



Unit 8 Lactation Consultant Series Two

Postpartum Depression and the Breastfeeding Mother

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Part I: Causes and Consequences

Introduction

Postpartum depression is a serious problem, one that can have long-lasting effects on not only the mother but also on her baby as well. Physicians, nurses, and lactation consultants are the gateways into the health care system for mothers. Even when only the baby is seen, depression in the mother affects them both. The goal here is not to train the reader to be a psychotherapist but to recognize depression, understand its causes, and be able to discuss treatment options with mothers. Breastfeeding will be discussed in this context because it is often a central issue for mothers. Many will not seek treatment because they fear, or they actually have been told, that they have to wean. The good news is that many treatment options are available that preserve this key relationship (see Part 2).

Myths about Postpartum Depression

Unfortunately, there are many misperceptions about depression in new mothers. These myths can keep mothers from receiving the attention they need. Some of the common myths are described below.

Myth #1: Depression in new mothers is not serious.

One of the most prevalent myths is that postpartum depression is not serious. Fewer people voice that today in the wake of the Andrea

Yates case. As many of you may remember, Andrea Yates was a mother in Texas who drowned her five young children in the bathtub while suffering from postpartum depression and psychosis. She was convicted of murder. But what many fail to realize is that depression that does not result in something as serious as infanticide can still be very harmful to both mothers and babies.

Myth #2: Postpartum depression is more common in certain populations.

Revelations of postpartum depression by well-known women such as Princess Diana and Marie Osmond, while helpful in one sense, have reinforced the notion that PPD is more common in white middle- or upper-class women. Yet postpartum depression affects women in many different cultures and at all income levels.

Myth #3: Postpartum depression will go away on its own.

Postpartum depression does not go away on its own. A depression that started in the postpartum period can last for years, causing many problems for the mother, her baby, and the other members of her family.

Myth #4: Women with postpartum depression cannot breastfeed.

The good news is that women with postpartum depression can certainly breastfeed. For many women it may be the one really good thing in their lives. This will be discussed at length in Part II.

Why Depression is Bad for Mothers and Their Children

There have been numerous studies in recent years demonstrating the harmful effects of depression. Much of the damage occurs because of elevated levels of the stress hormone cortisol. Because of these elevated levels of cortisol, people who are depressed often have suppressed immune systems. Lower white blood cell counts (specifically, CD4, CD8, CD56+, and CD 16) have been documented. Wound healing is also inhibited. This can be an issue for women already trying to recover from birth. Recent research in neuroscience has also demonstrated that depression can lead to atrophy of a brain structure called the hippocampus, a structure involved in learning and memory. There has been some serious concern about the implications of this for long-term memory. In other words, do people who have suffered from depression have memory problems as they age? The next decade

of research will most likely give us the answer (see Kendall-Tackett, 2003 for a complete review of this literature).

Depression is not just bad for mothers. There is a large body of literature documenting the harmful effects of maternal depression on children. These effects appear relatively quickly. As early as three to six months, abnormalities in EEGs appear among infants raised with depressed mothers (Field et al. 1995). In another study, children of depressed mothers scored lower on McCarthy Scales of Children's Abilities scores at four years of age. The McCarthy scales are a measure of overall intelligence. Low birth weight enhanced the negative effect of maternal depression on these children. The effect of depression was attenuated for mothers who had higher levels of education (Hay & Kumar 1995).

The negative impact of maternal depression can last into elementary school. In an American study of 5000 mother-infant pairs, children of depressed mothers had more behavior problems and lower vocabulary scores at age five (Brennan et al. 2000). In a Finnish study of 270 mother/child pairs, children of mothers who had postpartum depression were lower in social competence at ages eight to nine. Social competence included parents' reports of children's activities, hobbies, tasks and chores, functioning in social relationships, and school achievements (Luoma et al. 2001).

These studies demonstrate that postpartum and maternal depression can indeed be harmful to children. However, we need to be careful how we present this information to mothers. Many mothers already feel that they have damaged their children. You find this type of reasoning even in some extreme cases like Andrea Yates, who felt that her children were so damaged that they would be better off dead. The "damage" aspect is definitely modified by the presence of one or more non-depressed adults in the baby's life, and by the severity of the depression. Obviously, the worst effects are going to be when depression has been going on a long time and is untreated. Where this information can be helpful is in nudging women to seek treatment. Often mothers do not want to take any time for self-care because they believe that they are being "selfish." The information about infant harm can be used to gently point out that when a mother takes care of herself, her baby benefits too.

How Depression Can Influence Breastfeeding

Not surprisingly, depression can also have a negative impact on breastfeeding. The maternal depression literature indicates that depression can decrease maternal sensitivity. Depressed mothers tend to interact with their babies in either an avoidant or angry-intrusive style (Kendall-Tackett 2002). Babies often react to this by shutting down emotionally. Since maternal sensitivity is an important element in breastfeeding success, anything that impairs that sensitivity can lead to breastfeeding failure.

Depression can also cause women to give up in the face of breastfeeding difficulties. This is a characteristic of depression in general. Depressed women may be more prone to give up breastfeeding when they encounter an obstacle.

Finally, depression may make mothers prone to maladaptive cognitions. "The baby is sucking the life out of me" is something that depressed mothers may say. This can be a disturbing thing to hear, and can actually drive away potential sources of support for mothers. Depression is the most likely culprit in making mothers think this way.

Depressed people are high utilizers of health care services. That is true for depression in general and is also true of women suffering from postpartum depression. In one Australian study, women with postpartum depression not only used more health care services than non-depressed women, but they also tended to be less satisfied with those services. The services they used included general practitioners, pediatricians, obstetricians, and the Nursing Mothers' Association (Webster et al. 2001). The "less satisfied" piece indicates that these patients may be some of our more difficult ones. They may be demanding they may not be appreciative. It is important for care providers to know this so that they do not take it personally but recognize this as a symptom of the mother's condition.

Assumptions about Postpartum Depression

How do we begin to think about postpartum depression? Below is a framework that has been helpful in my work with new mothers. It helps frame issues that mothers face and provides a way of talking with mothers about their emotional state.

Becoming a mother is a stressful life event. This first assumption seems obvious in one way, but we often do not keep this in mind. We need to acknowledge that becoming a mother turns a woman's world upside down. It changes almost every aspect of her life: her work, her home, even her ability to do something as simple as taking a shower.

Depression is within the normal range of responses following a stressful event. That being said, we also need to acknowledge that when exposed to a stressful life event, a certain percentage of people are going to become depressed. This assumption is helpful because it normalizes depression. (But that is different than saying it is of no consequence.) When we accept that depression can be part of life, it makes it more comfortable for us to discuss with mothers. On the other hand, if we treat depression as a freak occurrence, we are going to be uncomfortable and the mother is likely to feel shame.

Table I. Postpartum Blues, Depression and Psychosis

	Postpartum Blues	Postpartum Depression	Postpartum Psychosis
Onset	Three to five days postpartum	Any time in the first year postpartum.	Typically two to four weeks postpartum.
Duration	A few days, typically self-correcting	At least two weeks, but usually longer.	Depends on diagnosis and treatment prescribed.
Incidence	30% to 85% of new mothers	10% to 40%: percentage varies depending on sample (low income mothers often have a higher %), definition of depression (symptoms vs. syndrome—high % for symptoms alone), and timing of assessment (later in the postpartum period often means a higher %).	One to two per 1000 postpartum women.
Symptoms	Lability of mood; tearfulness; forgetfulness; headaches; depersonalization; negative feelings toward baby/mothering; restlessness; irritability; nightmares.	Mood of sadness, despair, emptiness; anhedonia; low self-esteem and inappropriate guilt; apathy, low motivation, and social withdrawal; excessive emotional sensitivity; negative, pessimistic thinking; irritability and low frustration tolerance; suicidal ideas; sleep disturbance and abnormal fatigue; may include bipolar disorder.	Heightened or reduced motor activity; hallucinations; delusions; major depression; manic episodes; confusion; delirium.

The causes of postpartum depression vary from woman to woman. It is also important to keep in mind that postpartum depression has many possible causes. There is not a one-size-fits-all explanation for depression in new mothers. The factors underlying PPD vary from woman to woman, and understanding the multiple causes allows us to be more targeted with our interventions.

Postpartum depression is not limited to the first six weeks postpartum but can occur any time in the first year. We are accustomed to thinking that “postpartum” only includes the first four to six weeks. But this is not the way it is described in the research literature. “Postpartum depression” covers the first year, and after that, depression in mothers is called “maternal depression.” We should not be surprised that a woman with a four-month-old, or a nine- or ten-month-old is suddenly depressed. It is especially important to keep this in mind with mothers of premature or critically ill babies since these women often become depressed once their babies are out of crisis.

Table I distinguishes the onset, duration, incidence, and symptoms of postpartum blues, PPD, and postpartum psychosis. For the purposes of this discussion, only PPD will be examined in depth.

Onset: As described earlier, postpartum depression can occur anytime in the first year.

Duration: By definition, depression (vs. the blues) must last at least two weeks. Unfortunately, postpartum

depression is not likely to spontaneously remit and can last for years.

Incidence: Incidence is typically 10 to 20% of new mothers. However, some studies show higher percentages depending on the sample, how depression is defined, and when the measures were taken. For example, if the “depressed” group in a study included those with depressive symptoms, then the percentage of mothers is going to be higher than if only women with a formal diagnosis of major depression are included. The percentage is also going to be higher if the measure of depression is taken later, rather than earlier, in the first year postpartum. The study population also makes a difference in terms of percentage of mothers who are depressed.

Symptoms: The symptoms of postpartum depression are those that are common to depression in general. Some symptoms, such as emotional sensitivity and impaired concentration, could also be directly related to sleep deprivation. Something that is fairly recent in our thinking about postpartum depression is the concept of comorbidity. Postpartum depression can co-occur with other psychiatric conditions including post-traumatic stress disorder (PTSD), bipolar disorder, anxiety, eating disorders, and obsessive-compulsive disorder. The investigation of these co-occurring conditions is so new that we do not yet have a good estimate on how common they are. Comorbidity is also an issue in considering medications. Mothers may be on antidepressants, which are used to treat most of these conditions, but some may also be on additional medications for post-traumatic stress disorder or bipolar disorder.

The Global Problem of Postpartum Depression

Postpartum depression occurs all over the world, and is definitely not limited to white middle-class women from industrialized countries. Below is a description of several recent studies that demonstrate that depression in new mothers happens in many countries besides the US. In one American study (Hobfoll et al. 1995), there is a slightly higher rate of depression among 192 low-income women in the inner city than in the general population. Among these women, 23.4 percent suffered from postpartum depression. Single women without a co-habiting partner were at highest risk and rates for African-American and white women did not differ.

Mothers in Costa Rica and Chile (n=1256) had high levels of major depression, though this was not necessarily postpartum depression (Wolf et al. 2002). All mothers in this study were low-income. One third of the Chilean mothers had a major negative reaction after childbirth or during the postpartum period. One-third to one-half of mothers in the study had at least one episode of major depressive disorder or were severely dysphoric (i.e., having a major, negative reaction) at the time of assessment.

Mothers living in poverty in Turkey also experienced postpartum depression at a rate comparable to middle-class samples, but given the life circumstances of these mothers, they actually showed a strong resiliency (Danaci et al. 2002). These mothers (n=257) were assessed later in the postpartum period (six months) than is typical in studies of postpartum depression. Fourteen percent of them were found to be severely depressed. The risk factors in this group of women were found to be: the number of living children (the higher the number, the more depression was present); living in a shanty; being an immigrant; serious health problems in the baby; previous psychiatric history of either self or spouse; and bad relationships with the spouse or his parents (Danaci et al. 2002). Problems with the in-laws are common in most cultures, but these difficulties may be more of an issue in traditional cultures because the son and his wife may live with his parents.

Mothers in India (n=252) also suffered from postpartum depression (Patel et al. 2002). Mothers were interviewed in the third trimester of pregnancy and then again at six to eight weeks postpartum and at six months postpartum. Depression was found in 23 percent of the mothers studied and 78 percent of these mothers had “substantial” clinical morbidity. The risk factors for developing depression were similar to Western samples, especially poverty and poor marital relationships. However, a factor unique to this culture was the gender of the infant. Mothers were more likely to become depressed if they had a girl.

Finally, in a small sample of thirty Vietnamese and Hmong women living in the US, 43 percent were found to be clinically depressed or anxious (Foss 2001). These rates were much higher than in other samples. Mothers who had

adapted less to US cultural norms had higher rates of depression. Particularly disturbing was that one-third had contemplated suicide in the past week. On a more hopeful note, the author of the study noted that even with high levels of depression and anxiety, these mothers were still responsive to their babies.

Causes of Postpartum Depression

The causes of postpartum depression fall into four broad categories: physiological factors, negative birth experiences, infant characteristics, and a very broad category called psychosocial factors. Each of these categories can cause depression all by itself. However, they often occur in combination, thereby heightening their negative impact. It is important for the health care provider to recognize these causes because then the care provider can work toward prevention and intervention, spotting problems and targeting suggestions to specifically address these problems. Specific suggestions for intervention are listed with each cause in Table II.

Physiological Factors

Fatigue and pain are the two physiological factors related to postpartum depression. These are described below.

Fatigue and Sleep Deprivation

Fatigue is often overlooked as a factor by many because all new mothers are sleep deprived. (Unfortunately, US mothers in general tend to be sleep deprived, according to a survey by the National Sleep Foundation (2000)). However, for some, fatigue and sleep deprivation can trigger postpartum depression. In one recent study, fatigue at day seven postpartum predicted depression at day 28. This was with a small sample of women (N=38), but the predictive nature of the results are of interest (Bozoky et al. 2002).

Fatigue and depression also tend to exacerbate each other: fatigue can cause depression and depression can cause fatigue by actually changing the architecture of sleep. In one study of depression and sleep, Perlis and colleagues (1997) found that sleep of depressed patients was substantially different than that of non-depressed patients. Specifically, the sleep of depressed patients had REM (rapid-eye movement) sleep earlier in the night cycle so patients were not getting sufficient slow-wave or delta sleep. This sample was comprised of depressed patients in general, not women suffering from postpartum depression, but this change in sleep architecture of depressed people can explain sleeplessness in the middle of the night not related to baby care as well as subsequent irritability and inability to concentrate.

Table II. Factors Related to Postpartum Depression

Factors	Description	Intervention
I. Physiological Factors	Physiological factors include pain, fatigue, stress hormones, sleep disturbances, and the functioning of the immune system.	
A. Pain	Mothers may feel helpless and trapped by the pain they feel postpartum. Pain can come from a variety of sources including episiotomies or perineal lacerations, incisions for cesarean sections, breast problems (engorgement, cracked nipples), or postpartum complications.	You can help mothers cope with postpartum pain by helping them gain control over it. You can do this by identifying the source of their pain, providing an estimate of how long it will last, and teaching some techniques for dealing with it.
B. Fatigue	Fatigue and sleep deprivation can cause or exacerbate symptoms of depression. In severe cases, it may be related to postpartum psychosis. Be especially concerned about women who have not slept for one or more nights, or who are up in the middle of the night when everyone else (including the baby) is asleep.	Emphasize the importance of rest, and help mothers strategize about getting more rest during the day and at night. If a mother seems excessively fatigued, screen for physical causes including hypothyroidism, anemia, autoimmune disease, or allergies, all of which can develop during the postpartum period.
II. Negative Birth Experiences	A negative birth experience can be either vaginal or cesarean and is more directly related to a woman's subjective reaction to her experience. Women will react to the extent that their experiences are sudden, dangerous, and overwhelming. Some other common themes of negative birth experiences are powerlessness, betrayal, stigmatization, and physical damage.	If possible, offer women an opportunity to process their experiences. Validate their feelings of anger, grief, disappointment, or sadness. Encourage them to get copies of their medical records and help them understand what happened to them. Make referrals to books, Web sites, or organizations related to birth where mothers can connect with women who have had similar experiences
III. Infant Characteristics	Babies can influence their mothers' emotional state. The two major influences are temperament and infant health.	
A. Temperament	With regard to temperament, the "difficult" infant is of particular interest. These infants are ones who react negatively and cry frequently, do not sleep well, are slow to accept new experiences, and do not engage in regular routines. They are often described as "colicky." Infants with difficult temperaments have been shown to diminish their mothers' feelings of self-efficacy and make them feel helpless and incompetent. This leads to depression.	Mothers with difficult or high-need infants need extra help. Providing them with information about infant temperament and assuring them that the behavior of their babies is not their fault can dramatically improve mothers' ability to cope. Also, working with mothers to ensure that they get adequate respite from infant care and teaching them techniques to deal with crying can be effective. Exploring the possibility of infant allergies can be helpful as well.
B. Illness, Prematurity or Disability	Illness of infants has been causally linked to postpartum depression; the higher the risk for the infant, the greater the depression in the mother. Mothers may feel that they have no control and are powerless to help their babies. They may be anxious or experiencing anticipatory grieving. They may grieve for the "ideal" baby that they did not have. Mothers might also become depressed after the crisis period has passed, even months later.	Mothers of ill or premature infants should be involved in caregiving decisions and encouraged to participate as much as possible in taking care of their babies. Kangaroo care can be helpful in promoting maternal self-efficacy and confidence. You can model attachment-promoting behaviors, help them learn to read their babies' cues, teach them about their babies' conditions, and validate their feelings of grief, sadness, or anger. It is important for mothers to regain the sense of control they may have lost with the birth of a high-risk infant.
IV. Psychosocial Factors	Psychosocial factors are the largest group of variables related to depression in mothers. This category includes the mother's beliefs about herself and her baby, prior risk factors, and her relationships with others.	
A. Psychological Factors	A pessimistic attributional style (or how she explains adverse circumstances or events) can increase a woman's risk for depression. She can be at risk if she feels incompetent as a mother, has unrealistic expectations of herself or her infant, or has low self-esteem. She can also be at risk if she has or a first-degree relative has a prior history of psychiatric illness, or if she comes from an alcoholic, abusive, or otherwise dysfunctional family of origin.	Cognitive therapy can specifically address attributional style. Parent education and emotional support can help increase a woman's self-efficacy and feelings of competence. Women with a history of child maltreatment or family dysfunction may need referrals to self-help organizations and/or mental health providers.
B. Social Factors	Lack of social support, especially from a woman's partner, will greatly increase her risk for developing postpartum depression. Her current partner may also be emotionally or physically abusive. Life stresses can also increase her risk. These include a change in employment status, a change in residence, or the death or illness of a partner, family member, or friend. Finally, while women of all socioeconomic levels are at risk for developing postpartum depression, the depressions of low-income women are more likely to be severe and last longer.	If you have an opportunity to speak to women's partners, emphasize their role in providing support. Helping mothers find other new mothers in person, by phone, or online can be helpful. If a woman's current partner is abusive, she needs assistance from a battered woman's shelter or similar organization. Since women of all income levels are at risk for postpartum depression, referrals should include services available for little or no charge.

Sleeplessness should be considered a particularly serious sign. In interviews with mothers for a book on postpartum depression, several of the interview subjects had had episodes of postpartum psychosis. Every one of these mothers had had two to three days of sleeplessness before their break with reality. Mothers who report having been sleepless for two or three days should be referred to their doctors immediately.

Box 1. Limitations of the Hormonal View of Postpartum Depression

Major Hypothesis #1 - Day 5 Peak:

Emotional upset and depression are correlated to a postpartum drop in estrogen and progesterone. This drop is said to occur at three to five days postpartum.

Summary of Studies:

- Kendell et al. (1981) found a day-5 peak for depression, tears and lability.
- Cox et al. (1982) found psychiatric symptoms highest 10 days after delivery.
- Levy (1987) compared emotional reactions of women having major or minor surgery and those giving birth. She found more dysphoria following major surgery than after childbirth. The dysphoria peaked around day four.
- O'Hara et al. (1991) drew blood and urine samples from 173 women at three times during pregnancy and six times postpartum (one to eight days postpartum). They examined levels of estradiol, free estriol, progesterone, prolactin, total cortisol, and urinary free cortisol. They found no significant differences in hormone levels between depressed and nondepressed women and concluded that there was little evidence to support a hormonal explanation of postpartum depression.

Major Hypothesis #2 - Progesterone Prophylaxis:

Women experience postpartum depression because of the drop in progesterone levels following birth. Therefore, researchers hypothesized that giving women progesterone could prevent postpartum depression.

Summary of Studies:

- Dalton (1985) gave progesterone prophylactically to 100 women with a previous history of postpartum depression. The control group had 221 women with a previous history of postpartum depression. Recurrence rate of depression in 10% of progesterone group compared with 68% in control group. However, this was not a double-blind design, meaning that both patient and doctor were aware of who was receiving treatment. Therefore, they could not rule out the placebo effect.
- VanderMeer et al. (1984) conducted a double-blind placebo trial on a small sample. These researchers found no significant differences between progesterone and placebo groups. In fact, when comparing subjective effects, three women preferred the placebo.

Limitations of Progesterone Prophylaxis Theory

The major limitation of this approach is that the placebo effect has not been accounted for, and therefore has not demonstrated that progesterone has any effect on preventing postpartum depression.

Beyond sleep deprivation, it is helpful to think about other factors that could be causing fatigue because these might suggest some specific interventions. First, it is always appropriate to rule out any physiological causes of fatigue that could lead to depression. There are a number of physiologic conditions that can develop for the first time in the postpartum period. Testing for the following is important for discovery of underlying physiologic conditions in the mother that may contribute to fatigue:

Anemia: Anemia is particularly likely if she had a difficult birth and/or postpartum hemorrhage. A CBC (complete blood count) can rule out anemia.

Low thyroid function: Hypothyroidism can develop in the postpartum period, and depression is often a symptom. A thyroid blood test can rule out thyroid dysfunction.

Autoimmune disease: While you will not need to rule this out for every tired mother, it is worth checking if she has a family history of autoimmunity, reports pain in her joints or soft tissue, or seems excessively fatigued. An erythrocyte sedimentation rate test is useful here to see if a more comprehensive evaluation is warranted.

Psychosocial factors related to fatigue include having a high-need baby. These babies are often super-human in their lack of need for sleep, and this, all by itself, can make a mother depressed. Similarly, babies who are ill and/or premature often do not sleep particularly well and this can be tiring, especially for a mother who has little or no help with the baby or who has other children to care for as well.

Pain

There are not many studies on the influence of pain in the postpartum period on depression. However, there are many studies in other literatures demonstrating not only a strong link, but also a possible common etiology (see Kendall-Tackett 2003 for a review). Postpartum pain can be due to breast engorgement, cracked nipples, perineal incisions or lacerations, or incisions from cesarean deliveries. Pain can also be due to autoimmune disease, which can often become more active in the postpartum period, sleep deprivation, or prior traumatic events, which can lower pain thresholds (Kendall-Tackett 2000). In one recent study, postpartum pain (along with quality of first contact with her baby and perceived support in labor) predicted depression at eight months. These three variables accounted for 35 percent of the variance in maternal mood (Rowe-Murray & Fisher 2001).

Hormonal Influences

Hormonal fluctuations are the most common explanation given for postpartum illness in the general audience literature, but this explanation has very little empirical support. A summary of some of the hypotheses and study results appear in Box 1. O'Hara, one of the leading authorities on postpartum depression, summarizes the results of his literature review with the following:

In spite of a large sample size and accurate estimations of hormone levels, there was weak support for the hormonal hypothesis. In fact, on at least two postpartum days, in direct contrast to our prediction, measures of free and total estradiol levels were significantly higher in women experiencing the blues than in women not experiencing the blues. (O'Hara 1995).

Limitations of Day-Five Peak Theory:

Researchers report contradictory findings about when this peak occurs, with findings varying by as much as two weeks between studies. More importantly, research to date has not accounted for other possible causes of this peak, such as those suggested by Levy's research.

Negative Birth Experiences

Negative birth experiences arise frequently when talking with mothers and in qualitative studies where mothers are free to share their stories. The impact of birth on postpartum depression has recently been found in more quantitative studies as well (e.g., Fisher et al. 1997). When considering the impact of birth on a mother's emotional state, one of the first questions we need to ask is how common are negative birth experiences? How often do women have birth experiences they feel badly about? The study by Genevie and Margolies (1987) is an older study, but it is the only one of its kind. In a national survey of 1100 mothers between the ages of 18 and 80, 60 percent described their birth experiences in predominantly positive terms. However, 40 percent described their experiences in negative terms, with 14 percent describing the birth experience as a "peak negative experience" —one of the worst experiences of their lives. For these more seriously affected women, the next question we need to ask is whether birth can actually cause psychological trauma. That question has also been recently studied.

To have a formal diagnosis of post-traumatic stress disorder (PTSD) there needs to be an event where victims feel they, or their loved ones, are in mortal danger or in danger of serious injury. There also have to

be symptoms in three clusters: avoidance, re-experiencing (through dreams or flashbacks), and hyperarousal (being jumpy, not being able to sleep, startling easily). Czernocka and Slade (2001) studied 264 women with "normal" births. All had unassisted vaginal births (i.e., births that women are "supposed" to feel positively about) yet three percent of these women had clinically significant levels of intrusion, avoidance, and hyperarousal and met full diagnostic criteria for PTSD. A much higher percentage (24 percent) had at least one symptom. Even one symptom can be troublesome for mothers and should be addressed. Some of the factors in this study that predicted a negative response included the mother's perception of low support during labor from both the staff and/or her partner, her patterns of blame, and feeling out of control during labor.

When I first started working in this field, I noticed almost immediately a huge disconnect between what the more quantitative literature said about birth (generally no impact on depression) and what women themselves had to say. The problem in the field seemed to be that researchers were using objective criteria to define good and bad experiences. In other words, the vaginal births were "good" and the cesarean births were "bad." Of course, there are some serious limitations with that framework because there can be vaginal births that are horrendous and cesarean births where the mother feels empowered and supported.

Rather than try to predict harm based on objective factors, it is more helpful to consider subjective aspects such as a conceptualization developed by Charles Figley. Figley, a prominent figure in the field of traumatic stress, edited one of the first major works on PTSD, *Trauma and Its Wake*. In that volume, he brought together chapters on a wide range of traumatic experiences including combat, natural disasters, sexual assault, and being a Holocaust survivor. In trying to find common threads between these experiences, he noted that a life experience is more likely to a trigger for PTSD if the person perceives it as sudden, dangerous, and/or overwhelming. This can be helpful for us in terms of understanding women's reactions to birth. It can also be helpful for practitioners who may not understand why a woman is upset about a birth that seemed "fine."

Sudden: This can occur when a birth seems to be going well, and there is a sudden change that turns it into an emergency.

Dangerous: Many women do feel that their births were life-threatening, even if the health care providers do not think so. In terms of post-traumatic stress disorder, or other types of traumatic stress reactions, it is the mother's perception that matters. A mother's perception of mortal danger can predict a negative response.

Overwhelming: Many women, and their partners, find the whole hospital environment overwhelming. Uncaring hospital routines can strip them of their individuality and

override their say in what happens to their own bodies. Sometimes, hospital routines have these elements because it is a medical necessity. However, even in this case, it is important to explain to the mother what is happening and to give her as much decision-making power as possible. If there is no time during the crisis, everything needs to be explained at a later date. We also need to realize that this type of crisis can cause psychological wreckage. If we are alert to this possibility, we can help mothers cope.

A woman who was interviewed for the book *Postpartum Depression* described a birth that vividly illustrated all three of these aspects. She had a great deal of difficulty coping in the weeks and months following her daughter's birth. She had a medical emergency during her labor—a prolapsed cord. The experience was terrifying; she was on all fours on her bed hearing “OB Emergency,” over the P.A. system. The next thing she knew she was in the operating room under general anesthetic. This mother had absolutely no problem with what the obstetrician did (in fact, she thinks he is fabulous), but she had a great deal of psychological fall-out from that experience for which nobody prepared her. She was in a situation that was sudden. It was dangerous; the mother knew that there was a very good possibility that her baby might die. The experience was overwhelming. She went from having a lot of control to having absolutely none.

The personal touch can also make a difference in how a mother feels about her birth. When labor and delivery nurses can make time to talk with a mother and tell her what is happening, mothers remember that someone has taken the time to reassure them. Simkin (1992) did a study where she interviewed mothers postpartum and then again 20 years later. She found that not only was their memory of the birth experience very accurate but also they remembered things that people said to them and did for them - the kind gesture, the nurse that tucked in the blankets. These small things can be very helpful, especially in a medical situation where something may be terrifying. The few minutes to explain it and be reassuring can make a huge difference in whether or not there will be psychological fall-out from the experience.

One strategy for defusing negative birth experiences is debriefing. Klaus and Kennell (1993) in *Mothering the Mother* talk about the effect of the labor-support doula. One of the things that the doula did was to come in the next day and review the birth with the mother. If the mother said, “Oh, I don't think I did very well there,” the doula would say, “Are you kidding? You did a great job!” The doula's encouragement made a big difference. The mothers felt much better about their birth experiences even when they were interviewed six weeks and three months later. However, recent research has revealed that debriefing, by itself, may not be enough. Mothers who have had very difficult births

may need further intervention to help them cope with their experiences (Gamble et al. 2002).

Infant Characteristics

Considering the infants' contributions to the interaction with their mothers represented a major paradigm shift in developmental psychology. Previously, mothers were thought to bring everything to the interaction, while the infants' contributions were completely overlooked. We now know that babies can have a significant impact on their mothers' emotional state.

The first factor that we need to consider is infant crying. A baby who cries and cries can be a major risk factor for depression. Kitzinger (1990) collected data from a large sample recruited from a parenting magazine in England, Australia, and New Zealand. Out of the whole sample, she pulled 100 babies who cried the most (more than six hours a day) and babies who cried the least (less than two hours each day). She found that mothers of babies who cried the most were more likely to be depressed (an astonishing 80 percent were). Fifty percent were “itching to smack the baby,” and approximately one-third had negative things to say about their partners.

Crying a lot is characteristic of what is known in the literature as a “difficult” or “high-need” temperament. These babies not only cry a lot, but also they are sensitive and easily overwhelmed, they do not fall easily into routines of eating and sleeping, and they tend to be poor sleepers. Mothers of babies with difficult temperaments are often blamed for their babies' behavior by friends and relatives. Mothers may also blame themselves. This is especially true for first time mothers who may wonder why their babies are so challenging compared to other babies they know. The difficult temperament may keep mothers from sleeping well. Mothers with these babies tend to isolate themselves because they are embarrassed by their lack of ability to control their babies.

Figure 1.
Psychosocial Causes of PPD

Psychological Factors.

- Attributional style.
- Previous psychiatric history.
- Self-esteem, self-efficacy, and expectations.

Social Factors.

- Abusive or dysfunctional family of origin.
- Loss.
- Lack of social support.
- Socioeconomic status.
- Stressful life events.
- Employment status and length of maternity leave.

Mothers of premature infants or infants with illness or disability may face some similar issues to mothers of high-need babies. Their babies may not sleep well, may be easily overwhelmed by their environment, and can be difficult to get into any kind of routine. These babies may require an overwhelming amount of care. All of these factors put mothers of babies with health issues at high risk for depression (Kendall-Tackett 2001). In addition, mothers whose babies were seriously ill may have a delayed response of depression once their babies are out of danger.

Psychosocial Factors

The final category of causative factors for postpartum depression is a broad category known as psychosocial factors. For descriptive purposes, these have been separated into psychological and social factors (See Figure 1).

Psychological Factors

The first of the psychological factors is attributional style. This has to do with how women describe negative events in their lives. Women with a more pessimistic attributional style are more vulnerable to depression. For example, a mother who is having difficulty breastfeeding may conclude that she is a “bad mother.” She may also view any problem—even a minor one—as unfixable. There has not been a lot of research on this factor with new mothers, but there have been thousands of studies in the general population indicating that a negative attributional style can cause depression. This will be described further in the second part of this unit. But counselors should be alert when mothers say that they are “bad mothers” or express hopelessness about their situation changing for the better.

Previous psychiatric history is also a risk factor. This can include a woman’s own history of depression or other psychiatric condition or a psychiatric history in a first-degree relative. Health care providers may receive occasional calls from mothers who are concerned because their own mothers had postpartum mental illness, in some cases, requiring hospitalization. Mothers with a psychiatric history are at risk, but they should be reassured that it is not inevitable that their history will ensure a postpartum problem. These mothers should make sure they have help and support in the early weeks and keep in close touch with their health care providers, especially if they have been on medication in the past. It is also helpful if people in the woman’s circle of support know what to look for.

Self-esteem, self-efficacy, and expectations refer to how mothers feel about themselves as mothers. Do they feel that they are doing a good job? Do they feel that they know what they are doing? Do they have realistic expectations for themselves and their infants? Women who were raised in abusive or dysfunctional households often have trouble with self-esteem and self-efficacy. They may be so motivated to do a good job that they set up expectations for themselves that are impossible to meet. Helping them develop more realistic goals and beliefs can be very helpful.

Many cultures set women up to feel critical about themselves. Women in the US in particular receive hundreds of messages each day that tell them that they are not neat enough, nurturing enough, or attractive enough. Unfortunately, these messages can make women feel that they do not measure up. It can be really helpful to let mothers see more realistic role models, and to give them a more realistic glimpse into mothering (see Kendall-Tackett 2001).

Social Factors

The social factors are also important. Chief among them is coming from an abusive or otherwise dysfunctional family of origin. Buist and Janson (2001) did a three-year follow-up study of mothers who had major depressive disorder during the postpartum period. Half of the women with major depression during the postpartum period had been sexually abused as children. When compared with other depressed women, those who had been abused had higher scores on depression and anxiety measures, and their symptoms had less improvement over time. The women’s partners were also more likely to describe their children as “disturbed,” demonstrating the long-term effects of postpartum depression on children.

Unfortunately, past abuse is also a risk factor for current abuse. And the combination of past and current abuse can have a devastating impact on the mother’s mental health. Dubowitz et al. (2001) found the effects of multiple types of abuse manifest themselves in maternal depression, harsher discipline and parenting, and not surprisingly, more problems in their children.

Another frequently overlooked factor is loss. Loss can also predict depression and can take many forms. Loss during childhood through death of a parent or divorce can create a lifetime risk for depression. Childhood illness and childhood abuse may be experienced as loss of a “normal” childhood. Similarly, childbearing loss can also increase the probability of depression during subsequent pregnancies and after a new baby is born. Loss of a partner through death or divorce can also predispose a mother to postpartum depression (see Kendall-Tackett 2001).

Poverty also increases the likelihood of depression. The American Psychological Association, in its report on women and depression, noted that poverty was an independent risk

factor for depression in women (McGrath et al. 1990). Unfortunately, poverty is very much a mothers' issue. According to the US Census Bureau, mothers in female-headed households had the highest rates of poverty of any demographic group and also comprised the majority of poor families. This was not true for households headed by single fathers (Kendall-Tackett 2001). Poverty makes things difficult for new mothers because it limits support, access to medical care, and access to community resources that can help. Poor mothers often face additional stresses as they deal with uncertain income, dangerous housing or neighborhoods, and the negative effects of being at the bottom of the social strata.

But even within the group of poor mothers, there is variation and some protection. In one study of 191 low-income women (Ritter et al. 2000), subjects were more vulnerable to postpartum depression if they were also under a lot of stress. Women with a higher relative income, who had social support and higher self-esteem, had lower levels of depression.

Supporting the Mother-Infant Relationship

Although poverty is a risk factor, and depression occurs in low-income communities, we should not assume that lower income populations automatically have higher levels of depression. Indeed, there are populations with much lower incomes that are doing some very important things in terms of protecting new mothers.

Anthropologists Stern and Kruckman (1983), were intrigued by the low rates of postpartum illness in certain countries. Even postpartum blues, which occurs in 55 percent to 85 percent of new mothers in industrialized countries, was relatively rare. They observed this phenomenon in many different countries, and although the cultures were very different from each other, they had some similarities in terms of what they did to protect new mothers. Stern and Kruckman identified five social structures that cultures that protect new mothers have. These are as follows:

Distinct Postpartum Period

The first characteristic was a distinct postpartum period; the postpartum period was set aside from normal life. This was reinforced in many ways including special foods that were only eaten during the postpartum period and special rituals that were only performed then. The mother was cared for and nurtured. In the US, in contrast, mothers often leave the hospital after a very short stay and step right back into their lives. There is little that marks this time as different from any other time.

Protection of New Mothers

The second characteristic had to do with protecting the mother during a time of vulnerability. This overlaps with the first social structure and has to do with special rituals such as wrapping of the head, abdomen, or breasts, having mothers abstain from certain types of foods, or eat certain foods that were thought to be protective, and limiting her exposure to the outside world.

Social Seclusion

The third social structure was social seclusion and mandated rest. Mothers had limited company during the postpartum time. They may be attended only by female relatives and their midwives. This was not only protective, but it also set this time apart from the rest of their lives.

Functional Assistance

The fourth social structure was functional assistance. Mothers were not expected to carry on with their everyday chores. Rather, they were offered help with their households and in caring for other children.

Recognition

Finally, the last social structure was recognition of her new role and status. This is something completely

Table III. Supporting the Mother-Infant Relationship

Supports the Mother-Infant Relationship	Hinders the Mother-Infant Relationship
<ul style="list-style-type: none"> • Adequate rest and nutrition. • Positive or resolved birth experience. • Accurate/timely information. • Emotional support. • Practical assistance. • Respite from infant care. • Maternal self-efficacy/self esteem. • Realistic expectations of self and infant. • Understanding of temperament. • Positive breastfeeding experience. 	<ul style="list-style-type: none"> • Fatigue. • Postpartum pain. • Negative or traumatic birth experience. • Unrealistic expectations of self or infant. • Low self-esteem/self efficacy. • Unresolved history of abuse or family dysfunction. • Infant's difficult temperament. • Infant health issues. • Breastfeeding difficulties. • Lack of social support. • Overwhelming child care responsibilities.

lacking in the US. Once a baby is born, all the attention shifts to the baby rather than the mother. Indeed, all postpartum rituals in the US seem to focus on the baby including baptism, naming ceremonies, christening, and bris. In contrast, these other protective cultures celebrate the mothers. The following is a description of a postpartum ritual by the Chagga people of Uganda. This is a great example of a culture that celebrates the new role for the mother.

Three months after the birth of her child, the Chagga woman's head is shaved and crowned with a bead tiara. She is robed in an ancient skin garment worked with beads, a staff such as the elders carry is put in her hand, and she emerges from her hut for her first public appearance with her baby. Proceeding slowly towards the market, they are greeted with songs such as are sung to warriors returning from battle. She and her baby have survived the weeks of danger. The child is no longer vulnerable, but a baby who has learned what love means, has smiled its first smiles, and is now ready to learn about the bright, loud world outside (Dunham 1992, p. 148).

This is, of course, dramatically different than what most mothers in the US experience. Here are some things that mothers have said:

I really wanted someone to make me feel special. All the attention was on the baby.

I felt like I didn't matter. I felt like they weren't interested in me after I had my baby. My husband said, "Of course they are not interested. You've had your baby."

After the birth, I had several people tell me that the most important thing was that I had a healthy baby. Yes, that is important. But what about me? No one pays attention to the fact that you've had major surgery. They would have paid more attention if you had had your appendix out.

The cultures Stern and Kruckman (1983) describe let us know that it is possible to prevent many cases of postpartum depression by taking care of mothers. But we also need to support that mother/infant relationship. Indeed, one way we can conceptualize all the postpartum literature is to think about what we can do to support the mother/infant relationship Table III gives a synopsis of things that can support the mother/infant relationship or hinder it.

What types of things hinder the mother/infant relationship? Fatigue certainly could. A mother who is exhausted is going to have little energy left to give to her baby. Postpartum pain can also keep the mother's focus away from her baby. A negative birth experience can leave mothers feeling very disconnected from

their babies. And mothers who feel incompetent, or feel negatively about themselves as mothers, may find themselves avoiding taking care of their babies. Mothers who have a history of abuse or neglect, and who have never dealt with it, may have difficulties becoming mothers. A crying baby can certainly push a mother over the edge and may make her feel very angry toward her baby. Similarly, a baby who is having breastfeeding difficulties, especially one who actively refuses the breast, may be difficult for mothers. And finally, mothers with little support may find themselves so overwhelmed that they cannot cope with the demands of motherhood.

Conversely, what are some of the elements that support the mother/infant relationship? For starters, a mother who receives adequate rest and good nutrition will be able to give more easily to others, including her new baby. A mother with a positive, or resolved, birth experience will feel better about mothering. Accurate and timely information can make a difference for a mother who is struggling with breastfeeding. Emotional support and practical assistance can also make her transition easier, and can allow her to focus on the baby. Occasional respite from infant care, even 30 minutes to take a shower, can help her return to her baby more focused, knowing that her own needs have been met. A mother who feels competent, and who has realistic expectations of herself and her baby, will be more likely to enjoy the experience of motherhood more than someone who always feels that she is not living up to what she "should" be doing. Along this same line, a realistic perspective on temperament can help mothers not blame themselves for their infants' behaviors. And finally, a positive breastfeeding experience can help mothers experience the joys of mothering, knowing that they are giving their babies something no one else can.

Summary.

Health care providers can make a significant difference in the lives of new mothers. Families learn patterns during this time that they are likely to carry with them the rest of their lives. Time spent with mothers and babies is time well spent. The words of a doula in California, Salle Webber, emphasize the essential role that we can play in the lives of young families:

Incredible as it seems, our culture, with its emphasis on education, has left young adults entirely unprepared to face the practical realities of parenting. And this may be the most important job they will ever hold. So, for those of us who are comfortable and happy in the work of parenting, we can serve the future of humanity through our humble sharing of our skills and our love for children and families (Webber 1992, p. 17).

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Part 2: Treatment Options for Breastfeeding Mother

Introduction

In this section, the array of treatment alternatives for depressed, breastfeeding mothers will be described. As will be seen, there are many effective treatments for depression; medication is only one choice among many. It is striking to realize that mothers can alter their brain chemistry by what they think, what they eat, and what they do. Sometimes, a combination of these treatment modalities is the most effective for women who are depressed. This information can be empowering for women, and give them more control over their mental health.

However, it is important for the lactation consultant to understand the limits of scope of practice. Unless allowed to prescribe by virtue of being a physician or other licensed prescriber, instructing or recommending that a mother use a particular treatment modality or herbal remedy is out of the lactation consultant's scope of practice. Lactation consultants can only offer a mother information to assist her in making an informed decision about treatment, always in consultation with her primary health care provider.

Treatments with Minimal Impact on Breastfeeding

There are four treatment modalities that have a minimal impact on breastfeeding: diet, supplements, exercise, and cognitive behavior therapy. The term "minimal impact" is used rather than "no impact" because supplements or exercise can, at least theoretically, influence a mother's milk. However, these effects are generally not a problem for most mothers.

Diet

The first treatment modality is diet. Research based on numerous studies by Judith and Richard Wurtman of Massachusetts Institute of Technology indicates that carbohydrates increase levels of serotonin by influencing insulin secretion and the plasma-tryptophan ratio (Wurtman & Wurtman 1995). The brain must have carbohydrates to make serotonin. Patients with other conditions that are related to low levels of the neurotransmitter serotonin also appear to crave carbohydrates. For example, various authors have noted high levels of carbohydrate craving in patients with obsessive-compulsive disorder (O'Rourke et al. 1994) and premenstrual syndrome (Sayegh et al. 1995). These conditions also respond to serotonin-enhancing medications. In order to achieve an antidepressant effect, patients must consume at least 45

grams of either simple or complex carbohydrates with no (or very little) fat or protein. Judith Wurtman's book, *The Serotonin Solution*, is a good resource (1997) to offer to a breastfeeding mother who wants to try this approach to treating depression. This book is written for a lay audience and Wurtman offers specific instructions about how often to eat the carbohydrates, and in what amounts. This book even has a "stressed mommy" diet, including a special "will-this-day-never-end?" diet. The focus of the book is on weight loss, but there is a wealth of information, written in an accessible style, that describes the connection between food and emotions.

It is also important to convey to mothers that something as simple as what they eat can have a profound impact on their emotional state. In talking with mothers about what they eat, it may be necessary to brainstorm with them about how they can eat nutritionally during the day. Some suggestions include having highly nutritious snacks, such as fruits, vegetables, low-fat cheese, or yogurt, readily available. This may involve preparing snacks when someone else is available to care for the baby. Mothers of newborns often find that they have only "one hand" during the day, so it may take some planning on the mother's part to make sure her nutritional needs are addressed.

The final point to make is that good nutrition, even if not done for a specific antidepressant effect, is important to mental health, giving an individual a feeling of physical well being and the energy to accomplish tasks. A summary of the effects of diet can be found in Table I.

Supplements

Supplements are another important treatment alternative for depression. People who are depressed often have low levels of choline, folic acid, and vitamins B6 and B12. Interestingly, people who are low in these B vitamins are impaired in their ability to make S-Adenosyl-L-Methionine (SAME), a naturally occurring mood regulator (see below). The specific recommended doses for these supplements are listed in Table II.

The most promising of the supplements are the Omega-3 fatty acids. In one study, ethyl-eicosapentaenoate (EPA) was used in a double-blind trial to treat depression that had been resistant to treatment with standard medications. The results indicated a significantly greater effect of EPA on depression than the placebo (Peet & Horrobin 2002). The dose that the subjects took was one gram of EPA per day.

Getting Omega 3 fatty acids from food can also help with depression. In another study, mothers who consumed high amounts of seafood during pregnancy, and had high levels of docosahexaenoic acid (DHA) in their milk, had lower levels of postpartum depression than mothers who consumed low amounts of seafood, and had low levels of DHA in their milk (Hibblen 2002).

Mothers who were high in DHA during pregnancy had infants with a significantly lower ratio of active sleep to quiet

Table I: Alternative Treatments for Depression

Diet	Exercise	Cognitive Behavioral Therapy
<p>The brain needs carbohydrates (complex or simple) to make serotonin—a neurotransmitter that is frequently low in depressed people. In order to achieve an antidepressant effect, 45 grams of carbohydrates must be eaten with little or no fat, and with no protein for at least an hour after eating the carbohydrates.</p> <p>In addition, a well-balanced diet can be an important foundation for mental health. Generally, a mother should eat a variety of fruits, vegetables, and whole grains, and reduce fat, salt, caffeine, and refined sugars.</p>	<p>Exercise is also an effective treatment for depression. Daily physical exercise boosts mood by increasing levels of serotonin and dopamine and by releasing endorphins. Endorphins relieve pain and create a sense of well being. Endorphin levels tend to be low in people who are depressed. Twenty to sixty minutes of walking or other activity can help a mother's mood by creating the very chemical changes that medications create.</p> <p>Exercise can also be an important adjunct to other treatments.</p>	<p>Cognitive-behavioral therapy is a highly effective treatment for depression. Its central premise is that depression is caused by distortions in thinking. Types of distortions include assumptions of powerlessness in a situation, the tendency to focus only on negative aspects and downplay the positive, and assuming that others are thinking negative things about you.</p> <p>Cognitive therapy helps clients identify these distortions and replace them with more accurate (and less self-defeating) cognitions. Examples of these types of distortions are found in Table III.</p>
<p>Alternative treatments are not to be used for severe or suicidal depression. Mothers with these symptoms should be referred to their doctors immediately!</p> <p>References: Babyak et al. 2000; Hale 2002; <i>German Commission E Monography</i> 1998; Murray 1996; Seligman 1990; Van Gorp et al. 2002; Well 1999; Wurtman & Suiffes.</p>		

sleep and less active sleep than infants of mothers low in DHA. There were indications that infants of high-DHA mothers had greater CNS maturity because DHA is essential for the baby's developing central nervous system (Cheruku et al. 2002). Babies who are more mature sleepers also contribute to their mothers' mental health by allowing their mothers to get more sleep.

S-Adenosyl-L-Methionine (SAME) is another supplement that may be effective in treating depression. This is not an herb but a substance that naturally occurs in the body and is crucial to cell metabolism in all animals. It is derived from the amino acid methionine, and adenosine triphosphate. Our bodies manufacture methionine from protein. SAME contributes to a process known as methylation that regulates hormones such as serotonin, melatonin, dopamine, and adrenaline. It regulates mood by regulating neurotransmitter metabolism, membrane fluidity, and receptor activity. If people have low levels of B6, B12, and folic acid, SAME breaks down into homocysteine. High homocysteine levels are harmful to cardiovascular health and have been related to depression. Moreover, high levels of homocysteine during pregnancy raises the risk of spina bifida and other birth defects.

A meta analysis of 28 studies on the efficacy of SAME in the treatment of depression indicated that SAME decreased depression significantly more than a placebo, and was comparable to antidepressant medications in its effectiveness (Agency for Healthcare Research and Quality 2002). At this time, its impact on breastfeeding is unknown. Since it naturally occurs in the body, it is most likely safe, but there is no

research to confirm this. However, it is used during pregnancy to treat cholestasis of pregnancy (Agency for Healthcare Research and Quality 2002).

Exercise

Traditionally, exercise has been recommended for people with mild to moderate depression, but there appears to be some support for exercise being effective for people with major depression as well. Exercise may also be combined with other modalities to increase the effectiveness of each.

Exercise changes brain chemistry. This is an important point to share with a mother so she can understand the importance of exercise. Otherwise, it could be the last thing that she would feel like doing. Exercise elevates serotonin and dopamine levels and releases endorphins that relieve pain and create a sense of well being. Both aerobic and strength training types of exercise will achieve this effect. Encourage mothers to incorporate exercise as a routine part of the day, such as taking a walk with the baby or joining a mothers' exercise class. Even if mothers exercise for 10 to 15 minutes at a time a couple times a day, it will still provide significant cumulative effects.

Several recent studies have measured the effectiveness of exercise in boosting mood. In one study of over 3000 men and women from Finland, exercise not only helped with depression but also helped with feelings of anger, distrust, and stress. The results of

this study suggest that exercising two to three times per week should improve a person’s mood (Hassmen et al. 2000).

There is also a synergistic effect of combining multiple modalities. In a study of 112 women ages 19 to 78 with mild to moderate depression, walking outside in the sun 20 minutes a day plus taking a vitamin supplement decreased depression and improved overall mood, self-esteem, and general sense of well-being. The results of this study suggest slightly different guidelines about how much exercise is needed to achieve an antidepressant effect (Brown et al. 2001). The inclusion of sunlight in this study design is interesting. Especially for those who live in northern climates, lack of sunlight can be a big factor in depression, particularly for women who have babies during the winter. The effects of sunlight on depression have not been studied in groups of postpartum women. One case study is available. Anecdotally, some women find it helpful to get outside for at least a little time each day.

Subjects in the previous two studies had mild to moderate depression. However, Babyak’s study demonstrates that exercise can be helpful for major depression, too (Babyak et al. 2000). The subjects in

this study were randomized to three groups: those who got exercise alone; those who got sertraline (Zoloft) alone; and those who got a combination of exercise and sertraline. All subjects in the Babyak study improved after four months. There were also no differences between the groups indicating that people in the exercise-alone group did as well as people in the two groups that got medication with or without exercise. Combining medications with exercise did not necessarily improve the intervention either. The rates of relapse are also of interest. After 10 months of intervention, the exercise group had lower rates of relapse (Babyak et al. 2000). These findings are similar to those of another intervention—cognitive-behavioral therapy.

This study looked at a population of 56 older adults (> 50 years old) with a history of major depression. As older adults they may have a long history of a sedentary lifestyle and have a higher risk for depression. Older adults often have difficulties with medications. They may be taking doses that are too high or taking multiple medications that can interact with the antidepressants. Non-drug options for treatment of older adults are therefore appealing. Cost is also a factor. Name-brand antidepressants (such as the one used in this study) can cost \$70 to \$100 per month. Being able to offer people an effective treatment that costs little or nothing is a major advantage.

Table II.
Alternatives to Antidepressant Medications for Mild to Moderate Depression

Supplements	Herbs
<p>Like good nutrition, supplements are helpful in forming a good foundation for mental health. Women who are depressed frequently have low levels of vitamins B6, B12, folic acid, and omega-3 fatty acids. The following is a list of supplements that are helpful in depression.</p> <ul style="list-style-type: none"> • Omega-3 fatty acids (found in salmon, flax seed, or roasted hemp seeds). • B-complex. • B6 (75 mg). • B12 (100 mcg). • Folic acid (400 mcg). • Choline (150 to 500 mg). <p>SAMe: (s-adenosyl-methionine). SAMe is a substance that naturally occurs in the body and is crucial to central pathways of metabolism in the cells of all animals. It eases depression by producing serotonin and dopamine. SAMe is widely used and studied in Italy and Germany for depression and arthritis. It can be very expensive to take, and non-prescription formulas can degrade easily. Not studied with breastfeeding mothers.</p> <p>Dosage: 400 mg in the morning on an empty stomach. If depression doesn't clear in a week, double the dose to 400 mg twice daily.</p>	<p>St. John's Wort: SJW is a safe and effective herbal antidepressant. It is used widely in Germany for mild to moderate depression, and has been shown as effective as tricyclic antidepressants without the numerous side effects. It improves mood and the quality of sleep. Some have concern about its use with breastfeeding mothers (Hale 2002), but it is approved for pregnancy and lactation in <i>The Complete German Commission E Monographs</i> (1998).</p> <p>Dosage: 300 mg three times/day of SJW standardized to contain 0.3 percent hypericin.</p> <p>Kava: Kava is used for depression with anxiety. It can be sedating. It is used in indigenous cultures to promote relaxation. There have been some serious concerns about this herb since it interacts with other medications and can cause liver damage. It is currently contraindicated for breastfeeding mothers (Hale 2002).</p>

Alternative treatments are not to be used for severe or suicidal depression. Mothers with these symptoms should be referred to their doctors immediately!

Researchers usually explain the lower relapse rates in exercise (or cognitive-behavioral therapy) groups by noting that these modalities give people tools to cope with life's stressors. Conversely, when people take medication only, and the medication is gone, they are no better off in terms of coping than before they started their treatment. On the other hand, medication may be necessary to help patients get the maximum benefit from other interventions.

In summary, exercise can be a helpful treatment for depression and can be used in combination with other treatment modalities. To achieve an antidepressant effect, mothers should exercise at least two to three times a week for at least 20 minutes. See Table I for a comparison with other modalities.

Cognitive-Behavioral Therapy

Another highly effective therapy for depression is cognitive-behavioral therapy (CBT). CBT has proven to be as powerful as medications for treating depression, anxiety, chronic pain, and obsessive-compulsive disorder. CBT is based on the premise that depression is caused by distortions in thinking. The goal is to help patients learn to identify distorted beliefs and replace them with more rational ones. CBT is not simply learning to think "happy" thoughts (See Table I).

In a major review of treatment modalities for depression, Antonuccio et al. (1995) came to the following conclusions. First, even though depression does tend to run in families, the genetic component only accounted for 16 percent of incidences of unipolar depression, making life influences the most frequent cause of depression. (In contrast, bipolar disorder (manic-depression) has a very strong genetic component—accounting for about 40 percent). Second, although medications were the most common form of treatment, cognitive therapy was at least as effective as medications for treating depression. Thirdly, similar to the finding with exercise, those who had cognitive therapy were less likely to relapse than those who had medications alone.

The impact of cognitive therapy on the brain can be seen in a study of obsessive-compulsive disorder (OCD) (Baxter et al. 1992). Patients with OCD were randomly assigned to receive either medication or cognitive therapy. Before therapy, both groups had PET (Positron Emission Tomography) scans, and patients in both groups showed abnormalities in brain metabolism. After treatment, both groups looked better than they did before treatment. However, there was no difference between the groups. In other words, cognitive therapy had caused the same changes in the brain that medications had.

In his book *Feeling Good: The New Mood Therapy*, psychiatrist David Burns addresses ten types of cognitive distortions that are addressed by cognitive therapy. This book can be a great resource for patients; especially those who are motivated to try this approach and like to read. These are

not the only kinds of distortions that people can experience, but they cover most situations and are common. There is a brief explanation for each of these types of distortions in Table III, along with a description of how they could apply to mothers. For example, mothers will often take the blame for things they have no possible control over (e.g., the weather that ruined a family outing becomes personalization and blame).

If someone is prone to these types of distortions, it doesn't mean that she will suddenly become depressed. However, these distortions can make someone more vulnerable to depression when faced with a stressful life event or even everyday stresses. Health care providers can help mothers begin to identify their own cognitive distortions. It sometimes helps to write them down or say them aloud. Once seen in black-and-white, it may become easier to leave these distortions behind because they seem so preposterous. However, if the thoughts still seem troubling, then ask whether this thought is true and what would it mean if it were true. Sometimes a person has to do this several times before getting at the real problem. Another question to ask is "What would be the worst thing that could happen if this were true?"

As a note of caution, it is advisable to proceed gently when working with mothers who seem to have cognitive distortions. Once an awareness of cognitive distortions is established, the tendency is to see them everywhere. Use your discretion in approaching mothers with this information. Many times, a mother can be encouraged to reframe the situation more positively, focusing on what she can do. But if she is in real distress, her concerns should not be dismissed just because a cognitive distortion seems to be behind them. Her feelings are real even though they may not seem logical to others.

Treatments with an Impact on Breastfeeding

Herbal Medications

Herbal medications have a long history of use around the world, and are the most common form of healing in many cultures. Since these are psychoactive substances, they can have an impact on breastfeeding and this is something that should be considered in talking to mothers about herbs and other medications. Many physicians and other health care providers are very uncomfortable with patients medicating themselves for something as serious as depression. To make matters worse, many patients

Table III. Ten Types of Cognitive Distortions

Type	Definition	Example
All-or-nothing thinking	Mothers see things in black-or-white categories. If a situation falls short of perfect, it is seen as a total failure.	If a mother is having problems in one area, it is because she is a "lousy mother."
Overgeneralization	A single negative, such as a romantic rejection or career reversal, is seen as a never-ending pattern of defeat by using words such as "always" and "never."	Mothers may feel that they will always have difficulties, that their situations will never improve.
Mental filter	A single negative detail may become the exclusive focus, rather than all the positives that they have in their lives.	Mothers may focus on all the things they don't know, or dwell on one negative or slightly negative comment from others.
Discounting the positive	Mothers may reject positive experiences by insisting that they "don't count." If they do a good job, they may insist that it wasn't good enough.	Mothers may feel that they never measure up. This can drain the joy from life and make them feel inadequate and unrewarded.
Jumping to conclusions	Mothers interpret things negatively when there are no facts to support their conclusions.	Mothers may assume that others are judging them (mind reading), or may make predictions about what they think may happen (fortune telling).
Magnification	Mothers may exaggerate the importance of their problems and shortcomings and minimize the importance of their desirable qualities.	Mothers may focus on what they are having difficulties with and ignore all the things they do well.
Emotional reasoning	Mothers may assume that their negative emotions reflect reality.	Mothers may assume that being angry with their children means that they are "rotten mothers."
"Should" statements	"Should" statements reflect the way you expect or hoped them to be. These can apply to self or others.	Mothers may have unrealistic expectations of themselves (what good mothers should do) or others (they should be more supportive).
Labeling	Labeling is an extreme form of all-or-nothing thinking. One mistake and they label themselves "losers."	Mothers may call themselves "lousy," "stupid," or "bad." They may also apply negative labels to their babies.
Personalization and blame	Personalization occurs when mothers hold themselves (or others) personally responsible for events that aren't entirely under their control.	Mothers may blame themselves (or their babies) for things they cannot control.

Source: Burns 1999.

do not tell their doctors that they are taking herbs for fear of censure, yet this can be dangerous because of the potential for drug interactions.

However, from the patient's perspective, there are a number of advantages of taking herbs. Understanding patients' motives for taking herbs can open a dialogue between patients and their health care providers.

Control: One reason patients like herbal medications is that they can get them without a prescription and can therefore control their own health care.

Privacy: Many patients are ashamed to admit that they are depressed and are frightened by the

possibility that their employers or others will find out that they are on antidepressant medications. Unfortunately, sometimes this information is released to employers via insurance forms, and it can influence hiring and promotion decisions.

Costs: Newer and name brand antidepressants can be very expensive, especially if not covered by insurance. In contrast, herbs can be reasonably priced, and can be purchased at discount and warehouse stores. The savings each month can be substantial compared with name-brand prescription drugs.

Side Effects: The side-effect profile is substantially better with herbal medications than with standard antidepressants.

Table IV. Where to Find Help with Herbal Products

What to Look for on a Label of an Herbal Product	For More Information on Herbs
<ul style="list-style-type: none"> • Statement of percent standardization of the extract • Statement describing which compounds are standardized • Statement describing which parts of the plant are used in the formulation • Extract ratio (the ratio of extract concentration to crude plant materials, e.g., 1:4) • Recommended daily dosage • Weight and number of capsules or tablets per package • Substantiated structure/function claims • Product expiration date to confirm freshness • A toll-free number and/or Web site address for company information and contact • USP: Notation that the manufacturer followed standards of the U.S. Pharmacopeia. 	<p>Web sites on herbs/supplements:</p> <p>www.ConsumerLab.com (rates quality of nutritional products through independent testing) Institute for Natural Products Research: www.naturalproducts.org</p> <p>Herbs for Health magazine: www.discoverherbs.com</p> <p>The Complete German Commission E Monographs available online and for purchase from the American Botanical Council, www.herbalgram.org</p> <p>American Herbal Pharmacopeia: www.herbal-ahp.org</p> <p>National Center for Complementary and Alternative Medicine: www.nccam.nih.gov</p>
<p>Source: Institute for Natural Products Research: <i>Pocket Reference Guide to Botanical and Dietary Supplements</i>. Marine on St. Croix, MN: Institute for Natural Products Research. 2000.</p>	

The tricyclics have a host of anticholinergic side effects including dry mouth, constipation, and blurred vision. Some serotonin reuptake inhibitors (SSRIs) have sexual side effects such as anorgasmia or a reduction of libido. Patients may find these side effects intolerable and stop taking the medication.

There is often concern about how consumers can know if a particular brand of herb is of good quality. Fortunately, there are some resources for consumers. The seal of the US Pharmacopeia (USP) is one indicator of quality. ConsumerLabs.com also rates the quality of various brands of herbs (See Table IV).

St John's Wort

Of the herbs used for the treatment of depression, the one with the longest track record is St. John's Wort (*Hypericum perforatum*). It is the most widely used of the herbal antidepressants, but has many other properties. It is antibacterial, anti-inflammatory, antiviral, and relieves pain (Balch 2002) (See also Table II). St. John's Wort (SJW) has a long history of use, dating back to the Middle Ages, when it was used to treat insanity resulting from attacks of the devil. It was named "St. John's" in reference to St. John's Day on the medieval church calendar because it blooms near this day (June 24). "Wort" is the old English word for any medicinal plant. It is native to Great Britain, Wales, and northern Europe. Settlers brought it to North America in the 1700s (Balch 2002) and the species now is a common wildflower in the northeastern and north central US.

In three randomized, double-blind studies, SJW was superior to a placebo for mild to moderate depression

(Lecrubier et al. 2002), was as effective as the tricyclic antidepressant imipramine for moderate depression (Philipp et al. 1999), and was as effective as sertraline (Zoloft) for major depression in primary care (Van Gorp et al. 2002).

The exact mechanism for SJW's antidepressant effect is unknown. It is standardized by percentage of hypericin, one of the active ingredients, but no one is certain if this is the only antidepressant component of SJW. More likely, it is the synergistic combination of ingredients. It does appear that SJW relieves depression by preventing the reuptake of serotonin, the same mechanism as the SSRIs, e.g., Prozac, Zoloft. However, there is still a question about whether SJW is appropriate for breastfeeding women. In this case, we have two contradictory medical opinions. Hale (2002), on one hand, expresses concern about SJW since we do not know enough about how it passes into human milk and what effect it may have on the infant. On the other hand, the German Commission E Monographs (1998), which developed guidelines for use of herbs in their national medical program, has listed SJW as safe for both pregnancy and lactation. When mothers ask about SJW, it is important to inform them about these contradictory references, and suggest that they discuss the evidence with their physicians to determine the best approach. SJW accelerates the metabolism of several classes of medications including anticonvulsants, cyclosporins, and birth control pills, leading to lower serum levels of the medication than

prescribed (Hale 2002). Since SJW can interact with other medications, it is important for mothers to understand the need to inform their health care providers that they are taking the herb.

Kava

Kava (*Piper methysticum*) has a long history of use in the Polynesian Islands. It produces relaxation, but is also believed to be antiseptic and anti-inflammatory. Its more common use is for anxiety, and it operates on the same receptors as the benzodiazepines (e.g., Xanax). Kavalactones (the active ingredient) also promotes relaxation of the skeletal muscles. It is often mixed in preparations with SJW to treat anxiety and depression. Even though there has been a long history of use in other cultures, there have been some serious concerns about this herb. It interacts with other medications including antidepressants, benzodiazepines, alcohol, and sleeping pills, and has other dangerous side effects including liver damage (usually with a high dose). The Food and Drug Administration has issued a consumer advisory. It is currently contraindicated for breastfeeding mothers (Balch 2002; Hale 2002). But even non-breastfeeding mothers should not try to self-medicate with this herb and should seek professional assistance if they are interested in using it.

Antidepressant Medications

These medications also have an impact on breastfeeding, but may be crucial to preserve a mother's health. Antidepressants fall into roughly three classes, depending on their chemical action: tricyclics, monoamine oxidase inhibitors, and serotonin reuptake inhibitors.

Tricyclics (TCAs): The tricyclics are an older class of medications. Since generic versions are available, they can be substantially less expensive than other medications. However, many patients find their side effects difficult to cope with (dry mouth, constipation, blurred vision, weight gain) so non-compliance rates are high. Overdoses of TCAs can also be fatal, so they are contraindicated for suicidal patients.

Monoamine Oxidase Inhibitors (MAOIs): The monoamine oxidase inhibitors are rarely used in the US because of the dietary restrictions that are necessary to follow while taking these medications. Patients taking these medications cannot consume anything with the amino acid tyramine in it, a substance found in many aged foods such as cheese and wine. There is even a case report of a severe reaction following the consumption of a chicken leg that

was a few days old. Consuming tyramine while taking an MAOI can cause hypertensive crises and death. These medications also interact with many other medications, including many antidepressants. However, these medications may be warranted for refractory depression that has not responded to other antidepressants.

Selective Serotonin Reuptake Inhibitors (SSRIs): The selective serotonin reuptake inhibitors are the newest class of medications. These have been very popular, and they are effective in treating depression, Obsessive-Compulsive Disorder, eating disorders, and Post Traumatic Stress Disorder (usually in combination with other medications). Although the side-effect profile of these medications is better than the other classes of antidepressants, they do have side effects. The most notorious of which are the sexual side effects, which can include impotence (in men) and anorgasmia. Patients often stop taking these medications as well, but compliance is better than it is with the tricyclics.

When thinking about using antidepressant medication, there are several things to consider. First, not every depressed mother will need to be on antidepressants, but they can be helpful. One factor to consider is the mother's level of current functioning. A mother who is severely impaired (e.g., can't get out of bed, can't stop crying) will most certainly need medications. On the other hand, a mother with mild to moderate depression might be more interested in other approaches. Another aspect to assess is the mother's feelings about being on medications. If she is adamant that she does not want medications, she would be more likely to be non-compliant if she feels medications were forced upon her. In this case, assuming her depression is not severe, some of the other alternative approaches that are available may be more attractive and compliance better. It can also be helpful to develop a treatment plan in which one approach, like exercise, is tried for a certain number of weeks. If the depression has not improved, then medications would be tried or the healthcare provider might suggest a trial of medication for a certain number of weeks. If a mother knows that there is an endpoint in sight, she may be more willing to try medication. This type of planning will make the mother an active participant in her own health care and will increase compliance. In helping mothers make decisions about medications, the risks of breastfeeding with medications vs. the risks of not breastfeeding must be weighed. Mothers see a false dichotomy, "contaminated" human milk vs. pristine formula. However, we can help mothers realize that even with medications (with some notable exceptions), the risks of formula feeding far outweigh the risks of breastfeeding while taking medications (Hale 2002). (See Figure 1).

It may be helpful to consider what symptoms a mother has in order to determine if medications would be helpful. Figure 2 lists the symptoms that medications address. If a

Figure 1. Helping Mothers Make the Medication Decision

Not every depressed mother needs medication, but some can really benefit from it.
 Ask about her current level of functioning and her feelings about medication.
 Discuss risks of breastfeeding with medications vs. risks of not breastfeeding.
 If a mother is unsure about medications, ask if she would be willing to give non-medication choices a try.

Figure 2. Target Symptoms for Medications (Preston & Johnson 2001)

Sleep disturbance (early morning waking, frequent awakenings).
 Appetite disturbance.
 Fatigue.
 Decreased sex drive.
 Restlessness, agitation, or psychomotor retardation.
 Impaired concentration.
 Pronounced anhedonia.*

* A psychological condition in which a person cannot experience pleasure in doing things that are normally pleasurable.

mother has these symptoms, medications most likely would help.

In considering which medications are most compatible with breastfeeding, the factors to consider are the time to peak concentration in the mother's blood, protein binding, and the nature of the metabolites (Hale 2002; Lawrence & Lawrence 1999). Table V lists these factors and the lactation risk category for the tricyclic and SSRI classes of antidepressants. The newest SSRI, Lexapro, is a metabolite of Celexa, so the same classifications apply to it (Thomas Hale, personal communication, December 9, 2002).

Peak: This is the time it takes from the administration of the drug to the point at which the level of medication is highest in the mother's plasma. Mothers should avoid breastfeeding during the peak, but they do not need to pump and dump their milk because the overwhelming majority of medications exit the milk compartment as plasma levels of this medication fall (Hale 2002). Some medications, such as barbiturates and iodides, can become trapped in the milk and will need to be discarded, however.

Protein Binding: Drugs circulate bound to maternal plasma albumin. The higher the percentage of protein binding, the less likely this medication is to enter into human milk. Good protein binding is greater than 90 percent.

Metabolites: The metabolites are the component parts of the medication as it breaks down during digestion. Medications with active metabolites dramatically increase the baby's exposure to the medication. For example, Prozac

has active metabolites so the baby receives 10 to 17 percent of the maternal dose. In contrast, Zoloft has inert metabolites, and the baby receives less than 1 percent of the mother's dose.

Support

How can mothers be helped most effectively? The treatment options are important, but we must not lose sight of the fact that mothers must eventually learn to function without our help. Any effective intervention begins with listening. It is tempting to jump in and teach. First, we have to stop and listen. Mothers often say that they are tired of health care providers telling them what is wrong with them rather than letting them describe their own experiences. Of all the possible responses, simply listening is possibly the most therapeutic.

However, it is quite possible that mothers do not know the cause of their emotional distress. For example, some mothers are surprised that a baby who cries all day can cause them to feel depressed. Letting her know about the various factors that can contribute to her depression can help her figure out how to function better. Specific strategies to handle the stress can be developed. Some examples include helping mothers come up with plans for rest, exercise, eating nutritious foods, dealing with pain, or getting more support.

Finally, one of the most important things we can do is to help a mother mobilize her own support system. Lactation consultants and breastfeeding counselors cannot be a long-term source of support for her, but we can help a mother find support in her neighborhood, community, and among members of her own family. Referrals to people or organizations that can offer long-term support are essential.

Conclusion

There are many treatment options available for depressed breastfeeding mothers. It may take some trial and error to find the right combination of treatment modalities, but postpartum depression is definitely treatable and can be treated effectively in a way that will not compromise breastfeeding.

Resources:

Depression After Delivery, Inc.
www.depressionafterdelivery.com
 91 East Somerset Street, Raritan, NJ 08869
 1-800-944-4773 (4PPD) (Information Request Line)

Postpartum Support International
www.postpartum.net

Table V. Safety of Antidepressant Medications for Breastfeeding Mothers

Medication	Lactation Risk Category* ¹	Theoretical Infant Dose ¹	Peak in Mother's Plasma ^{1,2}	Protein binding ^{1,2}	Comments ^{1,2}
Fluoxetine (Prozac)	L2 for older infants L3 for neonates	9.3 to 57 µg/kg/day	1.5 to 12 hours (peak at 6 hours)	94.5%	Approved by AAP for use during pregnancy. Active metabolites. Baby's intake 10 to 17% of mother's dose.
Paroxetine (Paxil)	L2	15.2µg/Kg/day	5 to 8 hours (peak at 4 hours)	95%	Inactive metabolite. Preferable to Prozac.
Sertraline (Zoloft)	L2	26.0ng/Kg/day	7 to 8 hours	98%	Metabolite (desmethylsertraline) is inactive and is preferable to Prozac.
Citalopram (Celexa)	L3	14.6µg/Kg/day	2 to 4 hours	80%	Active metabolite. Baby's intake may be 3 to 4% of maternal dose.
Bupropion (Wellbutrin)	L3	28.4µg/Kg/day	2 hours	75 to 88%	May concentrate in human milk. However, plasma levels of the drug were undetectable in the infant in one case study.
Amitriptyline (Elavil)	L2	22.7µg/Kg/day	2 to 4 hours	94.8%	Estimated that the nursing infant would receive less than 1% of maternal dose.
Imipramine (Tofranil)	L2	30.0µg/Kg/day	1 to 2 hours	90%	Could accumulate in infant plasma levels, although none have been reported. Infant should be monitored closely.
Nortriptyline (Pamelor)	L2	27.0µg/Kg/day	7 to 8.5 hours	92%	In one case study, the relative dose in milk is 2.3% of the maternal dose. However, others have not been able to detect NT in maternal milk or infant serum.
Hypericum (St. John's Wort)	L3	Unknown	5.9 hours	Unknown	At this time, due to availability of better-studied products (Zoloft & Paxil), these products should be used preferentially in PPD.

Sources: ¹T.W. Hale (2002). *Medications and mothers' milk*. Amarillo, TX: Pharmasoft Medical Publishing. Used with permission. ²L2="Safer"—risk is remote; L3="Moderately Safe"—Given only if potential benefit justifies potential risk to the infant. ²Lawrence, R. & Lawrence, R. (1999). *Breastfeeding: A guide for the medical profession*. St. Louis: Mosby

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About La Leche League

La Leche League International is a nonprofit organization founded in 1956 by seven women who wanted to help other mothers learn about breastfeeding.

Today La Leche League is an internationally recognized authority on breastfeeding, with a mother-to-mother network that includes La Leche League Leaders and Groups in countries all over the world. A Professional Advisory Board reviews information on medical issues.

Mothers who contact LLL find answers to their questions on breastfeeding and support from other parents who are committed to being sensitive and responsive to the needs of their babies. Local LLL Groups meet monthly to discuss breastfeeding and related issues. La Leche League Leaders are also available by telephone to offer information and encouragement when women have questions about breastfeeding.

La Leche League International is the world's largest resource for breastfeeding and related information and products. The organization distributes more than three million publications each year, including the classic how-to book, *The Womanly Art of Breastfeeding*, now in its seventh edition. Look for it in bookstores, or order from La Leche League International by calling 847-519-9585 or 847-519-7730 weekdays between 9 AM and 5 PM Central Time. Or fax your order to 847-519-0035 or order online at www.lalecheleague.org/

In Canada, call 800-665-4324, or write to LLLC, 18C Industrial Drive, Box 29, Chesterville, Ontario.



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