



# *11 Breastfeeding*

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# 11 Breastfeeding

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## INTRODUCTION

Human milk is the normal food of choice to initiate healthy eating for human infants. The American Academy of Pediatrics (AAP) states that “Human milk is species-specific, and all substitute feeding preparations differ markedly from it, making human milk uniquely superior for infant feeding.” Pediatricians and parents should be aware that exclusive breastfeeding is sufficient to support optimal growth and development for approximately the first 6 months of life...” The AAP further states that “Breastfeeding should be continued for at least the first year of life and beyond for as long as mutually desired by mother and child” (1).

Women with diabetes can successfully breastfeed with proper education, planning, and support. Studies involving lactating women with diabetes demonstrate that success is strongly associated with educational level as well as the level of support they receive from significant others (2, 3). Support may come from many sources: spouse, family, friends, health professionals, employers, community organizations and support groups (2). Health professionals working with this population are in an excellent position to encourage breastfeeding and provide the education and support a woman needs to have a successful experience. A study of women with DM 1 diabetes who breastfed for greater than four months found no associations between diabetes status and successful breastfeeding. Initiation and continued breastfeeding for at least 4 months among women with DM1 was comparable to the background population. Cessation of breastfeeding was mainly due to common problems such as perceived low milk supply and was not related to diabetes status (3).

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## GENERAL BREASTFEEDING EDUCATION GUIDELINES

General breastfeeding education for a woman with diabetes is similar to that for a woman without diabetes. Both benefit from an approach that encourages and supports breastfeeding as the normal way to feed babies which is consistent with the culture and beliefs of the woman, her family, and her support system. A woman's concerns about breastfeeding should be elicited and responded to. She should be referred to a lactation specialist (International Board Certified Lactation Consultant), if necessary. Previous breastfeeding experience, social isolation, and beliefs about breastfeeding also influence a woman's decision to breastfeed. Education which addresses typical misconceptions about breastfeeding allows a woman to make an informed decision. Breastfeeding education should be offered in small doses, such as during preconception and regular prenatal visits.

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**SUPPORTIVE  
POLICIES FOR  
BREASTFEEDING**

The basics of breastfeeding education include, but are not limited to, the topics listed in Table 1. Resources for breastfeeding support are listed in Table 2.

**Table 1. BASIC BREASTFEEDING EDUCATION**

- ❖ Breast changes that occur during pregnancy and lactation
- ❖ Birth practices that support breastfeeding
- ❖ Skin to skin, rooming in, feeding cues, normal feeding frequency, and infant skills
- ❖ Comfortable positioning and latching-on technique
- ❖ Breastfeeding as a learned art that requires practice
- ❖ Breast changes that occur during pregnancy and lactation
- ❖ Addressing maternal concerns regarding breast size, diet, socioeconomic and issues, previous experience, and misinformation given by other sources
- ❖ Strategies to deal with common concerns regarding milk supply, quality, and quantity
- ❖ Information and links to resources to help the mother deal with problems such as inverted, cracked, or sore nipples; fatigue, and signs and symptoms of breast infection
- ❖ Community resources for handling questions about breastfeeding
- ❖ Ways to evaluate whether the baby is getting adequate milk
- ❖ Ways to increase milk supply and assure an adequate sustained supply
- ❖ Ways to deal with negative social attitudes about breastfeeding in public
- ❖ Resources to help women continue breastfeeding after returning to work

**Table 2. RESOURCES FOR BREASTFEEDING SUPPORT**

- ❖ La Leche League International
- ❖ Women, Infants, and Children (WIC) program
- ❖ International Lactation Consultants Association
- ❖ Comprehensive Perinatal Services Program in Steps to Take Guidelines
- ❖ Website of the California Department of Public Health at  
<http://www.cdph.ca.gov/programs/BreastFeeding/Pages/default.aspx>

The following suggestions for hospital policies, listed in Table 3 are adapted from Providing Breastfeeding Support: Model Hospital Policy Recommendations (4). This document was endorsed by the California Department of Public Health (CDPH) and recommended to all birthing hospitals in California. For a more complete discussion of policy development, copies of the model policy recommendations are available from the Regional Perinatal Program of California office in the eleven regions across the state:

<http://www.cdph.ca.gov/programs/rppc/Pages/RPPCCountyListings.aspx>

A web-based toolkit to implement these policies is available through the CDPH website:

<http://www.cdph.ca.gov/programs/BreastFeeding/Pages/default.aspx>

**Table 3. SUMMARY OF MODEL HOSPITAL POLICY RECOMMENDATIONS (4)**

**PURPOSE:** These policy recommendations are designed to give basic information and guidance to perinatal professionals who wish to revise policies that affect the breastfeeding mother. Rationale and references are included as education for those unfamiliar with current breastfeeding recommendations. When no reference is available, the interventions recommended are considered to be best practice as determined by consensus of the Inland Empire Breastfeeding Coalition.

Policy #1: Hospitals should promote and support breastfeeding.

Policy #2: Nurses, certified nurse midwives, physicians and other health professionals with expertise regarding the benefits and management of breastfeeding should educate pregnant and postpartum women when the opportunity for education exists, for example, during prenatal classes, in clinical settings, and at discharge teaching.

Policy #3: The hospital will encourage medical staff to perform a breast exam on all pregnant women and provide anticipatory guidance for conditions that could affect breastfeeding. Breastfeeding mothers will have an assessment of the breast prior to discharge and will receive anticipatory guidance regarding conditions that might affect breastfeeding.

Policy #4: Hospital perinatal staff should support the mother's choice to breastfeed and encourage exclusive breastfeeding for the first 6 months.

Policy #5: Nurses, certified nurse midwives, and physicians should encourage new mothers to hold their newborns skin to skin during the first two hours following birth and as much as possible thereafter, unless contraindicated.

Policy #6: Mothers and infants should be assessed for effective breastfeeding. Mothers should be offered instruction in breastfeeding as indicated.

Policy #7: Artificial nipples and pacifiers should be discouraged for healthy, breastfeeding infants.

Policy #8: Sterile water, glucose water, and artificial milk should not be given to a breastfeeding infant without the mother's informed consent and/or physician's specific order.

Policy #9: Mothers and infants should be encouraged to remain together during the hospital stay.

Policy #10: At discharge, mothers should be given information regarding community resources for breastfeeding support.

to access the whole document go to:

<http://www.cdph.ca.gov/programs/breastfeeding/Documents/MO-05ModelHospitalPolicyRecommend.pdf>

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**BREASTFEEDING  
GUIDELINES FOR  
WOMEN WITH  
DIABETES**

Breastfeeding guidelines for the general population also apply to women with diabetes. The following categories have been designed by the American Association for Diabetes Educators (AADE 7) to serve as a framework for addressing the special needs of people with diabetes. We will address the special needs of women with diabetes who choose to breastfeed within these categories:

- ❖ Reducing Risks
- ❖ Healthy Eating
- ❖ Self Monitoring of Blood Glucose
- ❖ Taking Medications
- ❖ Healthy Coping
- ❖ Staying Active
- ❖ Problem-solving

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**REDUCING RISKS****Benefits of Breastfeeding with Regard to Diabetes**

A systematic review of the research concluded that: “Women with diabetes should be strongly encouraged to breastfeed because of maternal and childhood benefits specific to diabetes that are above and beyond other known benefits of breastfeeding” (5).

Breastfeeding confers unique immunologic, growth, and developmental benefits for women and infants. Specifically, breastfeeding reduces the risk of the infant becoming obese or developing impaired glucose tolerance or diabetes (6). Research suggests that this protection extends into adulthood. For women with diabetes, breastfeeding benefits include: reduced risk of obesity, cardiovascular disease, and metabolic disease such as DM (7, 8, 9). Many women also find their diabetes more easily managed after the birth of the baby when they breastfeed (10).

Breastfeeding benefits are summarized in Table 4.

| <b>Table 4. BENEFITS OF BREASTFEEDING</b>   |  |
|---|--|
| <b>Maternal</b>   | <b>Infant</b>  |
| <ul style="list-style-type: none"> <li>❖ Enhances bonding with infant</li> <li>❖ Improves blood glucose control</li> <li>❖ Promotes weight loss due to mobilization of fat stores accumulated during pregnancy</li> <li>❖ Offers protection from chronic diseases such as diabetes and obesity</li> <li>❖ HDL ratio increases during lactation</li> <li>❖ Reduced healthcare costs and work absenteeism</li> <li>❖ Saves money</li> <li>❖ Saves time; no preparation</li> </ul> | <ul style="list-style-type: none"> <li>❖ Enhances bonding with mother</li> <li>❖ Reduces incidence and severity of ear infections</li> <li>❖ Reduces incidence of respiratory infections</li> <li>❖ Decreases risk of baby tooth decay which may occur with bottle use</li> <li>❖ May reduce risk of sudden infant death syndrome (SIDS)</li> <li>❖ Promotes digestion; reduces the incidence of diarrhea</li> <li>❖ Protects against infant botulism</li> <li>❖ May reduce lifetime risk of diabetes</li> <li>❖ Positively influences infant growth and development, including intellectual development</li> <li>❖ Associated with leaner babies reduced risk of childhood obesity</li> </ul> |
| <p>Adapted from California Department of Health Services, MCH Branch. Executive Summary. Breastfeeding: Investing in California's Future. Breastfeeding Promotion Committee Report to the California DMS, Primary Care and Family Health, Sacramento, CA: California Department of Health Services, 1997: IX-X.</p>   |  |

### **DM 1 and Breastfeeding Benefits**

Research has shown an association between breastfeeding and reduction of the risk of DM 1 in susceptible children (11, 12, 13, 14). Recent research appears to support the role of exclusive breastfeeding in at least delaying the onset of type 1 diabetes in susceptible children. (Monetini, 2001) Research is continuing with the Finnish Trial to Reduce IDDM in the Genetically at Risk Study (TRIGR)

Studies with DM 1 and breastfeeding have been controversial. Most studies demonstrate a benefit for the offspring when compared to formula-feeding (13, 15, 16). There are some studies with contradictory findings in regard to the benefits of breastfeeding in relation to offspring obesity and neurological development (17, 18). But even with these studies, breastfeeding appears to be a major component in the reduction of risk for the offspring of a woman with DM 1.

### **DM 2/GDM and Breastfeeding Benefits**

Studies have shown that women with DM 2 or GDM are less likely to breastfeed than women without diabetes. Obese women were even less likely to breastfeed, possibly due to more complicated pregnancy, labor, and birth, as well as difficulty with body mechanics involved (5). The

benefits of breastfeeding to both the woman and her infant are significant and require strong support and encouragement for these mothers to attempt breastfeeding.

Breastfeeding improves the subsequent glucose tolerance. Two small studies assessed the influence of lactation on glucose tolerance in women without diabetes. Lactating women all had higher prolactin levels and significantly lower levels of estradiol ( $p < 0.0005$ ) as well as lower fasting glucose and insulin levels ( $p = 0.05$ ). The authors concluded that the low levels of estradiol associated with breastfeeding may confer a protective effect with respect to glucose tolerance. (Taylor, 2005) Another study by McManus et al. demonstrated improved  $\beta$  cell function with 3 months of breastfeeding in women with a history of GDM (19).

In a study of women who had experienced GDM, breastfeeding improved lipid and glucose metabolism during the postpartum period when compared to women who had GDM and did not breastfeed (10). That same study showed postpartum glucose values were significantly lower in the breastfeeding group ( $p < 0.01$ ). Non-lactating women developed DM 2 at a 2-fold higher rate than lactating women (9.4% vs. 4.2%,  $p = 0.01$ ). These results persisted when controlling for BMI, age, and insulin use in pregnancy (10).

Longer duration of breastfeeding was associated with reduced incidence of DM 2 in 2 large US cohorts of women. The authors found that duration of lactation was inversely associated with risk of DM 2 in young and middle aged women, independent of other diabetes risk factors, including body mass index, diet, exercise, and smoking status. This association appeared to wane with time since last birth (8).

### **Breastfeeding Benefits for the Offspring**

Infants of women with mild to severe glucose intolerance are at risk for infant and childhood obesity (6, 20, 21). Breastfed infants tend to be leaner than formula fed infants (21, 22, 23, 24, 25).

Breastfeeding reduces the risk of DM 2 primarily by reducing the risk of childhood obesity. Specifically, breastfeeding may set lower satiety thresholds; reduce insulin levels during infancy; and reduce exposure to chemicals and nitrates, which impair pancreatic beta-cell function. Current studies suggest that breastfeeding can reduce the incidence of DM 2, particularly among Hispanics and non-Hispanic whites. A relationship has also been shown between breastfeeding and reduction of DM 2 diabetes in Pima Indian children (26, 27).

Recent research has shown a protective effect of exclusive breastfeeding against some cardiovascular risk factors in adult life (28).

### Avoiding Newborn Hypoglycemia with Early Breastfeeding

Maintaining maternal normoglycemia during pregnancy and in particular during labor and delivery is the best way to avoid neonatal hypoglycemia (29). Betamimetic drugs such as Ephedrine (often used to treat acute hypotension associated with epidural or spinal anesthesia) or Terbutaline (used to acutely to reduce uterine activity in the presence of fetal distress) given just before birth can cause maternal hyperglycemia and aggravate the risk for hypoglycemia in the newborn.

Early (preferably in the first half hour of life) and often (10 -12 times per 24 hours) breastfeeding can reduce this risk. Newborns that are wet and cold utilize glucose to generate warmth, therefore it is imperative to dry the newborn thoroughly and place him/her skin to skin with his/her mother as he/she feeds. Women who undergo cesarean birth should not be an exception. It is possible for an otherwise healthy newborn to begin breastfeeding in the operating room or in the recovery room. Every effort should be made to provide care (physical assessment and glucose monitoring) needed by this couplet without separating them. Early separation of the mother baby couplet may delay lactogenesis (30) as well as increase the likelihood the baby will be supplemented with formula (31, 32).

See Table 5 for more information on interventions to prevent hypoglycemia in the newborn.

**Table 5. IMMEDIATE INTERVENTIONS TO AVOID HYPOGLYCEMIA IN THE NEWBORN**

- ❖ Reduce glucose utilization - thoroughly dry and place newborn skin to skin with mother covering both with dry, warm blankets. Cover newborn's head with dry warm cap.
- ❖ Breastfeed early and often - immediately to within the first 30 to 60 minutes after birth
- ❖ Check first newborn BG after first feeding then check before subsequent feedings
- ❖ Monitor infant blood glucose for at least 24 hours or until stable for at least three consecutive feedings
- ❖ Avoid scheduling breastfeeding - encourage frequent feeding until the blood glucose is stable
- ❖ Observe newborn for symptoms hypoglycemia (jitteriness, irritable cry, etc.) and check blood glucose
- ❖ Abnormal glucose values need to be followed by rechecking blood glucose levels after interventions- see neonatal chapter for interventions

The couplet experiencing medically necessary separation will need extra support to establish breastfeeding. The mother should be instructed in breast pump use within the first 12 hours after giving birth; the earlier the better to ensure adequate milk supply. The pumped colostrum or milk should be fed to the newborn, if possible, by methods other than bottle and artificial nipple (such as a spoon, cup, eyedropper or feeding syringe) to prevent nipple confusion. The information the mother was given prenatally on the importance of frequent breast milk feeding without supplementation should be reinforced and mother’s intent to exclusively breastfeed should be honored unless medical necessity exists to use supplemental feedings. A diabetes educator familiar with the woman’s daily challenges, lactation specialist and knowledgeable nursery and postpartum staff need to be available to support the mother and baby with special needs.

Educate mother on infant feeding cues, cluster feeding, and need for flexibility in the early days of breastfeeding. If kept skin-to-skin and allowed free access to the breast, infants will nurse at frequent intervals for short periods of time throughout the day. Attempts to force routine or scheduled feedings will frustrate both mother and infant and lead to the mother’s misunderstanding of her infant’s behavior and feeding cues. Promote early feeding at the breast by one hour of age. Encourage frequent feeding until the blood glucose is stable ( $\geq 45$  mg/dl before feeding) (33). Monitor infant blood glucose for at least 24 hours or until stable for at least three consecutive feedings.

SELF MONITORING  
OF BLOOD  
GLUCOSE WITH  
BREASTFEEDING

|                     |                   |
|---------------------|-------------------|
| Fasting/Premeal:    | 70 - 100 mg/dl    |
| 1 - 2 hrs postmeal: | < 150 - 155 mg/dl |

The breast milk of women with controlled diabetes was similar to that of women without diabetes with respect to carbohydrate and lipid content at the above blood glucose values (34, 35). Recent studies that did not control for glycemic control suggest that the breastmilk of women with DM with uncontrolled blood glucose levels may actually contribute to adverse outcomes for the offspring such as reduced glucose tolerance and increased body weight (17). Therefore Sweet Success Guidelines recommend tight control of blood glucose during lactation for optimal results.

Women with DM 1 are encouraged to monitor fasting, pre-meal; 1-2 hours post meal, bedtime and 3 am blood glucose levels. Additionally, checking blood glucose levels just before and 1 hr. after breastfeeding

began is advised for the first 3 days postpartum. If blood glucose is less than 100 mg/dl prior to breastfeeding, a 15 gram carbohydrate snack is advised to prevent hypoglycemia.

DM 2 should monitor blood glucose at least fasting; 1-2 hours post meals and bedtime and occasionally at 2-3 AM.

### **DM 1**

A lactating woman with DM 1 may experience erratic patterns of glucose control including hypoglycemia. Episodes of hypoglycemia induce the release of epinephrine, which can cause a temporary decrease in milk production (34). Because hypoglycemia is most likely to occur within an hour after breastfeeding, this is an important time to measure blood glucose. In most cases, hypoglycemia can be avoided by eating a snack containing carbohydrate (about 15 grams) and protein before or during breastfeeding rather than making frequent adjustments in the insulin dosage (36). Nocturnal hypoglycemia is common. This makes periodic blood glucose monitoring during the night vital. If hypoglycemia is documented, the evening dose of basal insulin can be decreased or a woman can eat a high protein snack before bed.

Periods of maternal hyperglycemia have been associated with delayed lactogenesis as well (31), thus tight glucose control is recommended early in lactogenesis and throughout the breastfeeding experience.

### **DM 2/GDM**

Women with previous GDM may be advised to periodically check fasting and 1-2 hr post meal blood glucose values to be sure their blood glucose levels have returned to normal prior to the diagnostic OGTT at around 6 weeks postpartum. There are no data to support or refute this recommendation.

Women with DM 2 are advised to monitor BG control with BG checks at least fasting and post meals (as above) to ensure target control is achieved.

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**TAKING  
MEDICATIONS  
DURING  
LACTATION**

Medications prescribed to breastfeeding mothers can be researched for their safety by using resources such as Medications and Mothers' Milk by Thomas W. Hale (see references for websites). All medications need be evaluated before being prescribed to a breastfeeding mother.

**Insulin**

Because glycemic control increases the chances of a successful lactation experience, flexibility, effort and support are required to achieve normoglycemia and increase a woman's chances of achieving her goal for breastfeeding. Insulin adjustments must be made based on results of blood glucose monitoring. These adjustments are based on changes in kilocalorie intake, the infant's feeding routine and other schedule adjustments. Frequent self-monitoring of blood glucose as described above, allows more optimal adjustment of insulin to meet these changes. One of the most important issues in adjusting insulin during lactation is to address the nighttime basal insulin dose. Nocturnal hypoglycemia occurs when kilocalories and glucose are shunted for milk production for the nighttime feeding. Many women with DM1 need to significantly lower their night dose of basal insulin during the lactation period (29). Counseling includes the importance of checking the blood glucose at 2-3 a.m. with appropriate adjustment to avoid nocturnal hypoglycemia. In contrast, insulin needs during the day may stay the same or even increase if a woman eats more kilocalories to maintain milk production. Infant growth spurts may cause increased infant energy requirements and create a need for additional adjustments in the meal plan and insulin regimen to maintain normoglycemia. As the baby gets older and solids are introduced, the demand for breast milk will begin to decrease and insulin needs will again require adjustment based on the mother's blood glucose values.

**Oral Agents**

The major concern for a woman with DM 2 diabetes is the use of oral hypoglycemic agents in controlling the blood glucose and their effects on breast milk. Although it is recommended that a woman with DM 2, who is unable to maintain normoglycemia through exercise and diet alone, continue with insulin during the lactation period (37), oral hypoglycemic agents can be used in lactating women. The American Academy of Pediatrics has judged tolbutamide, a first generation sulfonylurea, safe to be used by a lactating woman with DM 2 (38). Even though small amounts of tolbutamide cross into breast milk, it has been in use for a number of years and, to date, there are no adverse reports in the literature. Metformin is excreted into breast milk, but the amounts seem to be clinically insignificant. No adverse effects on the

blood glucose of the nursing infants were measured (39, 40). According to a small study published in 2005, neither glyburide or glipizide were detected in the breast milk, and hypoglycemia was not observed in three nursing infants. The authors concluded “both agents appear to be compatible with breast feeding” (39). There are no reports of infant side effects (38).

There are many other oral hypoglycemic agents on the market. There are almost no data on their ability to cross into human milk and most have not been reviewed by the American Academy of Pediatrics or the American Diabetes Association.

Refer to table 7 for a list of oral agents and their categories

| <b>Table 7: ORAL HYPOGLYCEMIC AGENTS (OHA) AND SAFETY CATEGORY FOR PREGNANCY (2, 39, 41)</b> |                 |
|--|-----------------|
| <b>Oral Hypoglycemic Agent</b>   | <b>Category</b> |
| Tolbutamide  | B               |
| Metformin  | B               |
| Acarbose   | B               |
| Glyburide  | B               |
| Glipizide  | C               |
| Repaglinide  | C               |
| Diabinese  | D               |
| Thiazolidinediones   | No studies      |

Note: these are pregnancy ratings

### Other Medications

Women with diabetes often take medication daily besides insulin such as lipid lowering, blood pressure lowering and glucose lowering (oral hypoglycemics) pills. See the table 8 below:

| <b>Table 8: OTHER MEDICATION AND SAFETY CATEGORY FOR PREGNANCY (2, 39, 41)</b> |  |                 |
|--|--|-----------------|
| <b>Medication</b>  | <b>Recommendation</b>                                | <b>Category</b> |
| Ace inhibitors   | Not recommended in first two weeks of life           | D               |
| ARBs   | Not studied  |                 |
| Beta blockers  | Recommendation varies depending on the specific drug | B, C            |
| Calcium Channel Blockers   | Approved by AAP                                      | C               |
| Methyldopa   | Approved by AAP                                      | C               |
| Statins: HMG CoA Reductase Inhibitors  | Not recommended                                      | X               |

### Breastfeeding and Psychiatric Medication

Benefits of breastfeeding are well established, but using certain medication while lactating complicates the decision to breastfeed for mothers and professionals who care for them. Given the prevalence of psychiatric illness during the perinatal period a significant number of women may be using psychotropic medication while breastfeeding. Best practice is always an individualized risk-benefit analysis of the severity of the mother's depression and potential known risks to the infant.

Concern is raised regarding the safety of medication because limited safety data is available (42). No professional medical association has issued formal guidelines regarding pregnant or lactating women and use of psychiatric medication treatment including SSRIs. Current research does indicate that, while all medications are secreted into the breast milk, the incidence of adverse effects on nursing infants appears to be relatively low (43, 44). Data indicates that all psychotropic medications, including antidepressants, lithium, anti-psychotics, anticonvulsants, and benzodiazepines, are secreted into breast milk although concentrations vary significantly. Long-term

neurodevelopmental effects for the infant may not be predictable but maternal-children relational difficulties in untreated depression are well documented (45).

### **Antidepressants**

In recent years more information has been compiled on the use of antidepressants in nursing women. Data on tricyclic antidepressants and sertraline and fluoxetine has been encouraging, suggesting that the infant's exposure to amounts of the drug is low and that neonatal complications appear rare (46, 47). To this point, data is reassuring. Most often serum levels of the drug in the nursing infant is very low or undetectable and one report indicates that exposure to SSRIs during nursing does not result in significant blockage of serotonin reuptake in infants (48).

SSRIs are preferred by many when treating depression but more safety data on breastfeeding is ultimately needed (48).

Sertraline has shown low umbilical cord to maternal serum ratios in small samples and has reassuring breast-feeding data (49).

- ❖ Fluoxetine has been the most studied SSRI in pregnancy but it has a long half-life and is not recommended in breastfeeding as it may accumulate in infant sera (50)
- ❖ Citalopram, (and escitalopram) unlike sertraline, has been studied more frequently but has a higher fetal-maternal serum level. These are viewed as the next choice after sertraline or fluoxetine (51)

### **Mood Stabilizers**

Bipolar disorder poses more significant difficulties to breastfeeding women. On demand breastfeeding disrupts a mother's sleep that can increase the possibility of relapse. Toxicity has been reported with mood stabilizers, including lithium, carbamazepine and valproic acid (52, 53, 54). AAP determined carbamazepine and valproic acid are appropriate for breastfeeding women (55). Lithium is included in the drugs that have been associated with significant effects on some nursing infants and should be given to nursing mothers with caution (55).

### **Anxiolytics**

Data on benzodiazepines, diazepam (Valium), clonazepam (Klonopin), lorazepam (Ativan) is limited (56) with some adverse effects noted.

### **Antipsychotics**

Information about use of antipsychotic drugs is limited, especially for newer atypical antipsychotics such as risperidone (Risperdal), quetiapine (Seroquel), ziprasidone (Geodon), and aripiprazole (Abilify) (57). Data on clozapine suggests it is concentrated in breast milk but there is no data on infant serum levels. Significant adverse effects of clozapine in adults include decreased white blood count (58).

### **Treatment Guidelines**

As studies and clinical experience with breastfeeding mothers and concomitant drug use increase, reassuring results for the mothers and professionals will help in the decision-making process. As with any informed critical decision, up to date information is needed by the health professional to assist the mother in making the best decision for herself and her family. Careful coordination with the prescribing psychiatrist and pediatrician is essential.

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## **PROBLEM SOLVING**

In general, a woman with diabetes is more susceptible to infection of all kinds. For example, a yeast infection may occur on the nipples and breast tissue of a nursing mother and in the mouth of the baby. Treatment must be provided to both at the same time, or it will be ineffective. Good hand washing, nipple care and glycemic control can help reduce the incidence of yeast infections.

### **Mastitis**

A woman should be counseled to recognize the signs and symptoms of any infections including mastitis, which can first present as achiness and flu-like symptoms. Yeast infections are common. The health care provider must be contacted immediately to initiate treatment as early as possible. Prolonged treatment will avoid re-occurrence. It is important to rule out infection when there are unexplained blood glucose elevations, as infections are known to raise blood glucose levels.

### **Contraception**

The health care provider should address contraception needs. Breastfeeding may tend to be contraceptive in the first six months if the infant is exclusively breastfed (including at night) without artificial pacifiers, soothers or bottles and the mother has not resumed menstruation. However, protection is not universal. Few women in the

United States exclusively breastfeed their infants for the entire first six months postpartum, so additional contraceptive methods are recommended if the mother wishes to delay a subsequent pregnancy. Contraception during and after lactation should be addressed to prevent unplanned pregnancies. Women with a history of GDM need to be mindful of the type of birth control utilized during breastfeeding. Some progesterone only birth control methods (i.e. Depo-Provera, minipill, Norplant) are associated with increasing diabetes rates when breastfeeding (59, 60)

Further information on contraception for women with diabetes can be found in chapter \_\_\_.

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