

## Integrated Care for Women, Mothers, Children and Newborns: Approaches and Models for Mental Health, Pediatric and Prenatal Care Settings

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### Abstract

"Integrated" behavioral health care most often refers to coordinated primary care and mental health care delivery at a co-located clinical site or psychiatric consultation service to a primary care clinical site. Women's perinatal medical and mental health is an ideal target for integrated, patient-centered, and family-centered care. A three pronged approach is proposed to: 1) identify solutions for current barriers to mental health care delivery for pre- and postpartum women, 2) understand the relevance, steps toward and other thematic "how to" aspects of improving access to perinatal mental health services for the ongoing health of both mother and child, and 3) learn specifics of addressing maternal mental health, infant dyadic therapy, and enhanced parenting support. It borrows from the areas of stepped care, interdisciplinary teamwork, specific matching of treatments to disorders and stages of illness, and a range of individual, dyad, family and group treatments. These treatments are accessible, reduce stigmatization, and appropriate for dissemination using technology.

**Keywords:** Newborn; Mental health; Pediatric; Prenatal care

### Introduction

The integration of medical and mental health patient care is receiving much more attention this decade, mainly due to increased access to care through the Affordable Care Act and a history of poor outcomes for patients in traditional care. For instance, in a 17-year follow-up study of over 80,000 people in the United States, those with mental illness died an average of 8.2 years earlier than those without mental illness, with excess mortality primarily due to socioeconomic factors, poor access to effective primary/preventative care, and the burden of chronic health conditions [1]. The field of consultation-liaison psychiatry (now psychosomatic medicine) has "integrated" behavioral health, but most often this has meant coordinating services in inpatient settings or co-locating primary and mental health care at a clinic (e.g., adding a psychiatric consultation service or a mental health worker triaging or providing brief therapy). Similarly, "reverse integration" of care generally refers to the practice of bringing primary and preventive medical care to the psychiatric clinical setting. Most of these efforts fall short of full integration, which includes but is not limited to, patient-centered services, team-based or interdisciplinary provision, a stepped care approach, and following patients longitudinally.

Women's health and mental health is a robust target for integrated, patient-centered, and family-centered care – indeed this care is one of several examples in medicine that focus on the pregnant woman/new mother and her offspring's risk for illness (another example relates to vascular health) [2]. Early identification, risk stratification and tracking/care management apply to each example. This paper's example has a focus mental health of women, pregnant women, mothers, newborns, the "family," and the "home," which is supported by public health, policy, and other fields. In addition, participants seek help in overcoming the barriers of transportation, childcare, and affordability. Stigma is decreased when screening and intervention are universal, instead of singling out women who may have pathology [3]. In addition, women often feel more comfortable with their own prenatal or their child's pediatric provider [4]. Therefore, acceptability for the patient and potential for integration, both, are more likely in prenatal and pediatric care settings.

Long-term, the goal in integrated perinatal mental health care is stopping the sequelae of maternal depression by improving maternal mental health, preventing developmental and mental health problems in the infant, and improving the mother-baby attachment relationship. The tangible concerns that drive the need for integration are the negative consequences of Perinatal Mood and Anxiety Disorders (PMADs) on pregnancy, birth outcomes and child development (e.g., attachment and bonding) [5-11]. The development and function of neurons short- and long-term is determined by genomic, medical and psychological factors [12,13]. For instance, the relationship of the pregnant mother to the developing fetus, or the postpartum mother with a newborn, is critical to a form of neuronal pruning associated with learning, known as small-scale axon terminal arbor pruning. This means synapses that are frequently used have strong connections while the rarely used synapses are eliminated. Clinically, this neurobiology translates into cognitive, behavioral, and psychological outcomes that last the lifetime of the child [14,15].

Existing approaches, guidelines and best practices offer a variety of integrated care models with overlapping, elementary ingredients for women's medical and mental healthcare. Stepped care is predicated on patient needs or targeted outcomes, varying provider skill sets, specific matching of treatments to disorders and stages of illness, and interdisciplinary collaboration [16-18]. Family-based approaches

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have demonstrated value for the individual, dyad, and family. These treatments are almost all attachment-based and include skill-based treatments delivered to individuals, dyads, family, and groups and in locales ranging from hospitals to clinics to community centers to homes. Future versatility is offered by stepped e-delivery of services, from self-report (via Smartphone), to patient-doctor or doctor-doctor asynchronous (i. e. , phone/email), to video clips (e. g. , school for behavioral disorders or brief assessments in primary care) to synchronous video [19].

We propose a new model of “three-pronged” integration to continue the evolution of, and extend it to, women’s medical and mental healthcare. The three prongs of integration are between pre- and postpartum care; physical and mental health; and mother and child. This paper will help the reader to: 1) identify solutions for current barriers to mental health care delivery for pre- and postpartum women; 2) understand the relevance, steps toward and other thematic “how to” aspects of improving access to perinatal mental health services for the ongoing health of both mother and child; and 3) learn specifics of addressing maternal mental health, infant dyadic therapy, and enhanced parenting support – both within a “three-pronged” model of perinatal mental health care – and in supplementing current practices that are off to a good start.

## Case Presentations

### Case 1

Ms. A is a 23 year-old G1P1 Latina woman referred to the Maternal Wellness Clinic in the Adult Outpatient Psychiatric Clinic for depression. She currently lives with her boyfriend and 5-month old daughter, has a history of domestic violence in her family of origin, and no past psychiatric history. Her pregnancy was unplanned and her depressive symptoms began shortly after delivery. Her symptoms were characterized by depressed mood, hopelessness, and insomnia. She stated she felt 30% her normal self, that her connection with her daughter was 30% what she felt it should be, and that being alone with her daughter caused anxiety (Patient Health Questionnaire; PHQ-9 = 16). She was diagnosed with MDD, Single Episode, Moderate, started on paroxetine, and referred to the Family Development Project (FDP) to receive weekly home visits for dyadic therapy. Over the next three months she had three follow up visits in the psychiatric clinic and ten home visits from the FDP. She stated the therapy “helps me feel better and closer to [my baby].” She reported having “more confidence as a mother,” feeling back to her normal self and the connection with her daughter being 75% what she believes it should be (PHQ-9 = 4). She felt therapy had been more helpful than medication in her recovery. Breastfeeding, co-sleeping, and infant care were not discussed in the psychiatric clinic or with the FDP.

### Case 2

Ms. B is an 18 year-old G1P0 Latina woman at eight months gestation referred to the Maternal Wellness Clinic in the Adult Outpatient Psychiatric Clinic for depression. She currently lives with her mother and her mother’s boyfriend of 15 years. She grew up exposed to domestic violence in her family of origin as well as neglect and has an eight-year history of MDD, most recently treated with sertraline and augmented with aripiprazole. Her pregnancy was unplanned and two months into her pregnancy she decided to discontinue her treatment stating she felt she was doing well, thought she would “handle my depression myself,” and that her pregnancy would improve her depression. As her pregnancy progressed she became increasingly sad,

hopeless, cried nearly every day, and struggled to sleep (PHQ-9 = 22). She worried about the arrival of her baby and felt she would not know how to be a mother. She was diagnosed with MDD, Recurrent, Severe without Psychotic Features, given a prescription for paroxetine, and referred to the FDP. On follow up she had yet to begin paroxetine and stated she was contacted by the FDP but that she accidentally deleted their message. Over the next two months she missed multiple follow up appointments, did not fill her prescriptions and continued to have difficulty connecting with the FDP despite continued interest. During phone conversations with this provider, Ms. B stated she continues to struggle with symptoms of depression. Breastfeeding, co-sleeping, and infant care were not discussed.

## Integrating Women’s Mental Health Care: Current Models in Outpatient Psychiatry and Obstetrics

### Maternal psychiatric care in a traditional mental health setting: The maternal wellness clinic

The Maternal Wellness Clinic (MWC), an outpatient psychiatric clinic for women who are pregnant and postpartum located in a university-based, major metropolitan area (e. g. , Los Angeles County + University of Southern California or LAC+USC Medical Center). Referrals are often made from OB Mental Health to the MWC for women who will need ongoing mental health care into the postpartum. The MWC also receives referrals from around Los Angeles County, as it is the only specialty psychiatric clinic for perinatal women in the Department of Mental Health. Local hospitals refer frequently as well. The patients served in the MWC are low-income, primarily Latina or African-American, and many with English as a second language. Challenges faced by the patients include poverty, immigration issues, high rates of childhood trauma and current intimate partner violence, substance use, and ongoing mental illness.

Despite the numbers of these referrals, the Maternal Wellness Clinic remains difficult for women to access. Most of the patients face traditional barriers to mental health care, including transportation, childcare, insurance access, and fragmentation of mental health from biomedical care. Stigma around seeing a psychiatrist is a clear concern for many women, particularly in certain ethnic minority groups [20]. Finding transportation and childcare for a new clinic setting can be challenging; many women arrive hours later than their scheduled appointment time. This is particularly true for women who are newly postpartum and trying to juggle the needs of an infant. For the psychiatrist working with these women, collaborating with each woman’s obstetrician or previous mental health provider is daunting, given a lack of shared records or established routes for communication. Ms. B, discussed above, is a classic example: she was able to make one intake appointment, but has struggled significantly with follow-up appointments, getting prescriptions filled, and connecting with psychotherapy.

This last point is particularly important because many women seen prefer psychotherapy to medications. This is often an appropriate choice. While social workers are available for individual therapy in the clinic, there are no specialty-trained therapists on-site who work with pregnant women and their children. Given that the most effective way to stop the intergenerational transmission of depression is by jointly treating the mother’s mental illness and developing health attachment with her infant, this is a real deficit of care for the MWC. Referrals are given to patients for community-based therapy programs. Sometimes, as in the case of Ms. A, these referrals result in productive, long-term care. However, the rate of such engagement

is low – demonstrating again the need for integrated biomedical and mental health care.

### **Prenatal integration of physical and mental care of pregnant women: An OB-mental health clinic**

Integrated care incorporates mental health into the “biomedical” care typically delivered in traditional medical settings. For pregnant women, this means integrating mental health care into prenatal care settings. To date, collaborative care studies have demonstrated greater adherence to treatment and improved remission rates [18,21]. Furthermore, this integration has proved more effective for low-income women, a demographic that has been historically hard to reach and engage in mental health care, yet who are also the most high-risk for Perinatal Mood and Anxiety Disorders [21-23].

In keeping with this model, the OB Mental Health Program (also at LAC+USC) incorporates mental health care into the prenatal care setting. This setting includes both the high-risk obstetrical clinic, staffed by Maternal Fetal Medicine attendings and trainees, and the midwife clinic, staffed by midwives for less complicated pregnancies. The OB Mental Health program also works closely with Strong Start, a Department of Health Services program built on a neighborhood health model using principles of collaborative care. These principles include universal screening, using care coordinators for patient management and follow-up, interventions based on risk-stratification, and patient tracking. The OB Mental Health program addresses barriers to care in several important ways. Transportation issues diminish, as women are able to receive multiple services in one place, on the same day. Childcare is provided at the medical center by LAC+USC. Onsite collaboration between psychiatry, obstetrics, and social work allows for real-time consultation and recommendations, greatly decreasing fragmentation of care. Sharing the electronic medical record assists integration. The universal nature of the program decreases stigma by normalizing screening and education around mental illness. Financial access to care is improved because women who are pregnant are eligible for MediCal, regardless of income or immigration status.

### **The pre- to post-natal care transition**

While integrated care works well in the prenatal setting, the transition from pre- to postnatal services poses a risk for service discontinuity and subsequent bad outcomes. This occurs for two reasons. First, MediCal/Medicaid insurance terminates at roughly 60 days postpartum for undocumented women or women who have not yet registered with an extended eligibility plan. Second, traditional obstetrical care consists of only one to two postpartum visits to monitor recovery from delivery and engage in family planning. For these two reasons, the vast majority of women seen in OB Mental Health have extremely limited follow up in the prenatal setting once they have delivered. This is particularly problematic because the weeks and months postpartum are the highest risk for mood and anxiety disorders, especially for women who are already struggling to manage a mental illness [22]. If they are managed on medications or in ongoing psychotherapy during pregnancy, terminating this treatment in the immediate postpartum can be devastating. Referrals are given to community resources or the psychiatric clinic, but engagement with such referrals is extremely low, and the capacity of non-specialized providers to treat postpartum and lactating women is limited. For these reasons, true integrated care needs a more reliable mechanism for continuity of care from pregnancy into the postpartum for women with mental illness.

### **Integrated Women's Mental Health Care: A Proposed Model for Mother and Baby Post-Partum**

One solution to women with PMAD being lost to follow-up in the vulnerable post-partum period is to integrate maternal mental health care into routine well-child checks [12]. We propose the creation of a “Family Wellness Clinic” based on this idea. The pediatric clinic as the site of intervention for depression and anxiety in mothers has the potential to help mothers and babies surmount barriers - both practical and psychosocial - to needed care. On a practical level, the pediatrician may be the only medical provider with whom the mother has contact; many mothers do not establish their own primary care provider post-partum, but nearly 85% of children nationally have a personal healthcare provider [24]. Equally important, the convenience of co-location/co-scheduling of pediatric well baby and maternal mental health services makes participating in care more feasible and convenient for mother and baby. Furthermore, one can speculate that integrated care may help mothers overcome the stigma that they may feel about attending mental health. Lastly, the mother's relationship with the pediatrician may help reduce the mother's embarrassment at needing mental health services and reassure her that participating in treatment will not result in a child protective services referral [25].

If we are looking for evidence-based approaches that can inform our integrated care model, we can pull from three well-established interventions. The first is utilizing a collaborative care model, similar to the one currently in use in the OB Mental Health Clinic. Again, basic principles of universal screening, using a care coordinator for ongoing management, interventions based on risk stratification, and patient tracking are essential to delivery of integrated care. These guidelines are even more important in the Family Wellness Clinic, given the complexity of integrating pediatrics, reproductive psychiatry, and child psychiatry into one “medical home.” We also chose the title “Family Wellness Clinic” because fathers also develop postpartum mood and anxiety disorders. Rates in men are roughly 10%, particularly in fathers who are younger, with lower educational level, low income, financial worry, and poor partnership quality [26].

The second intervention is universal screening for PMADs in the pediatrician's office. Historically, pediatricians have raised concerns about feasibility of screening, whether it is in their scope of practice, and even ethical issues involved in screening. Concerns about feasibility have been answered by time-efficient screening tests such as the PHQ-2 or Edinburgh Postpartum Depression Scale. The financial burden of screening is relieved somewhat by the fact that the pediatric practice can bill for screening of the mother under the infant's insurance number<sup>1</sup>. Still, even with practical concerns around time and billing alleviated, some pediatricians feel it is out of their scope of practice [27]. Furthermore, pediatricians are aware that simply screening does not change mother's mental health or improve her infant's health; they must provide a referral to services [28]. Pediatricians also know that, for women like Ms. B, a positive screening test followed by a referral to a provider does not always result in engagement in care [29]. Despite these doubts, Chaudron et al. came to the conclusion that screening mothers for postpartum depression has such great potential to improve the pediatric patient's well-being that, “we believe that, from both ethical and legal perspectives, the benefits of screening for postpartum depression outweigh the risks [25].

The third group of evidence-based interventions relevant to our integrated care model is psychotherapeutic interventions designed to help mother-baby attachment. Over the past 25 years, there has been an explosion of literature documenting the success of mother-baby

psychotherapeutic treatments (e. g. , reduced symptoms and benefits to baby) [30-32]. These interventions are indicated for situations in which the mother and infant are extremely high risk for poor outcomes or in situations in which there is already an attachment problem between mother and baby [30]. These treatments are usually delivered in the mother and baby's home by a mental health professional, and may involve weekly appointments over a 1-2 year period. Examples of such treatments are Child Parent Psychotherapy and the Family Development Project (Ms. A and Ms. B were both referred to the Family Development Project) [30,31]. These treatments, especially those delivered in the home, are highly staff intensive and long-term, and therefore they expensive to deliver. While these programs are effective, and show benefits as in the case of Ms. A above, they are not feasible to "scale up" to all mother-infant dyads who present to a pediatric clinic.

The convergence of these two areas of evidence-based practice--the utility of screening for PMAD in pediatric settings and the success of intensive dyadic interventions in treatment of mother-infant attachment problems--begs the question as to whether integrated care in a pediatric clinic could deliver both a preventive intervention for mother-baby attachment problems and clinically indicated treatment for PMAD. Such an intervention might have benefits in three spheres: 1) preventing the development of a problematic mother-baby relationship; 2) preventing developmental and behavioral problems in infants (and the children they will become); and 3) improving maternal mental health.

A variety of low-dose and preventative psychotherapy and counseling options focused on these targets are just starting to be investigated. There are some promising early studies. One stepped care program used a program about education about newborn sleep and crying programs, delivered via DVD, telephone consultation, and parent groups [33]. While the intervention group and control group did not have different outcomes for infant behaviors, mothers in the intervention group did better in terms of mood, with the former less likely to score >9 on the Edinburgh Postnatal Depression Scale [34]. A brief (8 home visits) intervention for difficulty in the mother-infant relationship resulted in shorter duration of maternal depression post-partum [35]. The Baby Triple P (Positive Parenting Program; an educational and skill-building model) intervention showed no significant effects on maternal or baby measures, but it was both feasible and highly acceptable to mothers, and the authors recommended a larger trial [36]. Right from the Start is an 8-session group intervention for parents looking at videos of common parenting mistakes and coaching one another in how to respond; it showed some benefits for fostering attachment security [37]. All of the above-named studies used mental health personnel to deliver the intervention. It is of great interest to our group if pediatric medical or nursing staff could become comfortable and effective at delivering such low-dose interventions aimed at fostering mother-infant attachment [38]. Previous studies have shown that new mothers find such staff to have great credibility in matters around parenting infants [39]. Future studies will be needed to determine whether these comparatively low-dose interventions can be effective in our three aims of improving maternal mental health, preventing developmental and mental health problems in the infant, and improving the mother-baby attachment relationship.

### **Enhanced Parenting Support for Sleep, Breastfeeding, Infant Care and other Goals: An Essential Element of Integrated Perinatal Mental Health Care**

Integrated care for perinatal mental health must address practical,

day-to-day concerns of new parents. Such concerns generally involve sleep, breastfeeding, and infant care – and how all of these impact the parents' own mental health, as well as their ability to attach to the infant. Anxiety is one of the most common presentations of PMAD, and debilitating worry, panic attacks, obsessions, and insomnia can be triggered by feelings of incompetence in parenting. In particular, sleep and breastfeeding are core aspects of infant and maternal health - ones that have far-reaching effects on mental health, attachment, and safety. In the months following childbirth, mothers experience many physiological and psychological changes (e. g. , weight gain, memory loss, or PMADs) that enhance their need for restorative sleep, which is often interrupted by infant care[40]. Sleep is both a trigger for and a symptom of mental illness, and is often interrupted by infant care. When addressing PMADs, sleep interruption needs to be addressed, as it can be very problematic for a woman with mental illness. One question many new mothers have is about co sleeping. Co sleeping, also known as bedsharing, in which infants sleep on the same surface as their mothers or both parents, can act as a mechanism to enable breastfeeding, synchronized sleep cycles, and maternal attachment, but may also negatively impact a mother struggling with postpartum anxiety or depression.

The American Association of Pediatrics (AAP) officially advises that infants should not share a sleep surface with their parents, and should instead be placed on a separate sleeping surface in their parents' room[41]. Co sleeping must be kept distinct from the act of falling asleep on an unsafe surface (e. g. , recliners, sofas, chairs), which can easily lead to the injury or death of an infant. The long-time fear of smothering infants while asleep prevails today, while evidence now makes clear that there are safer ways to cosleep. Sobriety for bedsharing parents is paramount here, and special consideration should be taken for mothers/parents who are on potentially sedative medications or medications taken explicitly for sleep. Anything that could impair the ability to rouse during sleep could be extremely dangerous for cosleepers.

Contrary to the AAP's recommendation, there are voices that advocate for in the co sleeping, including James McKenna's research and many non-Western countries (e. g. , Japan) [42]. James McKenna is a leading voice in co sleeping research with 30 years of experience, including a study funded by the National Institute of Child Health and Human Development (NICHD). He explains that co sleeping provides the effects of "increasing the infant's skin temperature, stabilizing heart rates, and reducing apneas and crying, all of which are consistent with an evolutionary perspective on [how] human infants develop optimally" [43]. Some research has revealed that co sleeping can be protective against Sudden Infant Death Syndrome (SIDS), as a mother can regulate her infant's sleep and breathing [42].

Co sleeping is often closely tied in with breastfeeding, which is another potential area of both bonding as well as stress for new parents. Kathleen Kendall-Tackett's work with maternal mental health and postpartum depression suggests something complementary to McKenna's work. In a study that examined breastfeeding, sleep, and maternal mental health, her work suggested that breastfeeding mothers reported less fatigue than mothers who supplement or replace breastfeeding with formula feeding. Her study found that breastfeeding mothers ultimately felt less guilt, experienced less fatigue, and got more sleep, lowering the risk and rate of postpartum depression and other mental illnesses [44].

In a model of integrated perinatal mental health care, enhanced parenting support – performed by the pediatrician – would explain

choices around breastfeeding and co sleeping, guide women and their families through a decision-making process, and then support the outcome. Research supports breastfeeding and, to a degree, co sleeping, but many women with postpartum depression or anxiety may not find this feasible. First, while many antidepressants are considered safe while nursing, there are some psychotropic medications that are not advised while nursing or should be taken minimally. Next, many women with PMADs are simply not able to sleep as part of their pathology, as insomnia is a hallmark symptom of depression, anxiety, or mania. Encouraging breastfeeding and co sleeping in such women often adds to a feeling of guilt that they have failed, yet again, in important arenas of motherhood.

A healthcare model that incorporates “enhanced parenting support” and includes all aspects infant care, especially sleep and breastfeeding issues, would greatly improve mothers’ experiences. At the same time, we remain cognizant of the fact that what is most important for the child’s health overall is the mother’s mental health. Therefore, an integrated perinatal mental health clinic would provide space to address all these concerns.

## Discussion

Integrated women’s perinatal mental health care is developing rapidly, with clinical, scientific and funding shifts starting to fall in place. The importance of perinatal mental health for mother,

child, and family overall is indisputable. Current disparate elements are challenging: integration of medical and mental health care; integration between pre- and postpartum care; and integration of mother-infant therapy, both preventive and interventional, into the medical home. One fundamental question is, “What is the highest priority?” Enhanced parenting support meets the pressing needs of new parents, who struggle to make the healthiest choices possible for their infants, while protecting and maintaining their own mental health. Such integration may seem too broad or too variable for our current health care system - but elements of this model already exist and evidence supports each individual approach. Programs that employ a care manager (or care coordinator term is more frequently used from stepped care terminology) for disease and care management appear to more fully integrate care, engage patients, and empower patients (e. g. , heart disease and diabetes) [45].

The second fundamental question is, “How do we coordinate the different elements of integration to provide the most comprehensive care possible for mother and child?” The current medical system, despite more emphasis on the medical home, continues to practice medicine largely in “silos” in clinical (e. g. , obstetrics versus psychiatry versus pediatrics), educational/training (e. g. , physicians and other providers), and fiscal dimensions. This leads to fragmentation, rather than integration, of patient care. The clinical integration above (Table 1) is essential. Another solution to this barrier is “cross-training” or

		SETTING		
TARGET GROUP	OB/GYN	Pediatrics	Mental Health	Integrated Care
Women	Regular screening / preventative health services Family planning Health education Primary care (provider dependent)	None	General adult psychiatric care for identified patients	Regular screening / preventative health services Family planning Health education Primary care (provider dependent) Periodic screening for mental illness Preconception counseling on mental health and psychotropics
<b>Pregnancy</b>				
All				Co-location and back-to-back appointments for mother’s psychiatric treatment, well-baby care, and dyadic treatment
Women	Regular prenatal care and monitoring Health education Referral /coordination with specialty care Planning for labor and delivery Breastfeeding education	Sometimes a single antepartum visit with a pediatrician	General adult services, occasional consultation with reproductive psychiatrist (clinic dependent) Possible change in, or discontinuation of, medication regimen (provider dependent)	Regular prenatal care and monitoring Health education Referral /coordination with medical specialty care On-site mental health services, including specialized medication management and psychotherapy Referral to indicated case management services Coordination with labor and delivery team on mental health care management, as well as regular L&D concerns Education and planning for optimal mental health care in the postpartum Planning for psychotropic use during breastfeeding Breastfeeding education
Fetus	Routine laboratory and imaging screenings Maternal-fetal medicine consultation as needed	None	None	Routine laboratory and imaging screenings Maternal-fetal medicine consultation as needed Consultation on effects of mental illness versus psychotropic use on fetus

Postpartum				
Women	Postpartum wound care / monitoring of recovery Family planning Breastfeeding support (provider dependent)	Breastfeeding support (provider dependent) Education about normal feeding, sleep, growth, and development in infants  Screening for PMAD (provider dependent)	General adult psychiatric services, perhaps reproductive psychiatry services (clinic dependent) Education on postpartum mental illness (provider dependent)  Possible change in, or discontinuation of, medication regimen if breastfeeding (provider dependent) Evidence-based individual psychotherapy for mother (provider and payor-dependent)	Integration of antenatal and postnatal mental health services Postpartum wound care / monitoring of recovery Family planning Breastfeeding support  Enhanced parenting education and support about breastfeeding, sleeping, and infant care  Close monitoring of postpartum mental health needs Education on postpartum mental illness Possible change in, or discontinuation of, medication regimen if breastfeeding Evidence-based individual psychotherapy for mother
Newborn	None	Well-baby care: monitoring of growth and development, anticipatory guidance Referral to specialty services (pediatric medical specialists, nutrition, PT, OT) if required	None	Well-baby care: monitoring of growth and development, anticipatory guidance Referral to specialty services (pediatric medical specialists, nutrition, PT, OT) if required
Dyad	None	Referral to specialty dyadic psychotherapy services (geographically and payor-dependent, often not available)	Referrals to specialty dyadic psychotherapy services (geographically and payor-dependent, often not available)	Low-dose guidance and encouragement on developing parent-baby attachment relationship delivered by pediatrician in consultation with mental health professional Referrals to more intensive dyadic services for dyads that do not benefit from low-dose services
Partner/ Other Caregiver	Education regarding post-partum recovery, family planning (provider dependent)	Education about normal feeding, sleep, growth, and development	Education on postpartum mental illness in mothers and fathers (provider dependent)	Enhanced parenting support, inclusion in well-baby and dyadic treatments Enhanced education on postpartum mental health for both parents, feeding, sleep
Ongoing				
	Routine gynecological monitoring Ongoing family planning Interconception counseling	Routine well-child checks	General adult services for identified patients	Ongoing monitoring of maternal mental health Ongoing dyadic work as indicated Ongoing monitoring of child's grown and development Ongoing pediatric well-child care

**Table 1:** Summary of women's health and mental health integrated care options based on target population and setting.

“cross-sector” training of obstetrics, adult psychiatry, child psychiatry, pediatrics, social work and nursing. While there is some reluctance, such cross-training is becoming increasingly more accepted. For physicians, it is necessary to tackle this on undergraduate, graduate and continuing medical education.

We also recognize the need to integrate data on both maternal and pediatric conditions in order to evaluate clinical outcomes. This is particularly true as we look at the infant's development, which are clearly influenced by factors involving both mother and child. Other collaborative care models have demonstrated the importance of tracking patient data and outcomes; our model would expand that to include maternal and pediatric information. We plan to accomplish this data integration – both clinical and evaluative – through a patient registry system.

Financial factors play such a significant role in medicine that they must be contended with – barriers exist, but again, progress is being made to overcome them and bridge the gaps in care. For

instance, as mentioned above, screening of mothers is more likely with pediatricians now able to bill. However, a major barrier to postpartum care remains for mothers. Currently, a woman who receives MediCal/Medicaid because she is pregnant is eligible for services until roughly 60 days after delivery – right when she is most vulnerable in terms of postpartum mental illness, as well as often struggling with questions around newborn care. With the Affordable Care Act, she may apply for extended eligibility and receive ongoing medical and mental health care. The exception to this is women who are undocumented – a population that makes up a significant percentage of women seen in some areas (e.g., Los Angeles). Efforts are underway to change this, but for now, this financial barrier remains a real one.

Finally, the limitations of the evidence base on interventions raise several issues. Ongoing research into medication management continues to shed light on safety profile and efficacy of psychotropics in pregnancy and lactation, yet many questions remain unanswered. For dyadic interventions, we can be optimistic that a low-dose preventative

intervention, delivered in a home-based or pediatric setting, could potentially be helpful both for mother-baby bonding, infant development, and maternal depression. Which intervention, and how to deliver it, remain areas for further exploration and research – part of this hedges on treatments designed for specific high-risk populations and on the translation of results to a variety of additional settings. Finally, enhanced parenting support can take a variety of forms – in-office, online, through written information – and tailoring the ideal approach for each family will take effort and study.

## Conclusions

Integration of women's health and mental health involves many patients, providers and approaches. Targets for such an approach, include but are not limited to: 1) identifying solutions for current barriers to mental health care delivery for pre- and postpartum women; 2) understanding the relevance, steps toward and other thematic “how to” aspects of improving access to perinatal mental health services for the ongoing health of both mother and child; and 3) addressing maternal mental health, providing infant dyadic therapy, and enhanced parenting support. More research is needed in the investigation of treatments, service delivery models and financial organization of such services.

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Keck SOM of USC Departments of Psychiatry & Behavioral Sciences, Obstetrics and Gynecology, and Pediatrics

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