic	
Unrated	Tranylcypromine	Parnate	MAOI	
Unrated	Trimipramine	Surmontil	Tricyclic	
Unrated	Vilazodone	Viibryd	Atypical	

**Complications Reported: Bupropion – one case of seizure; Doxepin – respiratory arrest, sedation, poor feeding, poor muscle tone; Nefazodone – sedation, failure to thrive, poor temperature control.*

Additional Thoughts from the Emory WMHP

- **Bupropion & Milk Production** – One aspect of bupropion's mechanism is increase dopamine activity. Because dopamine blocks the activity of prolactin (i.e., the hormone that stimulates the breasts to produce milk), bupropion may, in theory, lower breast milk production. While this is a *theoretical*

Additional Thoughts from the Emory WMHP

- **Bupropion & Milk Production** – One aspect of bupropion's mechanism is increase dopamine activity. Because dopamine blocks the activity of prolactin (i.e., the hormone that stimulates the breasts to produce milk), bupropion may, in theory, lower breast milk production. While this is a *theoretical* concern, it has not been our experience that bupropion significantly lowers breast milk production.
- **Bupropion & Seizure Risk** – Bupropion should be avoided for those at risk for seizures. We recommend that nursing while taking bupropion should be avoided for infants who have any history of seizures including febrile seizures or any family history of seizures in a parent or older sibling.
- **Nefazodone & Laboratory Monitoring** – Nefazodone requires laboratory monitoring of liver enzymes. We recommend that this laboratory testing should also be performed in nursing infants whose mothers are taking nefazodone.
- **MAOIs**- Although three of four MAOIs are unrated by Hale, he specifically states that MAOIs should not be administered to nursing mothers. Thus, they should be considered as having L5 safety ratings.

DJN – 2012.01.01

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EMORY WMHP BLOG

Hale's Breastfeeding Safety Ratings: Part 3 – Mood Stabilizers & AEDs

Thomas Hale's *Medications and Mothers' Milk*, now in its 14th edition, has become the standard reference for the breastfeeding safety of medications. In this series, we provide a summary of Dr. Hale's ratings and recommendations for the major classes of psychiatric medications. In this entry in the series, we summarize Dr. Hale's findings regarding the safety of ***Mood Stabilizers & Antiepileptic Drugs (AEDs)*** during breastfeeding.

Lactation Category	Generic Name	Brand Name(s)	Medication Class	Relative Infant Dose
L2 - SAFER				
L2	Acetazolamide	Diamox, Dazamide	AED	2.2%
L2	Carbamazepine	Tegretol, Carbatrol	AED	3.8% - 5.9%
L2	Fosphenytoin	Cerebyx	AED	Not reported
L2	Gabapentin	Neurontin	AED	6.6%
L2	Olanzapine	Zyprexa, Symbyax	Atypical Antipsychotic	1.2%
L2	Phenytoin	Dilantin	AED	0.6% - 7.7%
L2	Quetiapine	Seroquel	Atypical Antipsychotic	0.07% – 0.1%
L2	Valproate	Depakene, Depakote	AED	1.4% - 1.7%
L2	Ziprasidone	Geodon	Atypical Antipsychotic	0.1% - 1.2%
L3 – Moderately Safe				
L3	Aripiprazole	Abilify	Atypical Antipsychotic	0.9%
L3	Clozapine	Clozaril	Atypical Antipsychotic	1.4%
L3	Ethotoin	Peganone	AED	Not reported
L3	Lamotrigine*	Lamictal	AED	9.2% - 22.8%
L3	Levetiracetam	Keppra	AED	3.4% - 7.8%
L3	Lithium*	Eskalith, Lithobid	Lithium	12% - 30.1%
L3	Oxcarbazepine	Trileptal	AED	Not reported
L3	Phenobarbital*	Luminal	AED	23.97%
L3	Pregabalin	Lyrica	AED	Not reported
L3	Primidone	Mysoline	AED	8.4% - 8.6%
L3	Tiagabine	Gabitril	AED	Not reported
L3	Topiramate	Topamax	AED	24.5%
L3	Vigabatrin	Sabril	AED	Not reported
L4 – Possibly Hazardous				
L4	Ethosuximide*	Zarontin	AED	31.5%
L4	Felbamate*	Felbatol	AED	Not reported
L5 - Contraindicated				
L5	Zonisamide*	Zonegran	AED	33.2%
Unrated				
Unrated	Asenapine	Saphris	Atypical Antipsychotic	
Unrated	Ezogabine	Potiga	Atypical Antipsychotic	
Unrated	Iloperidone	Fanapt	Atypical Antipsychotic	
Unrated	Lurasidone	Latuda	Atypical Antipsychotic	
Unrated	Paliperidone	Invega	Atypical Antipsychotic	

**Complications Reported: Ethosuximide – poor feeding, sedation, "hyperexcitability"; Felbamate – none reported but caution urged due to risk of aplastic anemia; Lamotrigine – one case of apnea; Lithium – abnormal EKG, respiratory difficulty (cyanosis), hypothyroidism, poor muscle tone; Phenobarbital – sedation, withdrawal symptoms; Zonisamide – extremely high levels.*

- **Carbamazepine Safety & Laboratory Monitoring** – Despite Hale's favorable L2 rating, it should be remembered that carbamazepine can impair liver function and suppress bone marrow function. Therefore, we recommend that laboratory testing (blood counts, liver function tests) should be routinely performed for nursing infants whose mothers are taking carbamazepine. If an nursing infant exposed to carbamazepine develops a fever, (s)he should be taken immediately to an ER to rule out agranulocytosis.
- **Clozapine Safety Rating** – Given the significant potential for clozapine to suppress bone marrow function and cause aplastic anemia, we disagree with Hale's L3 rating and believe that it should be rated L4 at best. Clozapine should be avoided during breastfeeding in our opinion. For nursing infants exposed to clozapine, regular laboratory monitoring of blood counts is required. If an nursing infant exposed to clozapine develops a fever, (s)he should be taken immediately to an ER to rule out agranulocytosis.
- **Lithium Safety & Laboratory Monitoring** – Due to the significant dangers posed by lithium toxicity, we disagree with Hale's L3 rating and believe that it should be rated L4 at best. We recommend avoiding lithium during breastfeeding. For nursing infants exposed to lithium, regular laboratory monitoring (lithium level, thyroid function tests, kidney function tests) should be performed. In addition, it must be repeatedly stressed that nursing infants exposed to lithium should never be treated with ibuprofen (Children's Motrin) or other NSAIDs.
- **Valproate Safety & Laboratory Monitoring** – Despite Hale's favorable L2 rating, it should be remembered that valproate can impair liver function and lower platelet levels. Therefore, we recommend that laboratory testing (blood counts, liver function tests) should be routinely performed for nursing infants whose mothers are taking carbamazepine.
- **Valproate & Child Development** – It has been a consistent research finding that children who were exposed to valproate during pregnancy have higher rates of cognitive impairment. Possible cognitive effects of valproate exposure during breastfeeding have not been studied. Although the level of valproate exposure is markedly lower via nursing than during pregnancy, potential developmental consequences of nursing exposure warrant concern.

DJN – 2012.01.02

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EMORY WMHP BLOG

Hale's Breastfeeding Safety Ratings: Part 4 – Stimulants & ADD Medications

Thomas Hale's *Medications and Mothers' Milk*, now in its 14th edition, has become the standard reference for the breastfeeding safety of medications. In this series, we provide a summary of Dr. Hale's ratings and recommendations for the major classes of psychiatric medications. In this entry in the series, we summarize Dr. Hale's findings regarding the safety of ***Stimulants & Attention Deficit Disorder Medications*** during breastfeeding.

Lactation Category	Generic Name	Brand Name(s)	Medication Class	Relative Infant Dose
L2 - Safer				
L2	N/A	N/A		
L3 – Moderately Safe				
L3	Clonidine[1]	Catapres	Non-stimulant	0.01% - 7.1%
L3	Dexmethylphenidate[2]	Focalin	Stimulant	0.2% - 0.4%
L3	Dextroamphetamine	Dexedrine, Dextrostat	Stimulant	1.8% - 6.9%
L3	Guanfacine[1]	Intuniv, Tenex	Non-stimulant	Not reported
L3	Lisdexamfetamine[3]	Vyvanse	Stimulant	1.8% - 6.9%
L3	Methylphenidate	Concerta, Daytrana, Metadate, Ritalin	Stimulant	0.2% - 0.4%
L3	Mixed amphetamine[3]	Adderall	Stimulant	1.8% - 6.9%
L4 – Possibly Hazardous				
L4	Atomoxetine	Straterra	Non-stimulant	Not reported
L4	Modafinil	Provigil	Stimulant[4]	Not reported
L5 - Contraindicated				
L5	Methamphetamine	Desoxyn	Stimulant	Not reported
Unrated				
Unrated	Armodafinil	Nuvigil	Stimulant[4]	Not reported

[1]Clonidine and guanfacine have each been used for decades to manage hypertension. They have also been used off-label to manage ADD/ADHD. Guanfacine recently received FDA approval for treatment of ADD; however, clonidine still has no FDA approval for ADD. [2]Dexmethylphenidate is included in Hale's methylphenidate report. [3]Lisdexamfetamine and mixed amphetamine salts are included in Hale's dextroamphetamine report. [4]Modafinil and Armodafinil (Nuvigil) are stimulants used to treat narcolepsy. They do not have FDA indications for the treatment of ADD.

Additional Thoughts from the Emory WMHP

- **Clonidine, Guanfacine & Blood Pressure** – As antihypertensives, clonidine and guanfacine may lower blood pressure in nursing infants. Nursing infants exposed to clonidine and guanfacine should be monitored for low blood pressure, sedation, and weakness.
- **Stimulant Monitoring** – Nursing infants exposed to stimulants should be monitored for insomnia, poor appetite, weight loss, and irritability; however, none of the existing studies have reported these complications.
- **Stimulants & Milk Production** – All stimulants increase dopamine activity. In addition to its effects as a neurotransmitter, dopamine also acts as a hormone to lower levels of another hormone, prolactin. As a result, stimulants may lower prolactin levels and thereby lower breast milk production.
- **Atomoxetine Metabolism** – Approximately 1 in 14 individuals are genetically-determined poor metabolizers of atomoxetine. The half-life of atomoxetine may be over 4 times longer among poor metabolizers. As a result, plasma levels of atomoxetine in nursing infants who are poor metabolizers may be much higher than anticipated.

DJN – 2012.01.08

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EMORY WMHP BLOG

Hale's Breastfeeding Safety Ratings: Part 5 – Anxiolytics & Benzodiazepines

Thomas Hale's *Medications and Mothers' Milk*, now in its 14th edition, has become the standard reference for the breastfeeding safety of medications. In this series, we provide a summary of Dr. Hale's ratings and recommendations for the major classes of psychiatric medications. In this entry in the series, we summarize Dr. Hale's findings regarding the safety of ***Anxiolytics & Benzodiazepines*** during breastfeeding.

Lactation Category	Generic Name	Brand Name(s)	Medication Class	Use(s)	Relative Infant Dose
L2 - Safer					
L2	Midazolam	Versed	Benzodiazepine	Hypnotic (medical procedures)	0.6%
L2	Nitrazepam	Mogadon	Benzodiazepine	Hypnotic	2.9%
L2	Quazepam	Doral	Benzodiazepine	Hypnotic	1.4%
L3 – Moderately Safe					
L3	Alprazolam	Xanax	Benzodiazepine	Anxiolytic	8.5%
L3	Buspirone	Buspar	Azapirone	Anxiolytic	Not reported
L3	Chlordiazepoxide	Librium	Benzodiazepine	Anxiolytic	Not reported
L3	Clonazepam	Klonopin	Benzodiazepine	Anxiolytic, anticonvulsant	2.8%
L3	Clorazepate	Tranxene	Benzodiazepine	Anxiolytic, anticonvulsant	Not reported
L3	Diazepam[1]	Valium	Benzodiazepine	Anxiolytic, anticonvulsant, muscle relaxant	0.2% - 0.4%
L3	Estazolam	Prosom	Benzodiazepine	Hypnotic	Not reported
L3	Flunitrazepam[1]	Rohypnol	Benzodiazepine	Hypnotic	Not reported
L3	Flurazepam	Dalmane	Benzodiazepine	Hypnotic	Not reported
L3	Halazepam	Paxipam	Benzodiazepine	Anxiolytic	Not reported
L3	Lorazepam	Ativan	Benzodiazepine	Anxiolytic, anticonvulsant	2.9%
L3	Lormetazepam	Loramet	Benzodiazepine	Hypnotic	Not reported
L3	Oxazepam	Serax	Benzodiazepine	Anxiolytic	1.0%
L3	Prazepam	Centrax	Benzodiazepine	Anxiolytic	Not reported
L3	Temazepam	Restoril	Benzodiazepine	Hypnotic	Not reported
L3	Triazolam	Halcion	Benzodiazepine	Hypnotic	Not reported
L4 – Possibly Hazardous					
L4	Diazepam[1]	Valium	Benzodiazepine	Anxiolytic, anticonvulsant, muscle relaxant	0.2% - 0.4%
L4	Flunitrazepam[1]	Rohypnol	Benzodiazepine	Hypnotic	Not reported
L5 - Contraindicated					
L5	N/A	N/A			
Unrated					
Unrated	N/A	N/A			

[1] *Diazepam and flunitrazepam are rated L3 for short-term use and L4 for "chronic use" by Hale.*

Additional Thoughts from the Emory WMHP

- **Benzodiazepine Safety Management** – Nursing infants exposed to benzodiazepines should be monitored for sedation, poor feeding effort, poor muscle tone ("floppy"), and breathing difficulties including apnea. Safety can be improved by: 1) using minimal doses, 2) avoiding chronic use, 3) using agents with no active metabolites (e.g., alprazolam, clonazepam, lorazepam, oxazepam) to minimize the potential for accumulation in the infant, 4) "pumping and dumping" (cf. Hale's Breastfeeding Safety Ratings – Part 1).

DJN – 2012.01.08

APPENDIX H—Community Resources

Butte County Perinatal Mood and Anxiety Disorder Resource List

Provider	Contact Info.	Services Offered	Types of Insurance Accepted
Butte County Behavioral Health	Welcoming, Triage and Referral Services (WTR) 592 Rio Lindo Avenue Chico, CA 95926 **(530) 891-2810**	Assessment, hospitalization for acute and severe mental health issues Outpatient counseling, medications, referrals	MediCal, CMSP, Medicare, sliding scale for uninsured. No private insurance accepted.
Enloe Behavioral Health	560 Cohasset Road Chico, CA 95926 **(530) 332-5250** **(800) 560-5900** 24-hours a day	Assessment, in-patient hospitalization for acute and severe mental health issues (not PMAD specific). Multidisciplinary team services in-patient with referrals and discharge planning. Referrals for less acute issues.	Most private insurances accepted. Payment arrangements available through hospital financial services
Feather River Health Center/ Healthy Mothers and Babies Postpartum Program	5125 Skyway Paradise, CA 95969 **(530) 876-2518**	Postpartum home visitation services by NP's or RN's for screening, referrals, and medication management. Counseling services. Psychiatrist back-up.	MediCal, CMSP
Ampla Health	**Chico Clinic**: **Oroville Clinic:** 680 Cohasset Rd 2800 Lincoln St Chico, CA 95926 Oroville, CA 95966 **(530) 342-4395** **(530) 534-7500**	Counseling, Medication management. In person and telehealth services. Must first be established patient for telehealth. English and Spanish speaking providers.	Medi-Cal, Healthy Families and most private health insurance. Sliding scale and payment plans for uninsured.
Therapeutic Solutions	3255 Esplanade Chico, CA 95973 **(530) 899-3150**	Assessment, Partial Hospitalization, Intensive Outpatient, Medications, ECT, TMS, Counseling services	Blue Cross, Blue Shield $50 per counseling session cash pay
Northern Valley Indian Health Behavioral Health Services	845 W. East Avenue Chico, CA 95926 **(530) 896-9400 Ext. 2226**	Assessment, Medication management, Counseling services.	Only for Native American Clients. MediCal, CMSP, sliding scale.
Feather River Tribal Health Behavioral Health Services	2145 5th Avenue Oroville, CA 95965 **(530) 534-5394**	Assessment, Medication management, Counseling services.	Only for Native American Clients. MediCal, CMSP, sliding scale. Some private insurances accepted (no HMO's)

Therapists Certified in PMAD Assessment and Treatment

Provider	Contact Info.	Payment Types Accepted
Juliet Bartel, LMFT	1458 Esplanade, Chico, CA 95926 (530) 345-5057	Insurance accepted
Kathy Broussard-Bird, MFT	6393 Skyway, Paradise, CA 95969 (530) 877-9491	Insurance accepted
Mary Gordon, RN, MFT	2500 Durham-Dayton Hwy., Suite 1 Durham, CA 95938 (530) 521-6616	Insurance accepted
Jarynna Chua, MFT	Chico, CA (530) 966-5391	Private pay, sliding scale
Sue Matthiessen, LCSW	1660 Humboldt Rd., Suite 3 Chico, CA 95928 (530) 894-2238	Private payment only
Sarah Frohock, LCSW	(530) 321-6523	Some insurance accepted, private payment
Dona Templeman, MFT	1430 Esplanade, Suite 17 Chico, CA, 94118 (530) 592-9685 www.donatempleman.com	Some insurance accepted (PPO). Private payment, sliding scale

Groups for New Mothers

Bittie Baby and Me *(newborn) and* ***Bigger Baby & Me*** *(0 – 7 months)*
Enloe Hospital Mother and Baby Education Center
(530) 332-3970
www.enloe.org/baby

Becoming a new parent can be an exciting, but overwhelming experience. Classes are offered to new parents to provide information on current research and recommendations that promote improved infant health, wellness and safety. You may also form lasting friendships with other new parents in this supportive, safe and nurturing environment.
Classes are free for those parents who delivered at Enloe Hospital ($15/class for others):
Classes also include instruction in infant massage.
For a schedule of classes, please go to:
http://www.enloe.org/medical_services/mother_and_baby_care_center/after_classes.asp

Mom 2 Mom First Year Parenting Series
Feather River Hospital
(530) 876-2518

Offered weekly, this class provides new parents with the opportunity to socialize with other families while learning about their baby's growth and development. Topics addressed will include infant nutrition, newborn crying, positive forms of discipline, stress management and more. No registration is required, open to all families with newborns under one year of age.

Chico Moms Meetup Group
http://www.meetup.com/Chico-Moms/
Our primary purpose is to provide fun, stimulating events and socialization for our infants and preschool aged children while fostering support and friendships for mothers. Knowing that there are other moms going through the same trials and triumphs can make mothering a bit easier at times! We have a fabulous group of friendly, down-to-earth, no drama mamas so you are sure to find women you can connect with! Most activities are scheduled on weekday mornings, but we do have some afternoon/weekend playdates to accommodate different schedules.

Chico Mothers Club
https://www.bigtent.com/groups/chicomothers
The Chico Mothers' club, (CMC) is a member-run, non-profit organization that supports mothers of young children up to 5 years of age by organizing activities, playgroups, community involvement and much more. Yearly dues of $32.50.

M.O.M.S. (Making Our Mothering Significant)
Evangelical Free Church
1193 Filbert Avenue
Chico, CA 95926
(530) 343-6022 ext. 208
A place to find friendship, community, resources and support for you as a woman and a mother, so you are not alone. MOMS is open to all mothers, regardless of faith or affiliation. We meet on the 1st and 3rd Thursday each month, from September through May, from 9:15-11:30 am. During our meetings our children are cared for in the children's program where they experience love in a preschool-like setting. They will enjoy stories, crafts, snacks and more while being lovingly cared for by our childcare staff.

Additional Support Services

Butte Baby Steps Home Visiting Program
205 Mira Loma Dr., Suite 10, Oroville, CA 95965 (530) 538-8221
7078 Skyway, Paradise, CA 95969 (530) 876-0928
A program for women in Oroville, Paradise, Magalia and south Butte County, age 24 or younger, who are expecting or have a child under 3 months of age. Services are offered, free of charge, to help young families in adverse circumstances get off to a good start.

Butte County Public Health, Nurse Home Visiting Program
1-800-339-2941 toll free
695 Oleander Ave., Chico, CA 95926 (530) 891-2740
82 Table Mountain Blvd., Oroville, CA 95965 (530) 538-7553
Public Health Nurses provide home visits free of charge to individuals and families to assist them with health needs and concerns. Nurses can help people follow up on a medical plan or find a doctor or clinic. Nurses can answer health questions, assess needs, and help clients access no cost/low cost community services.

Online Resources

Postpartum Support International: www.postpartum.net
Postpartum Support International is dedicated to helping women suffering from perinatal mood and anxiety disorders, including postpartum depression, the most common complication of childbirth. They also work to educate family, friends and healthcare providers so that moms and moms-to-be can get the support they need and recover. Their philosophy is: "You are not alone. You are not to blame. With help, you will be well."
Telephone warmline support: (800) 944-4PPD or (800) 944-4773 (Press 1 for Spanish)
Will call back within 24 hours (not a crisis line).

Online postpartum support group: www.ppdsupportpage.com
The purpose of this website is to offer information, support and assistance to those dealing with postpartum mood disorders, their families, friends, physicians and counselors. As stated on their website, "Our forums, email group and chat rooms allow people who may be otherwise afraid or ashamed of their thoughts and fears to share what is happening inside of their minds. Some find it easier to type out their concerns without having to be in a "face-to-face" situation. In telling their stories in this manner, most women gain the confidence and support required to seek the help they have been afraid to get for themselves."

MotherWoman: www.motherwoman.org
MotherWoman supports and empowers mothers to create positive personal and social change for ourselves, our families, our communities and the world. MotherWoman groups provide safe places of mutual respect and non-judgment where mothers can build community and support one another as they navigate the realities of motherhood.

MedEdPPD.org: www.mededppd.org
MedEdPPD.org is a website developed with the support of the National Institute of Mental Health (NIMH) to provide education about postpartum depression (PPD). It provides information for women, families, and providers in both English and Spanish.

Postpartum Progress: http://postpartumprogress.com/
According to their website, "Postpartum Progress is the most widely-read blog on postpartum depression and all other mental illnesses related to pregnancy and childbirth. You won't find more comprehensive information on PPD, postpartum anxiety, postpartum OCD, depression during pregnancy, post-adoption depression, postpartum PTSD, depression after miscarriage, or postpartum psychosis anywhere else."

PostpartumDads.org: www.postpartumdads.org
This website is intended to help dads and families by providing firsthand information and guidance through the experience of postpartum depression.

Books and Publications

Depression During and After Pregnancy – A Resource for Women, Their Families, and Friends
Free, available online at www.mchb.hrsa.gov/pregnancyandbeyond/depression
Or by request from: U.S. Department of Health and Human Services (HRSA)
Health Resources & Services Administration
1(888) ASK-HRSA

Beyond the Blues, A Guide to Understanding and Treating Prenatal and Postpartum Depression (2011). Shoshanna Bennett and Pec Indman. Also available in Spanish.
www.beyondtheblues.com

Pregnant on Prozac (2009). Shoshanna Bennett (available on Amazon). www.DrShosh.com

Additional helpful resources available at http://www.helpcentral.org

APPENDIX I—Provider Screening/Triage Guidelines

Postpartum Depression (PPD) is a serious medical illness which affects approximately 15% of all women. It impacts women, their infants, and the whole family. It is very treatable when women receive screening, diagnosis and support. Appropriate places for screening are at 2 and 6 week postpartum visits and at well-baby visits in the first year.

Risk factors include:

- Personal or family history of PPD or depression
- History of menstrual related mood disorders
- Unplanned pregnancy
- Low socioeconomic status
- Lack of social support
- Life stressors/Financial stressors
- Trauma related to birth experience
- Current or past physical or sexual abuse
- Infant with health problems
- History of bipolar disorder

www.postpartum.net

However, no mother is immune.
PPD can affect any new mother,
and the only way to know
is to ASK!!

Screening using the:

Edinburgh Postnatal Depression Scale (EPDS)

- 10 item scale—5 min to complete
- Widely used, validated for postpartum depression
- Available in 20+ languages, free to download and use

www.beyondtheblues.info/Docs/edinburgh%20english.pdf

PPD PATHWAYS OF CARE

Administer EPDS to all mothers at 2 and 6 weeks postpartum and at all well-baby visits in the first year

(Note: Form can be given to mother and she can fill it out, but clinician should review and discuss)

For more information on the management of postpartum depression, visit www.step-ppd.com

Score < 10

Discuss the fact that PPD can affect anyone and review signs to watch for as well as resources available.

All postpartum women may benefit from:

- Support
- Exercise
- Sleep
- Sunlight
- Omega-3s
- Proper Nutrition

Score > 10
or any score with
suicidal ideation

If mother is unstable or with suicidal ideation:

- **Contact Behavioral Health or 911 immediately for evaluation and assistance**
- **Stay with woman and offer emotional support**
- **Assist woman in contacting support people**

If mother is stable:

- **Rule out other underlying issues such as thyroiditis or medication side effects (Reglan)**
- **Refer for psychological support (counseling, support groups, evaluation by specialist as needed)**
- **Consider medications based on symptoms, breastfeeding status and personal preference**

(Note: Sertraline and paroxetine have lowest concentration of SSRI's in breast milk while fluoxetine and citalopram have highest. All SSRI's are considered compatible with breastfeeding. Contact your local IBCLC for breast feeding questions.) www.infantrisk.com

- **Schedule follow up visit in 1-2 weeks to check symptoms and repeat EPDS –or-**
- **Refer to Healthy Mothers for follow-up (530) 876-2518**

APPENDIX J—Healthy Mothers PPD Symptoms Flyer

Si cree que usted o algún miembro de su familia sufre de una depresión postparto, le podemos ayudar gratuitamente. Llame al 1 800 944 4773 de Postpartum Support International.

APPENDIX K--Provider Survey (Post-Intervention)

1. Did you attend an educational session regarding screening for and treatment of postpartum depression (PPD)? Yes / No If yes, please continue survey:
2. Did the information and resources provided at the educational session impact your screening or treatment practices for women in your practice? Yes / No If yes, how?_____
3. How comfortable are you with identifying and screening for PPD?

Not at All Somewhat Moderately Very comfortable

4. How comfortable are you with treating PPD?
   Not at All Somewhat Moderately Very comfortable

5. What is your practice area? Peds OB/GYN Family Practice Behavioral Health

6. How would you rate your knowledge regarding medications for PPD and lactation?
   Not knowledgeable Somewhat Moderately Very knowledgeable

7. Do you currently screen women for postpartum depression or other PMAD's?
   Yes No

   If yes, approximately what percentage of women do you screen,?

   0-25% 25-50% 50-75% 75-100%

If yes, when do you screen women for PMAD's (mark all that apply)?

- Initial prenatal visit
- 2 or 6 week postpartum visit
- Pediatric well-baby visit
- Other_____

If yes, what method do you use to screen?

- Informal method
- Specific formal questions developed by our office
- Edinburgh Postnatal Depression Scale (EPDS)
- Patient Health Questionnaire-2 (PHQ-2)
- Patient Health Questionnaire-9 (PHQ-9)
- Beck Inventory
- Other_____

If no, what reasons factor into your decision not to screen?

- Lack of time
- Lack of knowledge regarding screening
- Lack of places to refer for treatment
- Concerns about liability
- Not in my scope of practice
- General discomfort
- Other:_____

APPENDIX L—Healthy Mothers visits per month by ICD-9 Codes

6/2013

	Total	300.00	300.02	300.4
Total	4	2	1	1
6/6/2013	1	0	1	0
6/18/2013	1	1	0	0
6/20/2013	2	1	0	1

7/2013

	Total	296.31	296.80	300.00	300.4	309.28	
Total	8	1	1	1	3	2	
7/2/2013	2	0	0	1	1	0	
7/11/2013	2	0	1	0	1	0	
7/16/2013	1	0	0	0	0	1	
7/18/2013	2	1	0	0	0	1	
7/30/2013	1	0	0	0	1	0	

8/2013

	Total	296.80	300.4	309.0
Total	3	1	1	1
8/1/2013	1	1	0	0
8/27/2013	2	0	1	1

9/2013

	Total	296.31	296.80	300.00	300.4	309.0	309.28	309.81	
Total	10	1	1	2	1	2	2	1	
9/5/2013	1	0	0	0	0	0	1	0	
9/10/2013	1	0	0	0	1	0	0	0	
9/12/2013	2	0	0	0	0	1	1	0	
9/19/2013	3	0	1	2	0	0	0	0	
9/24/2013	1	1	0	0	0	0	0	0	
9/26/2013	2	0	0	0	0	1	0	1	

10/2013

	Total	296.80	300.00	300.21	300.4	309.0	309.28	309.81	
Total	15	3	3	1	1	1	6	2	
10/3/2013	2	1	1	0	0	0	0	1	
10/10/2013	3	0	1	0	0	0	2	0	
10/17/2013	3	1	0	0	0	0	1	1	
10/22/2013	2	0	1	0	0	0	1	0	
10/24/2013	1	0	0	0	0	0	1	0	
10/29/2013	3	1	0	1	1	1	0	0	
10/31/2013	1	0	0	0	0	0	1	0	

PPD PATHWAYS OF CARE

11/2013

	Total	300.00	300.02	300.4	309.24	309.28
Total	9	2	1	1	1	4
11/5/2013	1	0	0	0	0	1
11/14/2013	3	2	1	0	0	0
11/19/2013	2	0	0	1	1	0
11/21/2013	2	0	0	0	0	2
11/26/2013	1	0	0	0	0	1

12/2013

	Total	300.00	309.24	309.28
Total	7	5	1	1
12/3/2013	1	1	0	0
12/5/2013	2	1	0	1
12/12/2013	2	2	0	0
12/19/2013	1	0	1	0
12/26/2013	1	1	0	0

1/2014

	Total	296.80	300.00	300.01	309.0	309.24	309.28	309.81
Total	8	2	2	1	1	1	1	
1/7/2014	1	0	1	0	0	0	0	0
1/16/2014	4	1	1	0	0	1	1	1
1/21/2014	2	1	0	1	0	0	0	0
1/30/2014	1	0	0	0	1	0	0	0

2/2014

	Total	296.80	300.00	300.02	300.4	301.0	309.0	309.24	309.28	309.81
Total	16	1	3	1	2	2	3	1	4	1
2/4/2014	1	0	0	0	1	1	0	0	0	0
2/6/2014	5	0	0	0	0	0	2	0	3	0
2/11/2014	2	0	1	0	1	1	0	0	0	0
2/13/2014	2	0	0	0	0	0	1	0	1	0
2/20/2014	3	1	0	1	0	0	0	0	0	1
2/27/2014	3	0	2	0	0	0	0	1	0	0

3/2014

	Total	300.01	300.02	300.3	300.4	309.81
Total	10	2	5	1	1	1
3/4/2014	1	0	1	0	0	0
3/6/2014	2	1	0	1	0	0
3/11/2014	1	0	0	0	1	0
3/13/2014	3	1	2	0	0	0
3/20/2014	1	0	0	0	0	1
3/25/2014	1	0	1	0	0	0
3/27/2014	1	0	1	0	0	0

4/2014

	Total	300.00	300.02	300.4	309.28	309.81	
Total	11	6	2	2	1	2	
4/1/2014		2	1	0	1	0	1
4/10/2014		2	1	0	0	1	0
4/15/2014		2	1	1	0	0	0
4/17/2014		1	1	0	0	0	0
4/22/2014		2	1	0	1	0	1
4/24/2014		2	1	1	0	0	0

5/2014

	Total	296.31	300.00	300.02	309.28	309.81	
Total	14	2	6	3	1	4	
5/8/2014		3	1	2	0	0	1
5/13/2014		1	0	1	0	0	0
5/15/2014		3	0	0	1	1	1
5/22/2014		4	0	2	1	0	1
5/27/2014		2	1	1	0	0	1
5/29/2014		1	0	0	1	0	0