

▶ CDAPP Sweet Success Guidelines for Care

Chapter 8 Breastfeeding



*Sweet
Success*

California Diabetes Prevention Program

California Diabetes and Pregnancy Program Sweet Success Guidelines for Care

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8 Breastfeeding

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8 Breastfeeding

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 unique and optimal superior for infant feeding.”¹ The institution goes on to note, “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 Bartick and Reinhold report that the United States could save \$13 billion per year and prevent in excess of 911 deaths annually, “If 90% of US families could comply with medical recommendations to breastfeed exclusively for 6 months.”²

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.^{3,4} 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 breastfeed. Multiple studies have shown that encouragement by health professionals increased breastfeeding initiation⁵ and duration.⁶ One large national study found that women were four times more likely to initiate breastfeeding when they received encouragement from their providers.⁵ Such studies support using CDAPP Sweet Success practitioners to promote breastfeeding. A study of women with type 1 diabetes who breastfed for greater than four months found success rates comparable to the non-diabetic population.⁴ Initiation and continued breastfeeding for at least 4 months among women with DM1 was comparable to the background population. Breastfeeding discontinuance is often not related to diabetes but is more frequently due to the mother being unsure if she is providing enough breastmilk.⁴

GENERAL BREASTFEEDING EDUCATION GUIDELINES

Breastfeeding education is similar for women with and without diabetes. Both benefit from an approach that encourages and supports breastfeeding as the normal way to feed babies and 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, such as an International Board Certified Lactation Consultant (IBCLC), 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.

**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
<ul style="list-style-type: none"> ❖ Breast changes that occur during pregnancy ❖ Family support for breastfeeding ❖ 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 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
<ul style="list-style-type: none"> ❖ La Leche League International http://www.llli.org/ ❖ Women, Infants, and Children (WIC) program http://www.cdph.ca.gov/PROGRAMS/WICWORKS/Pages/default.aspx http://www.fns.usda.gov/wic/Breastfeeding/mainpage.HTM ❖ International Lactation Consultants Association http://www.ilca.org/i4a/pages/index.cfm?pageid=1 ❖ Comprehensive Perinatal Services Program, Steps to Take Handbook http://www.cce.csus.edu/portal/admin/handouts/CPSP-StepsToTake-Fall2014.pdf ❖ California Department of Public Health http://www.cdph.ca.gov/programs/BreastFeeding/Pages/default.aspx

The following suggestions for hospital policies, listed in Table 3, are adapted from 2005 Providing Breastfeeding Support: Model Hospital Policy Recommendations.⁷ This document was endorsed by the California Department of Public Health (CDPH) and recommended to all birthing hospitals in California.

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

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

Table 3. SUMMARY OF 2005 MODEL HOSPITAL POLICY RECOMMENDATIONS⁷
<p>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.</p> <p>Policy #1: Hospitals should promote and support breastfeeding.</p> <p>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.</p> <p>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.</p> <p>Policy #4: Hospital perinatal staff should support the mother’s choice to breastfeed and encourage exclusive breastfeeding for the first 6 months.</p> <p>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.</p> <p>Policy #6: Mothers and infants should be assessed for effective breastfeeding. Mothers should be offered instruction in breastfeeding as indicated.</p> <p>Policy #7: Artificial nipples and pacifiers should be discouraged for healthy, breastfeeding infants.</p> <p>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.</p> <p>Policy #9: Mothers and infants should be encouraged to remain together during the hospital stay.</p> <p>Policy #10: At discharge, mothers should be given information regarding community resources for breastfeeding support.</p>

**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 Self-Care Behaviors™) to serve as a framework for addressing the special needs of people with diabetes.⁸ We will address the special needs of women with diabetes who choose to breastfeed within these categories⁸:

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

REDUCING RISKS

Benefits of Breastfeeding with Regard to Diabetes

A systematic review by Taylor et al 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.”⁹

Breastfeeding confers unique immunologic, growth, and developmental benefits for women and infants. Breastfeeding optimizes weight control in infancy through adolescence and may reduce or delay the onset of diabetes.¹⁰ Research suggests that this protection extends into adulthood. For women with diabetes, breastfeeding benefits include: reduced risk of cardiovascular disease, and metabolic disease such as DM.^{11,12} Many women also find their diabetes more easily managed after the birth of the baby when they breastfeed.¹³

Risks of not breastfeeding for infants and mothers are summarized in Table 4.

Table 4. RISKS OF NOT BREASTFEEDING FOR INFANTS AND MOTHERS¹⁴	
Infant	Mother
<ul style="list-style-type: none"> ❖ Diarrhea and gastroenteritis ❖ Necrotizing enterocolitis in preterm infants ❖ Sudden Infant Death Syndrome (SIDS) ❖ Asthma, pneumonia, ear infections ❖ Childhood obesity and type 2 diabetes 	<ul style="list-style-type: none"> ❖ Retention of gestational weight gain ❖ Postpartum depression ❖ Type 2 diabetes ❖ Metabolic syndrome ❖ Premenopausal breast cancer ❖ Ovarian cancer

Breastfeeding may also reduce the risk for conditions later in life.¹⁵ Studies show that in childhood, there is a reduced risk of asthma and atopic dermatitis in those with a positive family history. Breastfeeding is associated with reduced risk of obesity in later life. Among parous women with no history of gestational diabetes, the risk of developing type 2 diabetes is reduced.¹⁶

Type 1 Diabetes and Breastfeeding Benefits

Research has shown an association between breastfeeding and reduction of the risk of type 1 diabetes in susceptible children.^{17,18} Recent research appears to support the role of exclusive breastfeeding in at least delaying the onset of type 1 diabetes in susceptible children.¹⁹ Research is continuing with the Finnish Trial to Reduce IDDM in the Genetically at Risk Study.²⁰

Studies with type 1 diabetes and breastfeeding have been controversial. Most studies demonstrate a benefit for the offspring when compared to bovine or casein protein containing formulas.^{17,18} There are some studies with contradictory findings in regard to the benefits of breastfeeding in relation to offspring obesity.^{21,22} Overall, breastfeeding appears to be a significant component in the reduction of risk for the offspring of a woman with type 1 diabetes.

Type 2 Diabetes/GDM and Breastfeeding Benefits

Studies have shown that infants of mothers with type 2 diabetes or GDM have increased rates of prematurity as well as neonatal complications. These risk factors increase the risk of separation and delayed breastfeeding initiation compared to infants of women without diabetes.⁹ 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.⁹ 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.

Two small studies assessed the influence of lactation on glucose tolerance in women without diabetes. The first study in lactating women showed that all had higher prolactin levels and significantly lower levels of estradiol ($p < 0.0005$) as well as lower fasting glucose and insulin levels ($p = 0.05$). This study concluded that low levels of estradiol associated with breastfeeding may improve glucose tolerance.⁹ In the second study by McManus et al, improved β cell function with 3 months of breastfeeding in women with a history of GDM was demonstrated. However, no significant differences in glucose tolerance were noted.²³

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.¹³ That same study showed postpartum glucose values were significantly lower in the breastfeeding group ($p < 0.01$). Non-lactating women developed type 2 diabetes 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.¹³

Stuebe et al found that “duration of lactation was inversely associated with risk of type 2 diabetes in young and middle aged women, independent of other diabetes risk factors, including body mass index, diet, exercise, and smoking status.¹² This association seemed to lessen with time starting from when they delivered their last child.¹²

Breastfeeding Benefits for the Offspring

Infants of women with mild to severe glucose intolerance are at risk for infant and childhood obesity.¹⁰ According to Kerssen et al, “breast-fed infants are leaner than formula-fed infants.”²⁴

Breastfeeding is associated with reduced risk of type 2 diabetes later in life. 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. A relationship has also been shown between breastfeeding and reduction of type 2 diabetes in Pima Indian children.^{25,26} Although WHO and AHRQ identified studies that found breastfed infants were less likely to develop type 2 diabetes, some studies showed no association. It is not possible to draw conclusions on the long-term effects of breastfeeding on the risk of type 2 diabetes.²⁷

Research has shown a protective effect of exclusive breastfeeding against some cardiovascular risk factors in adult life.²⁸

The Risk of Bottle-Feeding

There is a potential relationship between prolonged or frequent bottle-feeding and excess weight, which may contribute to diabetes. One recent study found that excess weight at late infancy was associated with frequency of infant-initiated bottle emptying during early infancy, regardless of the bottle’s contents. Possible reasons include poor appetite control due to ease of sucking a bottle and lack of physiologic signaling which is available through breastfeeding.²⁹ Another study found that delayed bottle-weaning corresponded to an increased risk of overweight in children aged 3-5 years.³⁰

Bottle and formula use are modifiable factors that may prevent excess weight gain and thus disease risk for the child.

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.³¹ Betamimetic drugs such as Ephedrine (often used to treat acute hypotension associated with epidural or spinal anesthesia) or Terbutaline (used to acutely 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.³²

Early (preferably in the first hour of life) and often (10 -12 times per 24 hours) breastfeeding can reduce the risk of hypoglycemia. 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 lactogenesis³³ as well as increase the likelihood the baby will be supplemented with formula.³⁴

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

Table 5. IMMEDIATE INTERVENTIONS TO AVOID HYPOGLYCEMIA IN THE NEWBORN³⁵

- ❖ 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 blood glucose before and after first feeding then check before subsequent feedings until stable within accepted levels.
- ❖ Avoid scheduling breastfeeding - encourage frequent feeding until the blood glucose is stable.
- ❖ Observe newborn for symptoms hypoglycemia (jitteriness or tachypnea) and check blood glucose if noted.
- ❖ Abnormal glucose values need to be followed by rechecking blood glucose levels after interventions - refer to *Chapter 5: Impact of Maternal Diabetes on Fetal Development and Neonatal Care* 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 may be fed to the newborn by methods other than bottle and artificial nipple (such as a spoon, cup, eyedropper or feeding syringe) to prevent potential 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. Examples of infant feeding cues are turning of the head; bringing hands to the face; rooting; making licking, smacking or sucking movements; or sucking hands or blanket. Note that crying is a late sign of hunger and can make breastfeeding more difficult. It is normal for infants to want to cluster feed, which is to feed more frequently at certain times of the day. 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.³⁶⁻³⁸ 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. For more information on baby behaviors, visit:

- ✓ <http://www.secretsofbabybehavior.com/2009/06/baby-behavior-basics-part-2-many-moods.html>
- ✓ <http://www.secretsofbabybehavior.com/2009/06/baby-behavior-basics-part-3-learning.html>
- ✓ <https://www.cdph.ca.gov/programs/wicworks/Pages/WICCaliforniaBabyBehaviorCampaign.aspx>

Promote early feeding at the breast by one hour of age. Encourage frequent feeding until infant blood glucose is stable (≥ 45 mg/dL before feeding).³² Monitor infant blood glucose for at least 24 hours or until stable for at least three consecutive feedings.

MATERNAL SELF
MONITORING OF
BLOOD GLUCOSE
WITH
BREASTFEEDING

Table 6. BLOOD GLUCOSE TARGETS FOR 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.^{39,40} Recent studies that did not control for glycemic control suggest that the breast milk 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.²¹ Therefore, CDAPP Sweet Success Guidelines recommend tight control of blood glucose during lactation for optimal results.

Women with type 1 diabetes are encouraged to monitor fasting, pre-meal, 1 hour post meal, bedtime and 3 am blood glucose levels. Additionally, checking blood glucose levels just before and 1 hour 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.

Lactating women with type 2 diabetes should monitor blood glucose fasting, 1 hour post meals, bedtime and occasionally at 2-3 AM.

Type 1 Diabetes

A lactating woman with type 1 diabetes 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. 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.⁴¹ 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.

Tight glucose control is recommended early in lactogenesis and throughout the breastfeeding experience.

Type 2 Diabetes

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

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.⁴² 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.³¹ 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 type 2 diabetes is the use of oral hypoglycemic agents in controlling the blood glucose and their effects on breast milk. It is recommended that a woman with type 2 diabetes who is unable to maintain normoglycemia through exercise and diet alone continue with insulin during the lactation period.⁴³ However, 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 type 2 diabetes.⁴⁴ 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. Studies have shown that metformin also permeates into breast milk in low concentrations. When the blood glucose of nursing infants whose mothers took metformin were calculated, no negative effects were found.^{45,46} According to a small study published in 2005, neither glyburide nor glipizide were detected in the breast milk, and hypoglycemia was not observed in three nursing

infants. Feig et al concluded that “Both drugs appeared to be compatible with breastfeeding.”⁴⁴

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 hypoglycemic (OHA) agents and their lactation risk categories. A lower number is associated with a lower risk.

Table 7. ORAL HYPOGLYCEMIC AGENTS' LACTATION RISK* CATEGORY⁴²	
Oral Hypoglycemic Agent	Lactation Risk Category
Tolbutamide	L3
Metformin	L1
Acarbose	L3
Glyburide	L2
Glipizide	L3
Repaglinide	L4
Diabinese	L3
Thiazolidinediones	No Studies

* Lactation risk is being defined as the possible risks to an infant associated with medications taken by a breastfeeding mother. Refer to *Appendix A* for definitions of each Lactation Risk Category. Table/Information used with permission from Hale Publishing.

Other Medications

In addition to insulin or glucose lowering (oral hypoglycemics), women with diabetes often take other medication such as lipid or blood pressure lowering pills. Refer to table 8 below:

Table 8. OTHER MEDICATIONS' RISKS DURING LACTATION³	
Medication	Recommendation
Ace inhibitors	Not recommended in first two weeks of life
ARBs	Not studied
Beta blockers	Recommendation varies depending on the specific drug
Calcium Channel Blockers	Approved by AAP
Methyldopa	Approved by AAP
Statins: HMG CoA Reductase Inhibitors	Not recommended during lactation

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.⁴⁷

No professional medical association has issued formal guidelines regarding pregnant or lactating women and use of psychiatric medication treatment including SSRIs.⁴⁸ 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.⁴⁹ 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.⁴⁷

Table 9. SOME PSYCHIATRIC MEDICATIONS’ LACTATION RISK* CATEGORY⁴²	
Medication	Lactation Risk Category
Antidepressants Sertraline, Fluoxetine, Citalopram	L2
Mood Stabilizers Carbamazepine, Valproic Acid Lithium	L2 L3
Anxiolytics Valium, Clonazepam, Lorazepam	L3
Antipsychotics Quetiapine (Seroquel) Risperidone (Risperdal) Aripipazole (Abilify) Ziprasidone (Geodon)	L2 L3 L3 L4
* Lactation risk is being defined as the possible risks to an infant associated with medications taken by a breastfeeding mother. Refer to <i>Appendix A</i> for definitions of each Lactation Risk Category. Table/Information used with permission from Hale Publishing.	

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.⁵⁰ Most often serum levels of the drug in

the nursing infant are 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.⁵¹

SSRIs are preferred by many when treating depression, but more safety data on breastfeeding is ultimately needed.⁵¹

Sertraline has shown low transmission via umbilical cord to maternal serum ratios in small samples and has reassuring breastfeeding data.⁵²

- ❖ 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.⁵²
- ❖ Citalopram (and escitalopram) data supports its safe usage in breastfeeding women.⁵³

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.^{54,55} AAP determined carbamazepine and valproic acid are appropriate for breastfeeding women.⁵⁶ 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.⁵⁶

Anxiolytics

Data on benzodiazepines, diazepam (Valium), clonazepam (Klonopin), lorazepam (Ativan) is limited⁵⁷ 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).⁵⁸ Data on clozapine suggests it is concentrated in breast milk.⁵⁹

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.

PROBLEM SOLVING
WHILE
BREASTFEEDING

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 mother and baby 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 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 reoccurrence. 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 be contraceptive for some women in the first six months if the infant is exclusively breastfed (including at night) without artificial pacifiers, soothers or bottles and if the mother has not resumed menstruation. However, breastfeeding is not considered to be an effective contraceptive method. Therefore, 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) should not be the first choice for contraception when breastfeeding^{60,61} because they are associated with increased diabetes rates.

Further information on contraception for women with diabetes can be found in *Chapter 2: Preconception and Interconception Care for Preexisting Diabetes*.

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Appendix A

Dr. Hales Lactation Risk Category

Dr. Hales Lactation Risk Category ⁴²	
Category	Description
L1 SAFEST	Drug which has been taken by a large number of breastfeeding mothers without any observed increase in adverse effects in the infant. Controlled studies in breastfeeding women fail to demonstrate a risk to the infant and the possibility of harm to the breastfeeding infant is remote; or the product is not orally bio-available in an infant.
L2 SAFER	Drug which has been studied in a limited number of breastfeeding women without an increase in adverse effects in the infant. And/or, the evidence of a demonstrated risk which is likely to follow use of this medication in a breastfeeding woman is remote.
L3 MODERATELY SAFE	There are no controlled studies in breastfeeding women, however the risk of untoward effects to a breastfed infant is possible; or, controlled studies show only minimal non-threatening adverse effects. Drugs should be given only if the potential benefit justifies the potential risk to the infant.
L4 POSSIBLY HAZARDOUS	There is positive evidence of risk to a breastfed infant or to breast milk production, but the benefits of use in breastfeeding mothers may be acceptable despite the risk to the infant (e.g. if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).
L5 CONTRAINDICATED	Studies in breastfeeding mothers have demonstrated that there is significant and documented risk to the infant based on human experience, or it is a medication that has a high risk of causing significant damage to an infant. The risk of using the drug in breastfeeding women clearly outweighs any possible benefit from breastfeeding. The drug is contraindicated in women who are breastfeeding an infant.

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