



Clinical Report—Incorporating Recognition and Management of Perinatal and Postpartum Depression Into Pediatric Practice

abstract

FREE

Every year, more than 400 000 infants are born to mothers who are depressed, which makes perinatal depression the most underdiagnosed obstetric complication in America. Postpartum depression leads to increased costs of medical care, inappropriate medical care, child abuse and neglect, discontinuation of breastfeeding, and family dysfunction and adversely affects early brain development. Pediatric practices, as medical homes, can establish a system to implement postpartum depression screening and to identify and use community resources for the treatment and referral of the depressed mother and support for the mother-child (dyad) relationship. This system would have a positive effect on the health and well-being of the infant and family. State chapters of the American Academy of Pediatrics, working with state Early Periodic Screening, Diagnosis, and Treatment (EPSDT) and maternal and child health programs, can increase awareness of the need for perinatal depression screening in the obstetric and pediatric periodicity of care schedules and ensure payment. Pediatricians must advocate for workforce development for professionals who care for very young children and for promotion of evidence-based interventions focused on healthy attachment and parent-child relationships. *Pediatrics* 2010;126:1032–1039

BACKGROUND

Maternal and paternal depression affect the whole family.¹ This report will specifically focus on the impact of maternal depression on the young infant and the role of the primary care clinician in recognizing perinatal depression. Perinatal depression is a major/minor depressive disorder with an episode occurring during pregnancy or within the first year after birth of a child. A family history of depression, alcohol abuse, and a personal history of depression increase the risk of perinatal depression.²

The incidence of perinatal depression varies with the population surveyed, but estimated rates for depression among pregnant and postpartum women have ranged from 5% to 25%. Studies of low-income mothers and pregnant and parenting teenagers have reported rates of depressive symptoms at 40% to 60%. In general, as many as 12% of all pregnant or postpartum women experience depression in a given year, and for low-income women, the prevalence is doubled.¹ The rate of major and minor depression varies during pregnancy from 8.5% to 11.0%, and in the first year after birth of a child, the rate ranges from

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KEY WORDS

postpartum depression, perinatal depression, Edinburgh Postpartum Depression Scale, medical home, dyad relationship, paternal depression

ABBREVIATIONS

AAP—American Academy of Pediatrics
PCP—primary care provider

The guidance in this report does not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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6.5% to 12.9%; the rate of major depression during pregnancy ranges from 3.1% to 4.9%, and in the first year after birth of a child, the rate ranges from 1.0% to 6.8%. The timing shows a peak of 6 weeks after birth of a child for major depression and 2 to 3 months for minor depression.² There is another peak of depression 6 months after birth of a child.

The spectrum of depressive symptoms in the postpartum period ranges from “maternity blues” to postpartum depression and postpartum psychosis. Maternity blues affects 50% to 80% of new mothers and occurs during the first few days after delivery. Symptoms include crying, worrying, sadness, anxiety, and mood swings. Symptoms are usually gone after a few days or within 1 to 2 weeks. It does not impair function and can be treated with reassurance and emotional support. Postpartum depression occurs in 13% to 20% of women after birth. It meets the criteria of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) for depression and is distinct from maternity blues.³

Postpartum psychosis affects approximately 1 to 3 mothers of 1000 deliveries and most often occurs in the first 4 weeks after delivery. Mothers with postpartum psychosis are severely impaired and may have paranoia, mood shifts, hallucinations, delusions, and suicidal and homicidal thoughts. This is a serious condition that requires immediate medical attention and usually hospitalization. Preexisting bipolar disorder is a risk factor for developing postpartum psychosis.

Depression: A Family Issue

Fathers

Paternal depression is estimated at 6%.⁴ Eighteen percent of fathers of children in Early Head Start had symptoms of depression. In an 18-city study, depressed fathers had higher rates of

substance abuse.⁵ The rate of paternal depression is higher when the mother has postpartum depression, which compounds the effect on children.^{5,6} A nondepressed father has a protective effect on children of depressed mothers and is a factor in resilience.^{7–9}

Family

Perinatal depression may be comorbid with marital discord, divorce, family violence (verbal and/or physical), substance use and abuse, child abuse and neglect, failure to implement the injury-prevention components from anticipatory guidance (eg, car safety seats and electrical plug covers),¹⁰ failure to implement preventive health practices for the child (eg, Back to Sleep),^{10–13} and difficulty managing chronic health conditions such as asthma or disabilities in the young child.^{11,14} Families with a depressed parent (ie, any parental depression) overutilize health care and emergency facilities.¹⁴ Studies of families of a person with major depression that began before 30 years of age demonstrate that the parent, siblings, and children are 3 to 5 times more likely to have major depression themselves. It is likely that some types of depression have genetic determinants.

THE IMPACT OF MATERNAL DEPRESSION ON THE INFANT

Maternal postpartum depression threatens the mother-child (dyad) relationship (attachment and bonding) and, as such, creates an environment for the infant that adversely affects the infant's development. The processes for early brain development—neuronal migration, synapse formation, and pruning—are responsive to and directed by environment as well as genetics. For example, it is known that an infant living in a neglectful environment, which is common with depressed mothers, can have adverse changes visible on MRI of the brain.^{15,16}

Infants who live in a setting of depression are likely to show impaired social interaction and delays in development. If the maternal depression persists untreated and there is not intervention for the mother and the dyadic relationship, the developmental issues (particularly attachment) for the infant also persist and are likely to be less responsive to intervention over time.¹⁷ Addressing maternal depression in a timely and proactive fashion is essential to ensure healthy early brain and child development and readiness to succeed.¹⁸

In their evidence report, “Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries,”¹⁹ the Agency for Healthcare Research and Quality reviewed 6 prospective cohort studies regarding postpartum depression and breastfeeding. It revealed an association between not breastfeeding, or early cessation of breastfeeding, and postpartum depression. The report noted that “it is plausible that postpartum depression led to early cessation of breastfeeding as opposed to breastfeeding altering the risk of depression.” It also noted that both effects might occur and that further investigation is needed to assess the nature of this association.

The consequences of maternal depression include negative effects on cognitive development, social-emotional development, and behavior of the child. Language acquisition depends on the number of words used by the family, playing, and having fun and cuddling with the infant and child,²⁰ which are likely to occur less frequently in the family of a depressed mother. As early as 2 months of age, the infant looks at the depressed mother less often, shows less engagement with objects, has a lower activity level, and has poor state regulation. Infants are at risk for failure to thrive, attachment disorder (deprivation/maltreatment disorder

of infancy as defined the *Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood: DCO-3R²¹*, and developmental delay on the Bayley Scales of Infant Development at 1 year of age. Such infants are at risk for insecure attachment, which is associated with later conduct disorders and behavior problems. Maternal depression impairs parenting skills and can affect attention to and judgment regarding child supervision for safety and health management. The presence of other risks to healthy parenting, such as poverty, substance abuse, domestic violence, and previous trauma, in addition to depression, creates an increased cumulative risk. The infant's temperament is another factor, which may increase parental stress (difficult temperament) or impart resilience for the infant (easy temperament). Maternal depression in infancy predicts a child's likelihood of increased cortisol levels at preschool age, which in turn has been linked with internalizing problems such as anxiety, social wariness, and withdrawal.²² Behavior problems, attachment disorders, depression, and other mood disorders in childhood and adolescence can occur more frequently in children of mothers with major depression.

Treating a mother's depression is associated with improvement of depression and other disorders in her child.²⁴ The STAR*D-Child (Sequenced Treatment Alternatives to Relieve Depression-Child) project is a study that began in December 2001 and followed 151 mother-child pairs in 8 primary care and 11 psychiatric outpatient clinics across 7 regional centers in the United States. The children were assessed every 3 months. The researchers concluded that "continued efforts to treat maternal depression until remission is achieved are associated with decreased psychiatric symp-

toms and improved functioning in the offspring."^{24,25}

THE ROLE OF THE PRIMARY CARE PROVIDER

Many experts see a role for primary care practices in screening for depression, in general, and specifically for postpartum depression. The 1999 report of the Surgeon General on mental health,²⁶ the 2000 report of the Surgeon General's Conference on Children's Mental Health,²⁷ and *Bright Futures* guidelines²⁸ call for early identification and treatment of mental health problems and disorders. In a recent policy statement, "The Future of Pediatrics: Mental Health Competencies for Pediatric Primary Care," the American Academy of Pediatrics (AAP) also recognized the unique advantage of the primary care clinician for surveillance, screening, and working with families to improve mental health outcomes.²⁹ The AAP Medical Home Initiative³⁰ and the AAP policy statement on the family³¹ addressed family-centered pediatric care. The President's New Freedom Act of 2004 states that early screening, assessment, and treatment of mental health problems must become a national goal.³² Using data from the National Evaluation of Healthy Steps for Young Children (in the Healthy Steps practices, mothers were assessed for depression), the effect of maternal depressive symptoms on the children's receipt of well-child care was assessed. Minkovitz et al concluded that "Increased provider training for recognizing maternal depressive symptoms in office settings, more effective systems of referral, and development of partnerships between adult and pediatric providers could contribute to enhanced receipt of care among young children."³³

A recent study from the University of Pittsburgh followed 731 families to examine the effect of intervention for ma-

ternal depression on behavior outcomes for children at the ages of 3 and 4 years. The researchers concluded that "reductions in maternal depression mediated improvements in both child externalizing and internalizing problem behavior."²³

The majority of pediatricians agree that screening for perinatal depression is in the scope of pediatric practice.³⁴ In a survey by Olson et al,³⁵ few of the pediatricians felt that they were responsible for diagnosis and management, but the majority reported that they had provided brief interventions. Most of the pediatricians indicated that they had insufficient training to diagnose and treat maternal depression. The Parental Well-being Project of Dartmouth Medical School, which included 6 community pediatric practices in New Hampshire and Vermont, showed that pediatricians, using a simple 2-question screen, could effectively screen for perinatal depression. In the 6 months of the pilot, screening was performed at 67% of well-child visits.

As with other screening (developmental and behavioral, psychosocial) initiatives in practice, there have been perceived barriers to implementation, including lack of time, incomplete training to diagnose/counsel, lack of adequate mental health referral sources, fear that screening means ownership of the problem, and lack of reimbursement.³⁶ However, since 2000, there have been many successful models of screening in primary care practices, including developmental and behavioral screening, maternal depression screening, and psychosocial screening. In these projects, strategies have been implemented to integrate screening into office flow, to improve reimbursement, and to assist practices with identifying and collaborating with community resources, including mental health resources.³⁷ The

ABCD (Assuring Better Child Health and Development) Project, funded by the Commonwealth Fund and administered by the National Academy for State Health Policy, now involves 28 states and their AAP chapters. The Medicaid agency in Illinois, one of the ABCD states, pays pediatricians who use the Edinburgh Postpartum Depression Scale. Details of the various state initiatives and practice and parent materials are available at www.abcdresources.org and www.nashp.org. Heneghan et al,³⁸ in their discussion of factors associated with management of maternal depression by pediatricians, reported that in their sample, 511 of 662 pediatricians reported identifying maternal depression and addressing it in practice. They discussed the practice characteristics and attitudes related to this and the need for changes in attitude and practice to improve identification and management. In their article about the legal and ethical considerations of postpartum depression screening at well-child visits, Chaudron et al concluded: "We believe that from the perspective of feasibility, and now from the legal and ethical standpoints, the benefits of screening outweigh the risks."³⁹

The primary care provider (PCP) has a particularly important role in the early identification of maternal depression and facilitation of intervention to prevent adverse outcomes for the infant, the mother, and the family. The PCP may be the first clinician to see the infant and mother after the infant is born; therefore, the PCP has very early access. In addition, it is the PCP who has continuity with the infant and family, and by the nature of this relationship, the PCP practices with a family perspective.

Screening for postpartum depression does not require that the PCP treat the mother. The infant is the PCP's patient. However, the PCP has a role in support-

ing the mother and facilitating her access to resources to optimize the child's healthy development and the healthy functioning of the family. For the mother, the infant's PCP provides information for family support, therapy resources, and/or emergency services as indicated. The PCP does provide guidance, support, referrals, and follow-up for the infant and the dyad relationship.

IMPLEMENTATION

Over the course of routine well-child care, the PCP and the family are developing a longitudinal relationship. Communication at each visit is tailored to the developmental process for the child and for the family. Anticipatory guidance addresses this dynamic developmental process. A crucial part of this communication is eliciting parent/family/child strengths and risks. Both parental and provider concerns determine the anticipatory guidance discussion.

Screening and surveillance for risk and protective factors are an integral part of routine care and the relationship with the child and family. This communication includes discussion of family support systems and other psychosocial factors such as poverty, parental mental health, and substance use. It begins as early as the prenatal visit. According to a recent AAP statement, a prenatal visit allows for getting to know the parent(s) and is an opportunity to identify any high-risk conditions to anticipate special care needs.⁴⁰ In this statement, the AAP also recommended that pediatricians communicate with obstetricians in their community to inform them of their prenatal visit policies so that obstetricians might refer patients for the prenatal visit. This would also provide an opportunity for the pediatrician to become aware of depression during the pregnancy and to plan for support and follow-up of the mother-infant relation-

ship. Perinatal/postpartum depression is an early risk to the infant, to the mother-infant bond, and to the family unit. Surveillance and screening for perinatal/postpartum depression is part of family-centered well-child care. Including postpartum depression screening in the practice's preventive services prompting system can help ensure a reliable process for addressing risk.

The new *Bright Futures* guidelines include surveillance regarding parental social-emotional well-being. The US Preventive Services Task Force has endorsed the Edinburgh Postnatal Depression Scale as well as the general 2-question screen for depression.^{2,41} Given the peak times for postpartum depression specifically, the Edinburgh scale would be appropriately integrated at the 1-, 2-, 4-, and 6-month visits. The *Current Procedural Terminology* (CPT) code 99420 is recommended for this screening, recognizing the Edinburgh scale as a measure for risk in the infant's environment, to be appropriately billed at the infant's visit.

The Edinburgh Postpartum Depression Scale is a simple, 10-question screen that is completed by the mother. A score of ≥ 10 indicates risk that depression is present. An affirmative response on question 10 (suicidality indicator) also constitutes a positive screen result. The screen is in the public domain and is freely downloadable. It is available in English and Spanish.

The 2-question screen for depression⁴¹ is:

Over the past 2 weeks:

1. Have you ever felt down, depressed, or hopeless?
2. Have you felt little interest or pleasure in doing things?

One yes answer is a positive screening result. This screen is suitable to indicate risk of depression for adults in

general and is not specific to postpartum depression. Beyond the postpartum period, incorporating surveillance for parental mental health is warranted as well and might be accomplished by use of this 2-question screen.

Responses to a positive postpartum depression screening result range from reassurance (maternity blues) to supportive strategies (maternity blues, minor depression) and referral for specific interventions (minor and major depression). In the situation of milder symptoms, demystification and parent education may be effective in addressing concerns. Demystification lets the mother know that (1) she is not alone (postpartum depression happens to many women to varying degrees), (2) she is not to blame (hormonal changes play a big role), and (3) she will get better. Provision of extra return visits for support may be all the family needs and can build a strong foundation for the ongoing relationship between physician and family. Given the association with cessation of breastfeeding, particular promotion and encouragement of breastfeeding is indicated. When concerns are significant enough to warrant referral, there are several options and considerations. For the mother, particularly if the depression is more than mild, referral for therapy and/or medication may be needed. In some models, mothers have been referred to their obstetricians for follow-up; in others, mothers have been referred to mental health providers or their PCPs. It is important for pediatricians to communicate with the mothers' obstetricians and/or PCPs when these situations arise, because the obstetricians/PCPs will want to know about the mother's depression and may have a better understanding of the mental health system for adults.

When the mother needs specific follow-up for herself, there are often access issues because of uninsured or underinsured status. Community mental health programs may also provide limited services for these mothers. Care for the mother is an advocacy issue for all who serve children and their families, and it is an issue for state AAP chapters to address in states where access for mothers is limited because of state policy and service and payment structure.

If suicidality or psychosis is a concern, or the score on the Edinburgh scale is greater than 20, accessing crisis intervention services for the mother is necessary. In this instance and for other mental health emergencies, the practice should know and use the referral process for local public mental health crisis/emergency services.

Treatment must address the mother-child dyad relationship. For the child and mother together, there are generally more referral options. If the child is in an environment of maternal depression, he or she is at risk for attachment issues, failure to thrive, abuse/neglect, and, ultimately, developmental delay. At the very least, close follow-up of the child in the medical home is warranted. Specific screening for social-emotional development, as well as for general development and behavior, should be included. Pilowsky et al, in the STAR*D-Child (Sequenced Treatment Alternatives to Relieve Depression-Child) study described above, recommended that children of depressed mothers be followed and assessed.^{42,43} The infant (with the mother) can be referred to a mental health clinician (with expertise for treatment of very young children) to address the dyad relationship. (Note that, depending on the family situation, this referral might be for the father or both parents.) For women with mild

symptoms who need support, it may be enough to refer them to a parent support organization.

There are research-based programs for treatment of the dyad to promote healthy attachment and relationship. These programs include the Circle of Security, parent-child interactive therapy, and child-parent psychotherapy.^{44,45} The Circle of Security is a parent education and psychotherapy program. It is an individualized video-based intervention based on attachment theory to strengthen the parents' ability to observe and improve their caregiving capacity. Child-parent psychotherapy is a therapeutic treatment for mothers and young children to increase attachment security.⁴⁵

Referral to early intervention (Part C of the Individuals With Disabilities Education Act) services can provide general developmental intervention (education), which, if performed in the home, also provides mentoring for healthy interaction. If the infant exhibits specific delays, specific therapies can also be provided. (To identify lead agencies and contacts according to state, see www.nectac.org and www.nichcy.org.)

For many families, referral to Early Head Start, Mother's Morning Out programs, or child care is an effective option as well. Mothers may receive services through Healthy Families America, a Nurse-Family Partnership (if the referral occurs prenatally), other evidence-based home-visiting programs, or local volunteer organizations. (To locate Head Start programs, see <http://eclkc.ohs.acf.hhs.gov/hslc/HeadStartOffices>.)

Whatever the treatment and referral options implemented, follow-up of the infant and mother by the PCP (to monitor progress and to support the family) is necessary.

The AAP Task Force on Mental Health and the Committee on the Psychosocial Aspects of Child and Family Health have promoted collaborative, colocated, and integrated models for mental health services within primary care medical homes. In such settings, social work staff or mental health providers, who are colocated in the practice as part of the care team, can provide immediate triage for positive screening results, support and follow-up for mothers, and linkage and referral for more specialized services. Colocated and integrated mental health providers can perform secondary screenings and collaborate with the PCP for ongoing care.

Concurrent with the implementation of screening, the practice needs to identify support and intervention resources, both within the practice and in the community. Although it is often the case that PCPs do not perceive that there are resources in the community, many public and private resources may be discovered in the process of engaging community partners. Networking with community providers may be a new activity for a primary care practice. It can be accomplished by invitation to a lunch meeting at the practice to discuss the planned screening and referral activities, or a larger meeting called by a group of practices may be possible. Sending out a brief inquiry or survey to local mental health providers or family support groups may yield additional contacts. Partnering with parents in finding community resources is the essence of the medical home.

MODELS AND RESOURCES

- Virginia Bright Futures has a training Web site and has developed a new parent kit that includes information on perinatal depression and is given to 70% of new parents. Virginia Bright Futures partnered with

the Virginia chapter of the AAP, the state Early Periodic Screening, Diagnosis, and Treatment (EPSDT), Resource Mothers, and Healthy Families Virginia⁴⁷ and recommends adopting perinatal depression screening guidelines in the state budget.

- *Parental Depression Screening for Pediatric Clinicians: An Implementation Manual*, by Ardis Olson, MD (available on the Commonwealth Fund Web site at (www.cmwf.org): In her studies, Olson has found that a 2-question paper-based screen, followed by a brief discussion with the mother and the pediatrician, was both feasible and effective in identifying women who needed follow-ups or referrals. One of the studies examined the difference between a verbal interview and a paper form; the paper screen was found to be far more effective.^{35,47,48}
- *Depression During and After Pregnancy: A Resource for Women, Their Families, and Friends* (www.mchb.hrsa.gov/pregnancyandbeyond/depression): This Web site has information for the woman and/or her family about the definition and symptoms of postpartum depression and when to seek treatment.
- National Center for Children in Poverty, Project Thrive (www.nccp.org): The Public Policy Analysis and Education Center for Infants and Young Children at the National Center for Children in Poverty has as its core mission increasing knowledge and providing policy analysis that will help states build and strengthen comprehensive early childhood systems and link policies to ensure access to high-quality health care, early care and learning, and family support. The National Center for Children in Poverty has a document entitled "Reducing Maternal Depression and Its Impact on Young

Children" (January 2008) that is an excellent source for pediatricians and AAP state chapters.

- Bright Futures (<http://brightfutures.aap.org>).
- The American College of Obstetricians and Gynecologists recommends psychosocial screening of pregnant women at least once per trimester (or 3 times during prenatal care) by using a simple 2-question screen and further screening if the preliminary screen result indicates possible depression.⁴⁹
- The National Women's Health Information Center (www.4women.gov) is a federal government source for women's health information.

SUMMARY AND CONCLUSIONS

The primary care pediatrician, by virtue of having a longitudinal relationship with families, has a unique opportunity to identify maternal depression and help prevent untoward developmental and mental health outcomes for the infant and family. Screening can be integrated, as recommended by *Bright Futures* and the AAP Mental Health Task Force, into the well-child care schedule and included in the prenatal visit. This screening has proven successful in practice in several initiatives and locations and is a best practice for PCPs caring for infants and their families. Intervention and referral are optimized by collaborative relationships with community resources and/or by colocated/integrated primary care and mental health practices.

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