

# Breastfeeding FAQs

Talking Points on Mothers Frequently  
Asked Questions about Nursing

A Guide for Physicians

American Academy of Pediatrics, New Jersey Chapter  
Pediatric Council on Research & Education

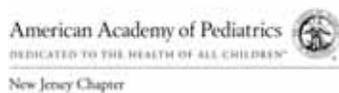
The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers of Disease Control and Prevention.

Funded by a Grant from the NJ Department of Health, Office of Nutrition and Fitness

The project was supported in part by a cooperative agreement with the Centers of Disease Control and Prevention (#3U58DP002002-0152). Portions of this project's work involve the Communities Putting Prevention to Work initiative supported by CDC funding.

© 2012 American Academy of Pediatrics, New Jersey Chapter  
ISBN: 978-0-615-65652-6



# Breastfeeding FAQs

## Talking Points on Mothers Frequently Asked Questions about Nursing A Guide for Physicians

**Diana Mayer MD FAAP IBCLC**

### Senior Editor

**Lori Feldman-Winter, MD, MPH FAAP FABM**  
Medical Champion, AAPNJ/PCORE Baby-Friendly Hospital Initiative  
Div. Head, Adolescent Medicine  
Children's Regional Hospital at Cooper  
Professor of Pediatrics  
UMDNJ-RWJMS

### Physician Board of Editors

Adedoyin O. Adetoro MD  
Paul Aguillon MD  
Norman Back MD FACOG  
Julia Bakshiyev MD FAAP  
Kevin Berg MD  
Vatsala Bhaskar MD FAAP  
Melissa Bonilla MD FAAP  
Borislava Burt-Libo DO  
Phillip Case MD FAAP  
Robert Chen MD MBA  
Maria Ciminelli MD FAAFP  
Rebecca Cipriano MD MSc FACOG  
Alicia Dermer MD FABM IBCLC  
Michael Dimino MD FACOG  
Joseph C. Dorfman MD FAAP  
Dina R. Edrich MD  
Anthony Emanuel MD FAAP  
Kenneth W. Faistl MD  
Joie Fisher DO FAAP  
Hanna Gabre Medhin MD BSN FAAP

Ramarao Gajula MD FAAP  
Rajiv Goel MD FAAP  
Steven Goldstein MD FACOG  
Meera Kale MD FAAP  
Michael Kirwin MD FACOG  
Estela V. LaCap MD FAAP  
Julie Leizer MD FACOG  
Claudio Lopez MD FAAP  
Jose Lopez MD FAAP  
Leonardo Lopez DO FAAP  
Lisa W. Lucas DO  
Anthony Marino MD FAAP  
Vladimir Markovic MD  
Sanjay Mehta DO FAAP  
Neeti Misra MD FACOG  
Safiri Neuwirth MD FACOG  
Adam Naddelman, MD FAAP  
Lakshmi Nandiwada MD FAAP  
Sangita Nagpal MD FAAP  
Susan Pacana MD FACOG

Arvind Patel MD FAAP  
Sapna Prabhakaran MD FAAP  
Peter P. Pellegrino MD FAAP  
Michael J. Riggall MD FAAP  
Carlo L. Rondina MD MABR  
Zubaida Sadik MD FAAP  
Elizabeth Scheff MD FACOG  
Mark J. Seigel MD FACOG  
Vrinda Shah MD FAAP  
Bennett S. Shenker MD MS MSPH FAAFP  
RoseSt. Fleur MD FAAP  
Julie B Stern MD  
Tollin Sullivan MD  
Michelle Teresh MD  
Sutharsanam Veerappan MD FAAP  
Dinh Vu MD  
Jeffrey Wolfe MD FAAP  
Sharon Yuen MD FAAP  
Rex Zapanta MD FAAP  
Marta Zeb MD FAAP

### Board of Editors

Dawn Kline RNC BSN MHA

Lysanne M. Loucel BA, IBCLC

## TABLE OF CONTENTS

### Prenatal Questions

Inverted nipples	<b>“My nipples are inverted. Will I be able to nurse my infant?”</b>	1
Breast size	<b>“My bra cup size is an A. Am I going to have trouble nursing?”</b>	2
Hepatitis B carrier	<b>“I am a Hepatitis B carrier. Can I nurse my baby?”</b>	2
Hepatitis C carrier	<b>“I am a hepatitis C carrier. Can I nurse my baby?”</b>	3
HIV positive mother	<b>“I have HIV. Can I nurse my infant?”</b>	3
Past history of breast surgery	<b>“I had breast surgery in the past. Will I be able to nurse my baby?”</b>	4
Adoptive Nursing	<b>“Can an adoptive mother nurse?”</b>	8
Past Nursing Problems	<b>“Breastfeeding did not work with my first child...”</b>	9
Family History of atopy	<b>“I have lots of food allergies. I was told that this would affect my baby?”</b>	11

### Nursing and Infant Feeding Behavior

Infrequent bowel movements	<b>Mother of a one month old: “My baby has not had a bowel movement. Is she constipated?”</b>	14
Frequent nursing	<b>“My baby nurses too much. What’s wrong?”</b>	15
Adequate milk intake	<b>“How do I know that my baby is getting enough milk?”</b>	17
Low breast pump output	<b>“I’m only getting one ounce out of each breast with my breast pump. Does this mean that he’s not getting enough milk?”</b>	20
Growth Chart	<b>“Is my six month old growing okay? He looks pudgy but I’ve been told that his weight has gone down on his growth curve”</b>	21
Weaning from nursing	<b>“My mother wants to know why I’m still nursing my two year old but my child still wants to nurse. Do I have to wean him from nursing?”</b>	22
Breast changes	<b>“Why do my breasts appear softer now? They were fuller when my baby was younger. Am I losing my milk supply?”</b>	22

## Maternal Health: Medications, Medical Conditions and Procedures

Contraception	Mother: “I was on ‘the pill’ before I got pregnant. What kind of birth control should I use if I am nursing?”	26
Maternal URIs and gastroenteritis	“I have a cold. Is it safe to nurse my baby?” “I have diarrhea. Is it safe to nurse my baby?”	28
Radiologic procedures	“My doctor has ordered a CT scan with contrast. Do I have to stop breastfeeding?”	30
Dental procedures	“I have to have a root canal done tomorrow. How soon can I nurse after it’s done? Do I have to ‘pump and dump’?”	31
Mastitis and medication	“My doctor says I have mastitis and put me on an antibiotic. Can I still nurse my baby?”	31
Mammograms	“Do I have to stop nursing in order to get a mammogram?”	33
Vaccination in nursing mothers	“My doctor wants me to receive a flu shot and a Tdap vaccine. Is it safe to nurse?”	33
Steroid injection	“I need to get a cortisone shot in my shoulder. The specialist told me to ask you how much I can have if I still want to nurse the baby ”	34
Galactogogues	“My sister told me that fenugreek tea helps increase milk supply. Should I try it?”	34

## Everyday Life with Baby: Common Questions on Work and Home Life

Breastmilk Storage	“How long can I keep my pumped milk in the refrigerator?” “How long can breastmilk be stored in the freezer?”	39
Return to work	“I am returning back to work in 6 weeks. Should I stop nursing or should I pump my milk at work?”	41
Infant iron supplementation	“Does my baby need iron drops?”	45
Infant vitamin D supplementation	“Does my baby need a vitamin D drops?”	46

Mothers who are vegans	“I’m a vegan. Do I have to do anything special with my diet?”	46
Alcoholic beverages	“I’m going to a wedding this weekend. Can I drink a glass of wine? What do I do with my milk?”	47
Caffeine	“Can I drink a cup of coffee?”	48
Cigarette Smoking	“I am a cigarette smoker. Should I nurse?”	48
Dieting	“If I go on a diet, will it impact my milk?”	49
Maternal Fasting	“Can I fast for a religious holiday?”	49
Maternal Fluid Intake	“Is it true that I can increase my milk supply by drinking more water?”	50
Exercise	“Can I work out at the gym?”	51
Hair dye	“Can I color my hair if I am nursing?”	52
Hair straightener	“Can I straighten my hair if I am nursing?”	52
Botox	“I want to get Botox on my forehead. Can I still nurse my baby?”	52

## Appendix

A	Reliable Medication Sources and Lactation	55
B	Radiocontrast agents	56
C	Breastfeeding and Radioactive Products: Sources	57

# Prenatal Period

## Nursing Questions

**Mother: “My nipples are inverted. Will I be able to nurse my infant?”**

Background information for the practitioner:

Women with inverted nipples can breastfeed. In most situations, the nipple will evert in the infant’s mouth as the baby sucks. Inverted nipples sometimes evert during pregnancy and also become more stretchable with each subsequent pregnancy.

For those mothers who do encounter challenges with infant latching, a lactation consultant can teach moms how to “shape” the nipple, as well as how to ideally hold the breast.

Additionally, infants may latch easier when they are placed in certain breastfeeding positions, such as the football position. Use of a breast pump to pull out the nipple immediately prior to feeding may also help.

The use of breast shells, which apply gentle suction on the nipples in order to achieve nipple eversion, are controversial. Medical evidence does not strongly demonstrate that breast shells cause nipple eversion. Additionally, some experts have concerns that recommending the use of breast shells during pregnancy may send an unintended message to the mother that she is going to have trouble breastfeeding, when that may not be at all true.

Mothers may ask about a nipple manipulation technique, known as Hoffman’s exercises, to help evert nipples during pregnancy. There is no evidence that this kind of exercise is effective. Additionally, Hoffman’s exercises may potentially induce uterine contractions.

### TALKING POINTS:

- Yes, you can nurse your baby
- In most cases, babies will be able to stretch the nipple out when it is in the mouth
- If feeding issues come up, a lactation consultant has the expertise to help you use certain techniques and infant holding positions in order to help the baby latch
- Inverted nipples loosen up and sometimes even begin to protrude out during pregnancy. They also become more and more flexible with each subsequent pregnancy

## **Mother: “My bra cup size is an A. Am I going to have trouble nursing?”**

Background information for the practitioner:

Women who wear an A cup size bra can successfully nurse their infants. Their babies tend to feed somewhat more frequently when compared to women who have larger cup sizes. 24 hour milk volume outputs are comparable to that of women with larger breasts despite smaller milk storage capacity. This is because infants generate adequate amounts of milk by feeding at a frequency that tends to fall in the upper range of normal.

**Some mothers who are an A size may misinterpret their infant’s feeding frequency pattern as a sign of a milk supply problem when this is not the case. After careful review of the mother’s situation and concerns, physicians should give reassurance that the baby’s feeding frequency is within the normal range.**

Compared to mothers who have larger storage capacity, mothers with a smaller cup size are under **“tighter” breast autocrine system control. In this system, frequent and effective milk removal out of the breast signals milk production . Frequent and effective milk removal also prevents the emergence of other signals within the breast autocrine system that lead to down-regulation and ultimately involution of breast glandular tissue. Given the lower storage space of these woman, missed feeds can more easily signal lower production when compared to women with more storage capacity.**

### **TALKING POINT:**

- You can successfully nurse your baby if your bra cup size is an A

## **Mother: “I am a Hepatitis B carrier. Can I nurse my baby?”**

Background information for the practitioner:

Studies have shown that moms who are hepatitis B carriers can safely nurse their infants as long as the baby receives Hepatitis B vaccine and Hepatitis B immunoglobulin within 12 hours of birth. Infants with a birth weight of 2000 grams or greater receive subsequent Hepatitis B vaccines at 1-2 months of age and 6 months of age. For infants less than 2000 grams, a total of four Hepatitis B vaccines doses (rather than three) is required. Consult the AAP Red Book for further discussion of **this group’s Hepatitis B vaccine immunization schedule.**

## TALKING POINTS:

- You can nurse your baby
- **Your baby's doctor and the hospital** should make sure that the baby receives a Hepatitis B vaccine and Hepatitis B immunoglobulin (HBIG) within the first 12 hours of life
- Other Hepatitis B vaccine doses will be routinely given in **your baby's first year of life** as a part of the standard childhood immunization schedule. Babies who are smaller than usual or are premature will get one extra Hepatitis B vaccine

### **Mother: "I am a hepatitis C carrier. Can I nurse my baby?"**

Background information for the practitioner:

Though the transmission of Hepatitis C is theoretically possible, the chance of transmission is exceedingly low. The Center for Disease Control states that **"there is no evidence that breastfeeding spreads Hepatitis C virus"** and that **"HCV positive mothers should consider abstaining from breastfeeding if their nipples are cracked or bleeding"**.

## TALKING POINTS:

- The government agency, The Center for Disease Control (CDC), states that there is no evidence that breastfeeding spreads Hepatitis C
- There is a theoretical risk of transmission through milk, but the chance of transmission is thought to be exceedingly low
- The CDC also states that mothers with Hepatitis C should consider abstaining from breastfeeding if nipples are cracked or bleeding. They should not give pumped milk from the affected breast to the baby. Mothers can nurse or give pumped milk from an unaffected breast.

### **Mother: "I have HIV. Can I nurse my infant?"**

Background information for the practitioner:

Though this is a controversial issue worldwide, in the United States, it is not recommended that HIV positive mothers breastfeed.

## TALKING POINTS:

- The American Academy of Pediatrics and the Center for Disease Control do not recommend that mothers who are HIV positive nurse their infants
- There are other ways to physically feel close to your baby such as holding and cuddling
- Recommendations are different for women in developing countries where exclusive breastfeeding provides the best outcomes for infants

### **Mother: “I had breast surgery in the past. Will I be able to nurse my baby?”**

#### **Mammopexy (breast lift surgery)**

Background information for the practitioner:

Mammopexy (breast lift) procedures generally do not cause milk production problems. It is unlikely that duct tissue or nerve fibers would be damaged during this kind of procedure.

#### **TALKING POINT:**

- You have an excellent chance of successfully nursing the baby

#### **Breast Augmentation (breast implants)**

Background information for the practitioner:

The majority of mothers who have had a breast augmentation procedure can fully nurse their infants; however, some may only be able to partially nurse their infants. The following must be considered when assessing for future nursing challenges:

- Whether the mother originally had normal breasts or had evidence of breast hypoplasia (such as tubular shaped breasts along with wide spacing of breasts)
- If nerves or ducts were severed during the procedure (this is not usually the case)

If a woman who had breast augmentation originally had breasts that were normal in regard to tissue volume and shape, the chances of producing ample amounts of milk are good. Regarding women with underlying insufficient glandular tissue, most can provide some **mother’s** milk for their babies. It is important that the mother understands that if this is the case, nursing is still worth it. She and her baby still will maintain better health than if

**mother's milk isn't given. Additionally, because breast tissue can increase with each successive pregnancy, these mothers may produce more milk with each subsequent infant.**

Surgical approach influences outcome. The four augmentation approaches are transaxillary, transumbilical, inframammary and periareolar. Fortunately, most surgeons tunnel the devices through axillary or umbilical sites. These two procedures, and the inframammary approach in certain instances, are less likely to disrupt nerves and ducts. The periareolar approach, which is rarely performed, significantly increases the risk of nerve damage. Nerve damage disrupts the necessary signals needed for hormone release.

The bottom line is that the majority of women who have undergone breast augmentation can successfully nurse. **If the mom's original breast shape was unusual or if the past history is unclear, follow the baby's weight weekly. Have the mom follow bowel movements and urine frequency carefully (see page 17 on assessing milk volume).**

Mothers will on occasion ask about silicone implants. Silicone implants have not been shown to cause problems in the nursing infant. Cows milk and infant formula contain ten times more silicone than the human milk of mothers with silicone implants. Additionally, silicone commonly coats fruit and vegetables, is used in medications (simethicone marketed for infant colic) and is a component of some pacifiers and bottle teats.

## TALKING POINTS:

- You should nurse your baby. **Mother's milk will help maintain your baby's good health and helps your body stay healthy too. Nursing gives you an opportunity to experience physical closeness with your baby.**
- The chances are very good that you will produce breast milk. A lot will depend on the type of procedure your surgeon used and the underlying reasons why the procedure was done to begin with. Surgeons usually choose a surgical approach that will preserve nerve fibers and ducts if at all possible. Overall, most moms can produce a full amount of milk, though some produce a partial amount of milk.
- I will follow you and baby weekly for awhile to make sure that we pick up an any issues , should they develop
- Consider checking the website, [www.bfar.org](http://www.bfar.org) , which is devoted to helping nursing moms who have had breast surgery.

## Breast Reduction

Background information for the practitioner:

Most moms with a history of breast reduction surgery can breastfeed to a certain degree. Very few may be unable to produce milk; however, these mothers can still experience the physical closeness associated with nursing by using a supplemental lactation aid. This device delivers nutrition (supplementation) through a tubing system that is taped to the breast. The degree of milk production depends on the surgical approach. Fortunately, most plastic surgeons have become more cognizant of the impact of breast reduction surgery on future lactation. Efforts are made to spare nerve fibers and duct tissue as much as possible.

Approaches include the Pedicle Technique and the Free Nipple Graft Technique.

Surgeons rarely use the Free Nipple Graft Technique. In addition to removal of some duct tissue, the nipple areolar complex is entirely removed and reimplanted at a higher position. Nerve tissue is completely severed during this process. Following the Free Nipple Graft Technique, women lose nipple sensation. Without nerve signals, the required hormonal process that results in the milk ejection reflex is not triggered. This, in turn, compromises lactation; however, nipple sensation has been noted to reoccur in some women, particularly if five years have passed since surgery. Additionally, duct recanalization has also been observed to reoccur five years post-surgery as well. This increases the chance that some milk will be produced.

The pedicle technique is more commonly used. The nipple and areola are moved into a higher position while remaining attached within a “pedicle” that is comprised of breast nerve fibers and a bundle of ducts. Women are able to partially nurse their infants; however, severed ducts may recanalize over time, especially if it has been more than five years since the surgery had been performed. This may enable her to make even more milk than expected.

Many women are uncertain about which surgical technique was used. Regardless, the initial management approach is to monitor closely.

The bottom line is that women should initiate full nursing but their infants should be monitored weekly or, in some cases, biweekly for a while so that adjustments in management can be made (see page 17 on assessing milk volume).

## TALKING POINTS:

- You should nurse your infant
- Most moms who have had breast reduction surgery can make some milk. The amount varies from woman to woman; however, every drop of milk helps baby maintain good health. Nursing helps maintain your good health as well.
- Regardless of potential milk volume issues, all women have the opportunity to experience physical closeness with their babies through nursing. If you are one of the few that is unable to make milk, a milk supplement (human donor milk or infant formula) can be given through a special feeding tube taped at the breast. This will allow you to still experience a special physical closeness with your baby during feeding
- The website [www.BFAR.org](http://www.BFAR.org) is devoted to helping moms who have had breast reduction nurse their infants.
- We will follow you and baby at least weekly for awhile to make sure that we pick up any issues should they develop

## Lumpectomy or excisional biopsy

Background information for the practitioner:

Lumpectomy procedures and excisional biopsies generally do not cause milk production problems. In the very *unlikely* event that duct tissue or nerve fibers would be damaged during these procedures, a mother could still nurse fully on the unaffected side and partially on the other.

If the incision site is periareolar, a mother could potentially experience discomfort. This type of incision may occasionally contribute to plugged ducts behind scar tissue.

Mothers who require biopsy while lactating can continue nursing. On occasion, a milk fistula may develop following the procedure.

## TALKING POINTS:

- You have an excellent chance of successfully nursing the baby
- You may have some difficulty early on with engorgement next to the area of the incision but this resolves with time. Pain relievers, such as acetaminophen or ibuprofen, can help overcome any discomfort and is safe to use while breastfeeding.

## Mastectomy

Background information for the practitioner:

A mother with a past history of undergoing a unilateral mastectomy should be able to nurse on the unaffected side, assuming that this remaining breast has not undergone any direct treatment.

### TALKING POINTS:

- Assuming that the remaining breast has not received any direct treatment, you should be able to fully nurse your infant on this unaffected breast
- Your unaffected breast potentially has the ability to make double the amount of milk because it will be doubly stimulated by the baby

### Mother: “Can an adoptive mother nurse?”

Background information for the practitioner:

Adoptive mothers may wish to nurse in order to experience a desired physical closeness with their infants, as well as to obtain optimal health outcomes for their infants and themselves.

Adoptive mothers can nurse their babies. While a few can fully breastfeed, most produce a partial milk supply. A few may not produce milk but can still enjoy the closeness associated with direct nursing by using a supplemental lactation aid. This device delivers nutrition through a tubing system that is taped to the breast. It can be used by mothers who have a partial milk supply as well.

Various approaches help induce lactation. Approach will depend on how much notice the mother has regarding the baby’s arrival. In general, using an electric breast pump ahead of time is helpful, but mothers can still be successful if there is not any notice. Though domperidone is used successfully worldwide, it is not currently FDA approved; however, some US specialists report that they order it through US compounding pharmacies. Domperidone is thought to be helpful in inducing lactation. Though it is helpful, some breastfeeding medicine physicians feel that it is not absolutely essential for success.

Adoptive mothers may ask about use metoclopramide to increase milk supply. It is available for use in the US. Mothers on metoclopramide must be closely followed for depression. **Counseling mothers about the drug’s small risk of tardive dyskinesia is important.**

Your local breastfeeding consortium may help identify a lactation consultant and breastfeeding medicine physician who focuses on management of adoptive nursing.

### TALKING POINTS:

- Nursing will help you experience a desired physical closeness with your baby. It will help you and baby obtain optimal health outcomes.
- While it is ideal to implement a lactation plan ahead of time, it is still very possible to successfully nurse your baby on short notice
  - Most moms can produce some amount of milk for their babies. A few can fully breastfeed or work up to full breastfeeding, while a few are not able to produce milk
- Your local breastfeeding consortium may help identify a lactation consultant and breastfeeding medicine physician who focuses on management of adoptive nursing

**Mother: “Breastfeeding did not work with my first child. What makes you think that I will succeed with this baby?”**

Background information for the practitioner:

In general, nursing a baby becomes easier with each subsequent child. Physical changes in the breast occur with every successive pregnancy. The nipples and areola progressively become more stretchable. Parents will have gained perspective and experience from the first pregnancy.

In addition to these breast changes and gains in parental experience, evidence-based hospital practices can increase breastfeeding success rates. Medical evidence shows that mothers who deliver infants at hospitals that adopt the World Health Organization Baby Friendly Hospital Initiative’s Ten Steps to Successful Breastfeeding, are more likely to continue exclusively breastfeeding months after discharge. Once at the hospital, parents can have some direct input into some of these steps (assuming mother-infant stability): skin to skin contact starting within an hour of life, uninterrupted rooming in with baby and adherence to exclusive breastfeeding.

Early skin to skin contact within the first hour of life is associated with the continuance of exclusive breastfeeding months after hospital discharge. It is also associated with more stable infant blood sugars, as well as a more stable blood pressure, pulse and temperature,

starting in the delivery room. Additionally, early nipple suckling leads to a surge of maternal oxytocin and to uterine contractions. Studies show that this is correlated with less maternal blood loss and anemia. Early suckling helps baby to identify and establish its food source, as it reaps the reward of milk letdowns. Behaviorists believe that this early identification results in imprinting to the breast . While laying on its mother's chest, the infants well developed sense of smell allows it to identify oils emitted by Montgomery glands on the areola. With near proximity to these oils, the baby will use this sense of smell to nudge and navigate its body toward the nipple. Direct skin to skin contact starting within one hour of life can be practiced by women who deliver vaginally or who undergo a cesarean section.

Uninterrupted rooming in with baby is also associated with a solid establishment of exclusive breastfeeding. Close proximity of the baby allows for early recognition of subtle infant feeding cues. This is the period when a baby will most easily latch to the breast. Busy nursery personnel are unlikely to notice these subtle cues. It is not until a baby appears frenzied or is crying that staff recognize that the baby is hungry; however, babies latch poorly, if at all, in a frenzied or tearful state. Escalating frustration on the part of baby, mother and staff may then result, as infant and mother repeatedly perceive latching in a negative manner. Additionally, though parents may perceive that they will sleep more soundly if their baby is placed in the nursery, a recent study concluded that parents sleep just as well, if not better, when uninterrupted rooming in is practiced.

Exclusive breastfeeding is the goal because it is associated with maintenance of optimal health outcomes. It is also associated with a longer duration of breastfeeding following hospital discharge. Several important health outcomes are listed in the talking points below. Additionally, infant feeding pace and patterns are altered with consumption of infant formula, resulting in the hindrance of effective breastfeeding establishment.

## TALKING POINTS:

- In general, nursing becomes easier with each baby you have
- Your nipples and areola are more stretchable now because you have nursed before
- It is okay for you to feed this baby in a different way from your other child or children. Recognize that every child and each circumstance is unique
- It is unlikely that your baby will have the same problem as your other child. If you do notice the same or a different problem, seek help right away by calling me, as well as a lactation consultant.

- You can increase the chances that nursing will be successful this time around by **delivering at a hospital that embraces the World Health Organization’s Ten Steps to Successful Breastfeeding**
- During labor, try to minimize the amount of pain medication you receive if you feel **you are able. This will increase your baby’s alertness. If you need pain medication during labor, I will help your baby get through any grogginess, should it occur. Remember that you might need to be a little more patient with baby’s nursing skills at first if he or she is groggy. Hang in there-it will get better in time.**
- Certain measures will increase the chances that nursing will go smoother this time around. Assuming you and baby are stable after delivery, make sure that you nurse **your baby within the first hour of life. Keep the baby’s skin right on the skin of your chest as much as possible. Keep your baby in your hospital room all of the time. Make sure that you exclusively breastfeed him or her unless there is a clear medical reason for you not to, that is approved by a doctor.**
- Remember that nursing your baby is worth doing. Both you and your baby will maintain optimal health by breastfeeding. For baby, this means better protection from infection (colds, ear infections, pneumonia, infectious diarrhea), a stronger immune system (less type1 diabetes, Crohn’s disease, ulcerative colitis, eczema, asthma and certain food allergies) as well as lower rates of obesity, type 2 diabetes and leukemia in the future. SIDS is also noted less often in infants who are nursed. If your baby is born prematurely, your milk will decrease the risk of developing serious bloodstream infections, life-threatening intestinal infections(known as necrotizing enterocolitis), as well as help him or her make more rapid progress in feeding. Mothers who nurse experience lower rates of postpartum bleeding, anemia, postpartum depression, as well as lower rates of future breast cancer and ovarian cancer. You also lose approximately 500 calories per day while nursing, which may help you get back to your pre-pregnancy weight quicker!

**Mother: “I have lots of food allergies. I was told that this would affect my baby if breastfed and that I should give my baby hypoallergenic formula instead.”**

Background Information for the Practitioner:

There is no evidence breastfeeding women with severe food allergies will increase the risk of food allergies in their children when compared to formula feeding. Additionally, consumption of human milk is associated with a lower risk of eczema, asthma and some food allergies, especially in those with a family history of atopy. Though the formula industry

advertises that hypoallergenic formulas decrease the risk of such entities, medical evidence is insufficient to warrant these claims.

#### TALKING POINTS:

- **Mother's milk optimally protects a baby** from asthma, eczema and some allergies. Though the formula industry advertises that hypoallergenic formulas decrease the risk of allergies, the best way to reduce this risk is by exclusive breastfeeding for about 6 months.
- Additional health outcomes for mother and baby can only be obtained through **mother's milk. Choosing hypoallergenic formula instead of your own milk for your baby** would leave both you and baby at increased risk of many diseases.
- If a formula supplement is medically necessary in an infant at risk, a hypoallergenic or hydrolyzed formula may be considered, followed by resumption of an exclusive human milk diet.

## References:

- AcoletD et al Kangaroo mother care : a practical guide "Acta Paediatrica Scandinavica,1989; 78: 189-193
- Ahmed, O. and Kolhe, P. Comparison of nipple and areolar sensation after breast reduction by free nipple graft and inferior pedicle techniques. *Br J Plast Surg* 2000 Mar; 53:2 126-9.
- American Academy of Pediatrics. Red Book: 2009 Report of the Committee on Infectious Diseases. Pickering LK, ed. 27<sup>th</sup> ed. Elk Grove Village, IL: American Academy of Pediatrics; 2009
- Azim, H et al Breastfeeding after breast cancer: if you wish madam. *Breast Cancer Res Treat* 2009; 114:7–12
- Beral V, Reeves G Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50,302 women with breast cancer and 96,973 women without the disease. *Lancet* 2002 Jul 20;360(9328):187-95
- Charpak, et al Kangaroo Mother Versus Traditional Care for Newborn Infants ≤2000 Grams: A Randomized, Controlled Trial *Pediatrics* 1997; 100: 682-689
- Christensson K, et al Randomized study of skin-to-skin versus incubator care for rewarming low-risk hypothermic neonates. *Lancet* 1998;352(9134):1115.
- Conde-Agudelo A, et al Kangaroo mother care to reduce morbidity and mortality in low birthweight infants. *Cochrane Database of Systematic Reviews* 2011, Issue 3
- Danforth K N, Twroger SS, Height JL, Colditz GA, Hankinson SE. Breastfeeding and risk of ovarian cancer in two prospective cohorts. *Cancer Causes & Control* 2007;18(5):517-23.
- Ip S, et al Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries. Evidence Report/Technology Assessment No. 153 AHRQ Publication No. 07-E007. Rockville, MD: Agency for Healthcare Research and Quality. April 2007
- Ludington-Hoe, S.M., et al Kangaroo care with a ventilated preterm infant. *Acta Paediatrica* 1998; 6: 711-713.
- Nwaru BI, et al Age at the introduction of solid foods during the first year and allergic sensitization at age 5 years. *Pediatrics* 2010;125(1):50–59
- Semple, J Breastfeeding and Silicone Implants. *Plastic and Reconstructive Surgery* 2007; 120;7;1:123S-127S
- Sobhy S, et al The effect of early initiation of breastfeeding on the amount of vaginal blood loss during the fourth stage of labor. *Egypt Public Health Association* 2004; 79(1-2):1-12
- Souto, G et al. The impact of breast reduction surgery on breastfeeding performance. *J Hum Lact* 2003;1 43-9
- World Health Organization. Protecting, Promoting and Supporting Breastfeeding: The Special Role of Maternity Services. Geneva, Switzerland: World Health Organization; 1989: 13-18

# Nursing and Infant Feeding Behavior

**Mother of a one month old: “My baby has not had a bowel movement in five days. Is she constipated?”**

Background information for the practitioner:

Bowel movement frequency in nursing infants varies widely. Three to twelve yellow seedy daily stools are generally expected. While some continue with this pattern, a subset of infants begin having fewer stools each day as they approach 4 weeks of age. This subset of nursing infants may normally store up their bowel movements for 5-7 days. The stools of infants who adopt this pattern are voluminous and yellow. They gain weight appropriately and have six or more daily urine voids. Bowel movement consistency is similar to mustard, rather than hard or pasty. This is not considered constipation, but rather a common normal variant that only requires reassurance.

Constipation, defined as hard pasty infrequent stools, is exceedingly rare in an exclusively breastfed infant. It can be noted if a mother has introduced infant formula. If the mother describes hard or pasty stools be sure to ask her if she has recently introduced infant formula or is giving cereal early for some reason. This information offers an opportunity for you and the mom to discuss any previously undisclosed feeding issues. Constipation may also occasionally be observed in older infants after solids have been introduced.

## TALKING POINTS:

- Bowel movement frequency varies a lot in babies. Some nursing babies normally start having fewer stools as they approach one month of age. Storing bowel movements for five to seven days is common in exclusively nursed babies. As long as your baby has six or more urines over 24 hours and the baby is gaining weight well, this isn't a problem

- Typically, upon finally having a stool, the baby releases a huge amount of yellow seedy stool that is the consistency of mustard. This is expected
- This is not constipation because the stool is soft rather than hard.
- **If your baby's belly becomes unusually distended or he starts vomiting, call immediately** because something not associated with a normal stool pattern may be going on
- It is also not normal to go without having a stool in the first few weeks of life when healthy breastfed infants typically have at least 3 yellow seedy stools per day. If stooling is less frequent during this time period an assessment is warranted

### **Mother: "My baby nurses too much. What's wrong?"**

Background information for practitioner:

Parents often misinterpret normal nursing behaviors. Erroneous conclusions follow, often resulting in unnecessary nursing problems. Nursing infants generally feed about ten to twelve times over a 24 hour period, but these feedings are not evenly spaced. It is normal, especially in the first six weeks of life, for babies to cluster their feedings for a segment of the day. While cluster feeding, babies will feed hourly for up to six hours before the feeding frequency tapers off. **Undue anxiety is alleviated if parents are given a "heads up" early on that this normal feeding pattern occurs in most nursing babies.** Assure them that while an infant cluster feeds, he or she not only takes the milk that the breast has made, but that the baby can actually induce periodic milk letdowns while he or she sucks. Milk is made continuously but the rate of milk synthesis varies according to how full or empty the breast is, as well as the milk storage capacity of the individual woman. This is why the breast is never truly considered empty: **the more suck, the more milk.**

Cluster feeding for 3-6 hours in a 24 hour period should be distinguished from constant hourly feeding that is unremitting. This pattern of almost continuous feeding may indicate milk intake problems. In contrast to babies who cluster feed, prompt evaluation of infants with this feeding constant pattern is warranted.

Some mothers are erroneously taught that the baby must finish each breast within a certain time period. This leads to parental misinterpretation when a baby does not follow this "rule" (most won't). **Babies grow best when they are allowed to feed off a breast until they let go or finish retrieving and swallowing milk.**

Some babies enjoy nonnutritive sucking on the breast once he or she is done feeding. This is different from nutritive sucking, where the infant is actively ingesting milk. Babies who are

using a nutritive suck will be actively swallowing. Mother will see movement under the chin followed by movement in the upper anterior neck as the baby gulps during swallowing. She may hear a gulp. Babies who are finished feeding **but are just “hanging on” to the breast for comfort** will not be making gulping movements. It is okay for the baby to do this if the mom is agreeable. If not, she can remove the baby from the breast. If the baby protests, rather than using a pacifier, **one of the parents may consider allowing baby to suck on a parent’s finger (after washing hands).**

Another source of parental anxiety occurs during growth spurts, which typically occur at ages 3 weeks, 6 weeks and 3 months. The growth spurts are accompanied by hourly and frenzied feedings that can last up to 48 hours. If parents are not given a “heads up” that baby is approaching the age of an expected growth spurt, they may erroneously interpret their baby’s ravenous feeding pattern as a milk supply issue. Remind them that there will be plenty of milk to support this growth spurt. The baby will drink what is in the breast and then make the milk cells make more milk as he or she sucks. Remember: **the more suck, the more milk.** A day of sleepiness may follow growth spurts. It should not be misinterpreted as lethargy.

The most common question parents have is “how do I know there is enough?” Our culture is very quantitative in nature. Not seeing what comes out of the breast during a feeding can cause uneasiness. Use three measurements to explain how to tell: stool number, urine void numbers and weight, assessed in 24 hour intervals (see page 17 on assessing milk volume)

### TALKING POINTS:

- Nursing babies generally feed 10-12 times a day, but it is not evenly spaced
- It is unnatural and counterproductive to put the baby on an even schedule
- Young babies less than six weeks of age will cluster their feedings (cluster feeding) during a segment of the day. When this occurs, they will want to feed hourly for 3-6 hours. This is normal.
- The more your baby sucks and feeds, the more milk is produced.
- Keep in mind that your baby will go through growth spurts at 3 weeks, 6 weeks and 3 months of age. The growth spurts are accompanied by hourly and frenzied feedings that can last up to 48 hours. There will be plenty of milk to support this growth spurt. The baby will drink what is in the breast and then make the milk cells make more milk as he or she sucks. Remember: **the more suck, the more milk.** A day of sleepiness may follow growth spurts.

- You and I will continue to track the baby's weight, stool frequency and urine frequency to make sure all is well

### **Mother: "How do I know that my baby is getting enough of my milk?"**

Background information for the practitioner:

Our culture values measurement. As a result, some parents may feel uneasy about nursing because they mistakenly perceive that there is no quantitative process associated with it. It is important that they understand that measurements exist which assure that nursing is going well. These measurements typically include stool output, urine voids and weight.

Stool number should generally range from 3-12 per day; however, this daily frequency may begin to taper off in some infants starting around three or four weeks of age (see page 14) These infants may stool as infrequently as every five to seven days, even though they demonstrate normal urine output and weight gain. With the exception of this known variation in stool pattern, generally a stool number of at least three daily bowel movements will reliably indicate adequate nutrition and hydration.

Stool frequency may also slow down if infant formula is introduced.

Stool color helps the practitioner understand whether milk volume is appropriately increasing. Color indicates that mom and baby are moving through stages of lactogenesis at an appropriate pace. Lactogenesis I is associated with the presence of colostrum and dark (meconium) stools. At the beginning of Lactogenesis II, which starts between the 2<sup>nd</sup> and 5<sup>th</sup> postpartum day, breast fullness and a copious amount of milk results in greenish transitional stools. Bowel movements turn yellow as this stage solidifies and the transition toward the mature milk of lactogenesis III begins. Continued production of meconium on or after day of life five is correlated with a delay in the Lactogenesis II stage and potential low intake.

Stool color also changes with alterations in the intestinal environment. Stool may darken if infant formula has been introduced or if the infant has intestinal problems such as allergic colitis.

Expected urine void frequency is as follows:

EXPECTED URINE VOIDS:

DOL1	DOL2	DOL3	DOL4	DOL5	DOL6	>DOL6
≥1	1-2	2-3	3-4	4-5	≥ 6	≥ 6

It may be difficult to detect urine voids due to the super absorbency of some diapers. Use of diapers with a urine indicator line is helpful. Alternatively, a square of toilet tissue can be placed inside the diaper. This square will readily absorb urine, aiding in urine void detection.

Urate crystals (“brick dust”) are only marginally significant early on. The crystals may be significant if still present on day of life five or beyond. At that point urate crystals may signify delay in the second stage of lactation, known as Lactogenesis II. In this stage, a surge of prolactin hormone release occurs, resulting in a copious milk production. The presence of urate crystals, as it relates to delayed Lactogenesis II, should only be interpreted in conjunction with data about stool number/quality, urine output and weight.

The majority of both nursing infants and infant formula fed babies lose weight initially. This represents expected post-delivery diuresis. Most nursing infants reach the nadir of weight loss at 3-4 days of age. If weight loss is 7-9% of birth weight, this is a signal to investigate whether there may be a problem. It does not necessarily mean that supplementation should be prescribed. If by day of life five the baby has lost 10% of birth weight *and* there is a delay in Lactogenesis II, where copious milk would have been expected, supplementation may be necessary. One exception would be if a mother received excess intravenous fluid in labor. In this situation, an excessive infant diuresis follows, resulting in excessive weight loss; however, these infants have appropriate stool number and urine voids. Additionally, there is no delay in Lactogenesis II.

If intake is thought to be inadequate, supplementation may be supplied by the mother’s own milk (for instance if the baby is unable to sufficiently retrieve milk from the breast), human donor milk from a milk bank or infant formula. If infant formula is indicated, 15-20 ml of hypoallergenic formula should be given after each ( or alternatively every other) nursing session. This is ideally administered through a tiny cup, a syringe, a plastic spoon or supplemental lactation aid. Early bottle introduction may occasionally lead to a preference toward the bottle over nursing at the breast that is hard to undo. This phenomenon may be related to ease of bottle flow and the observation that directly nursed and bottle fed infants use their tongues, buccinator and masseter muscles differently to order to retrieve milk.

Weight gain is noted to start soon after the second stage of lactation, Lactogenesis II, begins. This is the stage where copious milk is produced in response to a disinhibition of prolactin hormone in the pituitary gland. This disinhibition of prolactin occurs as a result of dwindling maternal serum placental progesterone levels. For nursing babies, birth weight is reached between day of life ten and fourteen. Expected weight gain is  $\frac{3}{4}$  to 1 ounce per day. Acceptable weight gain gradually settles at approximately  $\frac{1}{2}$  ounce daily by six months of age.

Nursing infants who are growing normally may erroneously appear as though their weight is falling in percentiles at about six months of age if the old US growth charts are used rather than updated CDC-WHO growth charts that are now recommended (see page 21). The old charts are thought to reflect an element of obesity that has crept into US growth chart data in the past few decades. The new charts, which should be used in all infants (breastfed and infant formula fed), reflect how healthy infants and toddlers *ought* to grow.

Some mothers may attempt to assess the status of their milk supply by pumping their breasts; however, breast pumps are very unreliable indicators of breast milk volume capability, resulting in erroneous parental interpretation of true infant intake (see next question).

### TALKING POINTS:

- There are ways to know that your baby is receiving the right amount of your milk. **You will keep track of stools and urine wet diapers. I will track the baby's weight to know that all is going well.**
- If your baby has less than three bowel movements a day, let me know. This can still be normal (especially if the baby is beyond three or four weeks old), but I will have to ask a few more questions to make sure it is okay
- Your baby should have a minimum number of urine wet diapers each day (go over the urine void chart printed above). You may want to use diapers with a urine indicator line or slip a square of toilet tissue in the diaper so that you can easily tell that the diaper contains urine.
- I will keep track of weight and let you know if there is any concern.
- Keep in mind that your baby may cluster feed or feed very often during growth spurts. Your breasts will make plenty of milk during these prolonged and frenzied feeding episodes, even if your breasts appear soft between feedings. As your baby sucks, the milk cells in your breasts make more milk.

**Mother: “I’m only getting one ounce out of each breast with my breast pump. Does this mean that my baby is not getting enough milk?”**

Background information for the practitioner:

**Breast pumps are not as efficient at retrieving mother’s milk as is a baby. For instance, it is entirely possible that a pump may only retrieve an ounce per session while a baby could retrieve 3 ounces while directly breastfeeding.**

While some women easily retrieve milk through pumping, many factors may be present that inhibit appropriate letdown in other women. This includes stress (lack of sleep), anxiety (ie., watching the pump bottle fill) and inexperience . Additionally, it is thought that pumps may more easily retrieve milk from the anterior portion of the breast, while babies more easily retrieve milk from both anterior and posterior breast regions.

Techniques are available to help enhance retrieval of milk via breast pump; however, success varies from mother to mother. These may include use of warm compresses and massage five minutes prior to pumping. Looking at the infant (or a photo of baby), smelling **baby’s used blanket or hearing a recording of baby’s cry** help stimulate the letdown reflex. Covering the pump bottles with a paper towel and tape decreases anxiety and facilitates the letdown reflex. Massaging the breast while using a breast pump helps. Alternating back and forth between the use of an electric double pump and hand expression of milk is also useful.

The most important point to make with the mom is that the milk pumped out is not **representative of the baby’s ability to retrieve milk while nursing. Pump volume is not equivalent to volume retrieved through direct nursing.**

**TALKING POINTS:**

- There is no correlation between what is pumped out of the breast and what the baby gets through direct nursing. They are two very different ways of removing milk. **The pump isn’t going to be as efficient as a baby in pulling milk out of a breast.** For these reasons, using a breast pump to see whether or not you are making enough milk is NOT recommended
- The way for you to know if **your baby is taking in the right amount of mother’s milk** is:
  1. Keep track of the number of urine voids in a 24 hour period

2. Keep track of the number of bowel movements in a 24 hour period. If there are three or more, your baby is taking in enough milk; however, if your baby is around 4 weeks of age, we will have to take into account that the bowel movements of many healthy babies begin to naturally taper to as few as one every five to seven days
3. I will routinely be keeping track of your baby's weight at the office

**Mother: "Is my six month old growing okay? He looks pudgy but I've been told that his weight has gone down on his growth curve"**

Background information for the practitioner:

The normal growth pattern of nursing infants diverges from infants who are fed infant formula. Typically used US growth charts reflect the growth of infants and children who have been formula fed for the most part. Nursing infants who are growing normally may erroneously appear as though they are falling in growth percentiles starting around six months of age, if their data is plotted on the older US growth charts, rather than on the new CDC-WHO growth charts.

The World Health Organization embarked on a worldwide study that examined how infants and children ideally grow. In 2010, the Center for Disease Control adopted the WHO growth charts for all children (both breastfed and formula fed) for ages 2 years and under.

If you are still using the old growth chart and encounter an infant who appears to be falling in percentiles, download and plot the data on the CDC-WHO growth chart located at [http://www.cdc.gov/growthcharts/who\\_charts.htm](http://www.cdc.gov/growthcharts/who_charts.htm).

Consider universally instituting the new charts in your practice for all patients who are two years and under.

#### TALKING POINTS:

- Some nursing infants may falsely appear to fall off a growth curve around 6 months of age if the incorrect growth curve is used
- I will make sure that your baby's growth data is plotted on new standard curves that reflect optimal infant growth. This will help me understand if your baby's growth is okay

**Mother: “My mother wants to know why I’m still nursing my two year old but my child still wants to nurse. Do I have to wean him from nursing?”**

Background information for the practitioner:

The American Academy of Pediatrics and its Section on Breastfeeding recommends breastfeeding for *at least* the first 12 months of age but beyond if mutually desired by mother and baby. Iron-fortified complementary foods and other typical pureed solids are started at about six months of age. Though nursing for at least 12 months is the minimum, worldwide, most children nurse until 3 or 4 years of age. This age appears to be the time children will naturally wean themselves from the breast both in developed and developing countries. Human milk continues to be a sound nutritional product beyond 12 months of age. Additionally, the risk of maternal breast and ovarian cancer diminishes as the duration of nursing increases.

#### TALKING POINTS:

- Though our culture is just getting used to the idea of nursing for longer than age 12 months, children in most other countries nurse until ages three or four years. This includes both developed and underdeveloped countries
- Mothers’ milk continues to be a sound nutritional substance in the childhood years. It is good for your baby.
- Nursing your baby beyond a year of life may help decrease your risk of certain health conditions later in life, including breast and ovarian cancer
- It may be comforting to join a breastfeeding support group for extra encouragement

**Mother: “Why do my breasts appear softer now? They were fuller when my baby was younger. Am I losing my milk supply?”**

Background information for the practitioner:

Many nursing women notice that their breasts seem softer and somewhat reduced in size as their infants reach two to four months of age. Though their infants are thriving, they question whether their milk supply is beginning to diminish. Mothers need reassurance that these breast changes are normal and expected. There is plenty of milk for the baby.

## TALKING POINTS:

- Breast size and firmness naturally changes as your baby gets older.
- Mothers breasts are supposed to look smaller and feel softer at this point
- As long as your baby is gaining the right amount of weight and is urinating at least six times a day, all is well. If you are having difficulty determining urine frequency, use a diaper with a urine indicator line or slip a square of toilet tissue in the diaper so that you can more easily detect the presence of urine.

## References:

American Academy of Pediatrics Section on Breastfeeding. Breastfeeding and the use of human milk. *Pediatrics* 2012;129:598-601

Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries, including 50,302 women with breast cancer and 96,973 women without the disease. *Lancet* 2002 Jul 20;360(9328):187-95

Blomquist HK, Jonsbo F, Serenius F, et al. Supplementary feeding in the maternity ward shortens the duration of breast feeding. *Acta Paediatr* 1994;83:1122–1126.

Blyth R, Creedy D, Dennis C, et al. Effect of maternal confidence on breastfeeding duration: An application of breastfeeding self-efficacy theory. *Birth* 2002;29:278–284.

Champion R, Howard C ABM Protocol Committee Breastfeeding Medicine. ABM Clinical Protocol #5 ABM Clinical Protocol #5 Peripartum Breastfeeding Management for the Healthy Mother and Infant at Term Revision, June 2008, 3(2): 129-132

Danforth K N, Twroger SS, Height JL, Colditz GA, Hankinson SE. Breastfeeding and risk of ovarian cancer in two prospective cohorts. *Cancer Causes & Control* 2007;18(5):517-23.

de Onis M, Garza C, Onyango AW, Borghi E. Comparison of the WHO child growth standards and the CDC 2000 growth charts. *J Nutr.* 2007;137(1):144–148

Dewey KG, Lönnerdal B. Infant self-regulation of breast milk intake. *Acta Paediatr Scand.* 1986;75(6):893–898

Glover J, Sandilands M. Supplementation of breastfeeding infants and weight loss in hospital. *J Hum Lact* 1990;6: 163–166

Grummer-Strawn LM, Reinold C, Krebs NF, Centers for Disease Control and Prevention Use of World Health Organization and CDC growth charts for children aged 0–59 months in the United States. *MMWR Recomm Rep.* 2010;59(RR-9):1–15

Hale, TW Medications and Mothers' Milk 14<sup>th</sup> ed Amarillo TX:Pharmasoft Medical Publishing;2010

Naveed M, Manjunath C, Sreenivas V. An autopsy study of relationship between perinatal stomach capacity and birth weight. *Indian J Gastroenterol* 1992;11:156–158.

Nylander G, Lindemann R, Helsing E, et al. Unsupplemented breastfeeding in the maternity ward. Positive longterm effects. *Acta Obstet Gynecol Scand* 1991;70:205–209.

WHO Working Group on the Growth Reference Protocol and WHO Task Force on Methods for the Natural Regulation of Fertility (2000), Growth patterns of breastfed infants in seven countries. *Acta Paediatrica*, 89: 215–222

Wight NE. Management of common breastfeeding issues.  
*Pediatr Clin North Am* 2001;48:321–344.

Wright N, Cordes R The Academy of Breastfeeding Medicine Protocol Committee. ABM Clinical #3ABM Clinical Protocol #3 Hospital Guidelines for the Use of Supplementary Feedings in the Healthy Term Breastfed Neonate, Revised 2009. *Breastfeeding Medicine* 2009, 4(3): 175-182.

Yamauchi Y, Yamanouchi I. Breast-feeding frequency during the first 24 hours after birth in full-term neonates.  
*Pediatrics* 1990;86:171–175.

US. National Library of Medicine. Lactmed . 17 Mar2012<<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>>.

# Maternal Health: Medication, Medical Conditions and Procedures

**Mother: “I was on ‘the pill’ before I got pregnant. What kind of birth control should I use if I am nursing?”**

Background Information for Practitioner:

Several contraceptive options are available to nursing mothers.

The Lactational Amenorrhea Method (LAM) works by maintaining an internal hormonal state that prevents ovulation. Ovulation is prevented through frequent nipple stimulation, which in turn alters the pulsitivity of gonadotropin releasing hormone. The LAM method is 98% effective, but only under specific circumstances. Three criteria must be met:

- The infant should not receive infant formula or complementary foods(baby food)
- The baby must be less than six months old. Once infants “fill up” with other foods, LAM is not reliable because reduced nipple stimulation leads to hormonal conditions that promote ovulation.
- The mother has not experienced menses

In addition to the above criteria, some studies show that women who nurse *at least* every four hours during the day and only allow one stretch of six hours between feeds may prevent ovulation and pregnancy. However, more frequent sucking than this is ideal.

LAM is viewed as one of the natural family planning methods. While the other types (basal body temperature, ovulation/cervical mucus and symptothermal) depend on avoiding intercourse around the time of ovulation, LAM works by *preventing* ovulation. These other types of natural family planning are associated with relatively high pregnancy rates. In contrast, LAM is very effective if the above criteria are met. LAM is ideal for those who wish to avoid medication or the use of any devices.

Barrier Methods are physical or chemical contraceptive methods that prevent sperm from passing through the cervix. They include condoms, diaphragms, cervical caps, sponges and

spermicides. Diaphragms, should not be fitted until six weeks post-partum due to cervix size differences prior to this time period. Pregnancy rates are somewhat higher when compared to other contraceptive categories. All of these methods are compatible with nursing.

Hormonal Contraceptives may contain estrogen, progesterone or a combination of both hormones. Maternal consumption of either hormone is considered safe for infants because only very minute quantities are found in human milk. Estrogen-containing contraceptives may significantly diminish milk volume, resulting in shortened breastfeeding duration.

Progesterone only contraceptives are considered the preferred hormone-derived contraceptive. However, introduction before six weeks post-partum may theoretically cause significant milk volume loss in some mothers by interfering with processes involved with initial establishment of lactation. Though progesterone usually does not compromise maternal milk volume, a few women may experience lower milk volumes regardless of mode of delivery. Those on Depo Provera may particularly note volume changes. Though a trial of oral progesterone prior to longer lasting delivery systems may give some indication of how the hormone will impact milk volume, it is not full-proof. Additionally, mothers should consider the cost and reversibility of longer lasting progesterone methods.

Some examples of progesterone only products are: etonogestrel (Implanon implant), levonorgestrel (Norplant), medroxyprogesterone ( Depo-provera) and norethindrone (Aygestin, Camila, Errin, Jolivette, Micronor, Nora-BE, Norlutin, Nor-QD, Ortho-Micronor).

Intrauterine devices (IUDs) are compatible with breastfeeding. Two types are available currently in the US: hormonal (progestin) and copper IUDs. Both products in each IUD work locally within the uterus and do not appear in human milk in any relevant quantities. Insertion prior to 4 weeks post-partum may result in expulsion due to strong uterine contractions while nursing. Expulsion does not appear to be a problem after this point.

Surgical sterilization includes male vasectomy and female tubal ligation. Both are considered permanent forms of contraception that should only be considered by individuals who are confident that he or she will never want to conceive in the future. Tubal ligation will not interfere with nursing.

Mothers who decide to undergo the procedure at a time other than following birth either undergo traditional tubal ligation or hysteroscopic tubal interruption. While traditional tubal ligation requires incision, hysteroscopic tubal interruption involves insertion of coils into fallopian tubes through the vaginal route. Hysteroscopic tubal interruption is associated

with less post-operative pain and quicker recovery. Regardless of procedure type, mothers need advice on nursing around the time of the procedure. She should empty her breasts by nursing or pumping before the procedure to prevent any subsequent discomfort or milk stasis. She can nurse right after regaining consciousness because any anesthesia used dissipates rapidly. Maternal ingestion of acetaminophen or ibuprofen will not harm her baby. The side lying or football nursing positions are ways to avoid abdominal pressure.

### TALKING POINTS:

- Birth control methods include hormones, Lactational Amenorrhea Method (LAM) and other forms of natural family planning, barrier methods (condoms, diaphragms, cervical caps, the sponge spermicides), intrauterine devices and surgical sterilization (tubal ligation for women and vasectomy for men). Practitioners in charge of your gynecologic care can help you decide which method is right for you
- If you decide to use birth control pills, start once nursing is well established. It is also ideal to start it no sooner than six weeks after delivering the baby. However, if at this six week point you are having problems establishing your milk supply, another birth control method should be considered.
- If you are using a hormone method (“the pill”, injectable hormones or implants) discuss the use of progestin-only birth control with the practitioner in charge of your gynecologic care. This is because use of another hormone, estrogen, decreases milk volume in some women
- If you use the lactational amenorrhea method (LAM), remember that it is 98% effective if you (1) only give your milk (not infant formula or baby food), (2) you haven’t had a period (menses) yet, and (3) if your baby is less than 6 months old. People who don’t meet these criteria should use a different birth control method
- Remember that condoms are the most effective method for preventing transmission of sexually transmitted diseases. However, they can and do break during sex, so a backup birth control method will help decrease the risk of getting pregnant

**Mother:** “I have a cold. Is it safe to nurse my baby?”

OR

“I have diarrhea. Is it safe to nurse my baby?”

Background information for the practitioner:

In addition to it being a sound nutritional food, human milk contains substances that decrease the risk of contracting infection. In the event of infection, ingestion of human milk

is correlated with a decrease in the duration and severity of infant illness. Examples of anti-infective agents in mother's milk include secretory IgA, lactoferrin, lysozymes, maternal white blood cells and oligosaccharides. The role of maternal IgA is particularly important in fighting off common infant respiratory and gastrointestinal infections.

**A baby is exposed to the mother's infectious respiratory or oral secretions for about two days prior to the appearance of maternal symptoms. With initial maternal exposure to a virus, the mother's body starts making the IgA needed for her to fight her own infection. This maternal IgA, which is tailor-made to fight off the specific infection, also quickly moves into her milk. IgA in human milk then lines infant respiratory and digestive system mucosa, helping the baby to fight off infection. This is why a mother who is ill should ideally nurse her baby frequently.**

If the mom is placed on medication, check a reliable source on medication and lactation to make sure the medication is okay (most medications are okay, but pseudoephedrine can diminish milk volume) . See Appendix A for these sources. Remember that the Physician Desk Reference and Epocrates are ultraconservative sources to use when checking medications in lactating mothers. They will often recommend against breastfeeding even though experts have determined that a medication is compatible.

## TALKING POINTS:

- Your baby has already been exposed to your germs, starting a few days before you even knew you were sick
- When you give the baby your milk you also give extra “medication” to your baby because it contains substances that help baby fight off your infection
- Your body has been making milk protector substances, known as antibodies, starting from the moment you got the germ. This substance has already been helping your baby. **These protectors are lining the inside of your baby's system. The more mother's milk, the more milk protector substances accumulate in your baby. If your baby does get your symptoms, the protectors will help lessen the duration and severity of the illness. This is why you should frequently nurse your baby**
- Another reason to frequently nurse is because slowing down nursing can lead to clogged ducts and a breast infection, known as mastitis. This would only make you sicker.
- It is okay for you to take acetaminophen (Tylenol) or ibuprofen (Motrin, Advil) for pain or fever-it won't hurt your baby. **You can still nurse if you have a fever-it won't harm your baby**

- Most cold medications are okay for moms to use, but avoid taking cold medications that contain pseudoephedrine because it can slow down your milk volume. For instance, it is okay for you to take medications that contain products such as dextromethorphan and guaifenesin for your cold. You can also use nasal saline spray and a cool mist humidifier to help your symptoms.
- Ask any nearby family members to help you if you are feeling really sick. They may be able to help take care of other children and assist with household chores. Call your doctor. If your doctor prescribes medication, I will be glad to check that it is compatible with nursing.

**Mother: “My doctor has ordered a CT scan with contrast. Do I have to stop nursing?”**

Background information for the practitioner:

**It is safe for a nursing mother to have a CT scan with contrast. She does not need to “pump and dump” her milk following the procedure.**

**“Pumping and dumping” decisions should be based on specific medical evidence that a contrast material will cause harm. Along with increasing maternal stress, breast pumping may lead to less effective milk removal and therefore potentially diminished supply.**

Only a few radiocontrast materials require pumping and discarding milk for a prescribed period of time.

See Appendix A for a list of resources on medication, which includes information on contrast material

See Appendix B for a complete list of contrast materials and how they relate to lactation

**TALKING POINTS:**

- It is okay for you to have the CT scan with contrast. You can nurse right after the procedure
- If any further radiologic procedures with contrast are ordered, call me and I will check this for you

**Mother: “I have to have a root canal done tomorrow. How soon can I nurse after it’s done? Do I have to ‘pump and dump’?”**

Background information for practitioner:

Very little local anesthesia leaves the injected area and enters the breast compartment. This tiny amount quickly leaves the breast tissue. Local anesthesia will not harm the baby. The mother can nurse after the procedure. No “pumping and dumping” is necessary.

Anesthetic gases leave the breast compartment at the same rate as they leave the mother’s central nervous system tissue. Therefore, as soon as the mom is alert, she can nurse. No pumping and discarding of milk is necessary.

**TALKING POINTS:**

- Regarding numbing injections in the gums, it is okay to nurse right after you have received a numbing injection
- If you receive “laughing gas”, you can nurse as soon as you feel alert

**Mother: “I’m feeling exhausted, achy all over and my left breast is very sore in one place. My doctor says I have mastitis and has placed me on an antibiotic. Can I still nurse my baby?”**

Background information for practitioner:

The mother has signs and symptoms of mastitis. Mastitis signs and symptoms vary. Some mothers report an area of redness and tenderness on the breast without any other symptoms while others have full blown signs and symptoms including extreme exhaustion, body achiness, and fever. Sometimes a mom will simply report that she has the flu because she feels tired and achy. Be sure to ask her if she has an area of breast redness and tenderness because she might not realize that achiness, exhaustion and fever may be observed in those who have mastitis.

Check if the underlying cause of the mastitis is due to a relatively rapid decrease in feeding frequency

Full term infants can continue nursing on both breasts while the mother has mastitis. It is important for the mother to frequently empty her breast through nursing in order to facilitate healing.

Just about every antibiotic is okay for maternal use (including the quinolones) Check a reliable lactation and medication source such as the **LactMed web site** or *Hale's Medication and Mother's Milk* if you are not sure (see Appendix A). Remember that the Physicians' Desk Reference and Epocrates are ultraconservative sources to use when checking medications in lactating mothers. They will often recommend against breastfeeding even when experts have stated that a certain medication is indeed compatible with breastfeeding.

Mothers are typically placed on cephalexin 500mg TID for 10-14 days or dicloxacillin 500 mg QID for 10-14 days. Other antibiotics that cover staphylococcus and streptococcus pyogenes are also acceptable. Clindamycin would be an acceptable alternative for penicillin allergic individuals.

Continued duct stasis in someone with mastitis may lead to abscess formation. A discrete round tender lesion is noted. Direct needle aspiration or Incision and drainage are used to treat an abscess. Direct needle aspiration, sometimes performed serially, may prevent the need for I&D.

#### TALKING POINTS:

- Continue feeding your baby on both breasts
- You must remove milk from your breasts frequently, preferably by direct nursing, in order to heal. Drainage of the breast by feeding helps prevent the development of a breast abscess
- Prior to feeding, a warm compress for about 5 minutes will loosen material within the breast ducts. When the infant is ready to nurse, place him or her on the problem side first. Position the baby so that the nose points toward the clogged area. Massage the firm problem area while the infant is feeding. When your baby is finished feeding, use of a cold compress will provide comfort. This will also help reduce breast swelling
- It is okay for you to nurse your baby if you have a fever. You may take acetaminophen (Tylenol) or ibuprofen (Motrin or Advil). It won't hurt your baby
- You will need an antibiotic. Just about every antibiotic is safe to take while nursing. I am glad to look up any medication that you are given in order to double-check this

## **Mother: “Do I have to stop nursing in order to get a mammogram?”**

Background information for the practitioner:

Lactating women can get a mammogram without weaning the infant from the breast. In some women the lactating breast is denser compared to the breast of nonlactating women. This density diminishes when milk is removed. Have the mother nurse her baby or pump her milk just prior to the procedure.

Help the mom identify a local radiologist who has experience reading mammograms of lactating women

### **TALKING POINTS:**

- You can have a mammogram done if you are a nursing mom. You do not need to wean your baby. The mammogram should not be delayed
- The mammogram procedure will not change the quality of your milk
- Bring your baby with you and have him or her nurse just prior to the mammogram. **Bring your breast pump with you in case the timing is such that your baby won't nurse**
- I will help you find a radiologist who is used to reading the mammograms of nursing moms
- Breast cancer can and does affect lactating breasts so evaluation should not be delayed

## **Mother: “My doctor wants me to receive a flu shot and a Tdap vaccine. Is it safe to nurse my baby if I receive these vaccines?”**

Background information for the practitioner:

Breastfeeding mothers can receive any routine vaccination. If traveling abroad, Yellow Fever vaccine cannot be administered to any mother breastfeeding an infant less than nine months old. See Appendix A for reliable medication information resources.

### **TALKING POINTS:**

- It is safe for nursing moms to receive any routine vaccine. If traveling, Yellow Fever vaccine is incompatible with breastfeeding if the baby is less than 9 months old.

- It is particularly important that moms and dads (and all adults who will be around the baby) receive the influenza and Tdap vaccines. This helps decrease the risk that baby will get very sick from the flu or from whooping cough

**Mother: “I need to get a cortisone shot in my shoulder. The specialist told me to ask you how much I can receive if I still want to nurse the baby”**

Background information for the practitioner:

A dose up to 80mg of intrasynovial methylprednisolone can be given without significantly impacting human milk, according to Hale’s *Medications and Mothers Milk*.

#### TALKING POINTS:

- I will provide your specialist with the dose of medication that is safe for nursing mothers.
- It is okay for you to additionally take ibuprofen (Advil, Motrin) and acetaminophen (Tylenol) for pain. **It won’t harm your baby**
- If your specialist prescribes any other medications, I would be glad to check my sources to make sure that they are compatible with nursing (most are)

**Mother: “My sister told me that fenugreek tea helps increase milk supply. Should I try it?”**

Background information for the practitioner:

Galactogues, also known as lactogogues, are substances believed to induce or enhance milk production. Galactogues have been used for induction of lactation (such as with adoptive nursing -see page 8) ,to enhance milk supply in someone who already has some degree of established milk production or to assist in relactation after an infant has been weaned from the breast.

**Practitioners must sort out whether a mother’s concern about her milk volume is based on an actual underlying medical problem , an iatrogenic problem (for instance, not nursing or expressing her milk often enough) or undue anxiety that has resulted from a misperception of events related to feeding ( see page 17 for assessing adequate milk supply).**

Though studies on galactogogues exist in the medical literature, few are well-designed randomized controlled trials. Additionally, as with all over the counter products including nonprescription galactogogues, stringent product oversight is not required of government agencies .

While concern exists about proper regulation and oversight of over the counter products, with a few exceptions, many women use galactogogues without problems. Some experts recommend that mothers purchase products that are manufactured by well- established manufacturers in order to potentially increase the likelihood of product reliability; however, this strategy is not full-proof.

Galactogogues are found in the form of foods, beverages ,over the counter medications and prescription medications.

Common examples of nonprescription galactogogues are anise, basil, beer, blessed thistle, dandelion, fennel seed, fenugreek, milk thistle, goats rue, marshmallow, millet, oats, and seaweed. To help practitioners evaluate individual galactogogues, a list of reliable resources on medications and lactation is found in Appendix A.

Fenugreek, blessed thistle and fennel seed are most favored by mothers.

Fenugreek(*Trigonella foenum-graecum*) belongs to the legume family. Generally used as a spice, especially in Indian-style foods, it exudes a maple syrup-like flavor. Though there is insufficient evidence that fenugreek impacts lactation, it is generally well tolerated. For this reason, the US Food and Drug Administration has categorized fenugreek as a GRAS herbal (Generally Regarded as Safe). Fenugreek is available as a tea or is taken in capsule form. The tea is prepared by adding ¼ teaspoon of seeds to 8 ounces of water. It is steeped in hot water for 10 minutes . Frequency is usually once a day. The capsule dose ranges from 580 to 610 mg per capsule. Common dosage for any capsule in this dose range is 2-3 capsules TID .

Recent reports of fenugreek-peanut cross-reactivity have been noted. Practitioners should screen mothers for an allergy history of peanuts or other legumes (including but not limited to soy beans, , green peas, lentils, chickpeas and lupins). Additionally, it would be prudent to advise mothers with a history of ragweed allergy of the potential risk for an allergic reaction to fenugreek.

Other side effects of fenugreek in mothers include diarrhea , gassiness and occasionally a maple syrup body odor. This odor , caused by the sotolon molecule in Fenugreek, may be

observed in a mother's sweat, urine, feces and breastmilk. Wheezing ,bleeding or hypoglycemia are rare potential side effects.

Blessed thistle is used as a galactagogue, though the medical evidence is lacking. It is a member of the ragweed family. Those with a history of ragweed allergy should refrain from ingesting blessed thistle due to theoretical concerns about cross-reactivity. The US Food and Drug Administration categorizes blessed thistle as a GRAS herbal (Generally Regarded as Safe).

Fennel theoretically imparts an estrogen-like effect, thus potentially suppressing milk production. For this reason, it is not generally recommended as a galactagogue.

Though some cultures encourage mothers to consume beer as a way to increase milk supply, studies show that alcohol generally reduces milk volume. No systematic studies are available to show whether the barley component of nonalcoholic beer is efficacious.

Prescription galactagogues include the dopamine antagonists metoclopramide and domperidone.

Results of studies on the use of metoclopramide are mixed regarding efficacy. Typical dose used is 10-15mg TID. Common side effects include maternal diarrhea, sedation, anxiety and depression. Mothers on this medication should be followed closely. A few reports of dystonic reaction have been noted. Rare reports of tardive dyskinesia have been associated with metoclopramide, especially in those on the medication more than 3 months .

Domperidone is not available in the US; however, some US physicians report accessing it through compounding pharmacies. Several older studies demonstrated increased prolactin levels but, problems with methodology have been noted. One small well-designed randomized control study showed a significant increase in milk production. The drug should be used with careful consideration due to a few reports in patients of prolonged QTc and fatality, mostly in those who exceeded standard dosage. These reports were not in lactating women. Standard dosage is 10mg po TID usually for 14 days. Blood levels may potentially increase when the drug is combined with medication or food metabolized by CYP3A4 enzyme inhibitors (such as grapefruit, fluconazole, ketoconazole, macrolides) Common maternal side effects include headache, abdominal cramps and dry mouth.

## TALKING POINTS:

- **Let's discuss your concerns about your milk supply (review urine voids and stools in a 24 hour period with the mother and check the baby's weight)**
- **Let's talk about how often your baby nurses, plus times you routinely pump or hand express your milk.**
- **While fenugreek has not been proven to increase milk supply, frequent and full drainage of breasts helps maintain and even increases milk supply.**
- **If you are judging your supply by how much you get out from a breast pump, realize that that is a highly inaccurate way to determine how good your supply is. Breast pumps are not good at fully draining a breast. Generally speaking, babies are much more efficient at draining your breast. This is why we rely on the baby's urine voids, poops and weight gain to tell us how things are going.**
- **If you are worried about your breasts feeling softer than they used to feel, know that this normally happens to nursing mothers starting around the time your baby is 2 months old. Softer breasts do not necessarily mean you have lost your milk supply**
- **Fenugreek has not been proven to increase milk supply. On the other hand, it is generally regarded as safe. You need to know a few things about it before knowing if it might be right for you**
- **Remember that all over the counter products, including herbals like fenugreek, are not as scrutinized by regulators when compared to prescription medication. This means that it is more difficult to be certain about the dose or if other products may be added into the product you think you are buying. Some experts recommend that people choose brands from well-established manufacturers, though there are no guarantees.**
- **Fenugreek is not recommended for people who have allergies to peanuts or other legume plants. Though there are 730 different kinds of legume plants, the most common legumes around are peanuts, soy beans, green peas, lentils, chick peas and lupins. If you are not sure if what you are allergic to is a legume, let me know. I will find out**
- **Fenugreek is also not recommended for people with ragweed allergies**
- **Common side effects of fenugreek in moms are diarrhea, gassiness and a maple syrup odor in a mom's sweat, urine, feces and breastmilk. Rarely, potential side effects include low blood sugar, easy bleeding and wheezing**
- **If you have asthma, diabetes or a bleeding problem, it is better not to take fenugreek**

## References:

American College of Radiology Committee on Drugs and Contrast Media. Administration of contrast medium to breastfeeding mothers. version 7 2010:61-62

Amir, L The Academy of Breastfeeding Medicine Protocol Committee. ABM Clinical Protocol #4 Mastitis. Breastfeeding Medicine. September 2008, 3(3): 177-180

Chantry CJ, Howard CR, Auinger P. Full breastfeeding duration and associated decrease in respiratory tract infection in US children. *Pediatrics*. 2006;117(2):425–432

Duijts L, Jaddoe VW, Hofman A, Moll HA. Prolonged and exclusive breastfeeding reduces the risk of infectious diseases in infancy. *Pediatrics*. 2010;126(1)

Faeste C, Uwe C, Eliann E, Jonscher K Characterization of potential allergens in fenugreek (*Trigonella foenum-graecum*) using patient sera and MS-based proteomic analysis *J Proteomics*. 2010 May 7; 73(7): 1321–1333.

Hale, TW Medications and Mothers' Milk 14<sup>th</sup> ed Amarillo TX:Pharmasoft Medical Publishing;2010

International Commission on Radiological Protection. Doses to infants from ingestion of radionuclides in mother's milk. ICRP Publication 95. *Ann ICRP*. 2004;34(3–4):1-27

Montgomery A, Hale T, The Academy of Breastfeeding Medicine Protocol Committee. ABM Clinical Protocol #15 Analgesia and Anesthesia for the Breastfeeding Mother. Breastfeeding Medicine. December 2006, Vol. 1, No. 4: 271-277

Nishimura T, Suzue J, Kaji H. Breastfeeding reduces the severity of respiratory syncytial virus infection among young infants: a multi-center prospective study. *Pediatr Int*. 2009;51(6):812–816

Powers N, .Montgomery A, The Academy of Breastfeeding Medicine Protocol Committee. ABM Clinical Protocol #9 ABM Clinical Protocol #9: Use of Galactogogues in Initiating or Augmenting the Rate of Maternal Milk Secretion (First Revision). January 2011 Breastfeeding Medicine. Vol. 6, No. 1:41-49

Quigley MA, Kelly YJ, Sacker A, Breastfeeding and hospitalization for diarrheal and respiratory infection in the United Kingdom Millennium Cohort Study. *Pediatrics*. 2007;119(4)

Stabin MG, Breitz HB. Breast milk excretion of radiopharmaceuticals: mechanisms, findings, and radiation dosimetry. *J Nucl Med*. 2000;41(5):863–873

US. National Library of Medicine. Lactmed. 0 . 17 Mar. 2012 <<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>>

# Everyday Life with Baby:

## Common Questions About Work and Home Life

**Mother: “How long can I keep my pumped milk in the refrigerator?”  
“How long can breastmilk be stored in the freezer?”**

Background information for the practitioner:

Practitioners may find the variance of breastmilk storage recommendations frustrating. Some research focuses on handling expressed milk in realistic environmental conditions while others are based on near-sterile conditions. The following are recommendations that are based on realistic environmental conditions:

FRESHLY EXPRESSED HUMAN MILK IN TERM INFANTS			
Room Temperature	Refrigerator	Self-contained Separate Refrigerator Freezer	Deep Freezer
Up to 77° F (25 ° C)	39 ° F (4 ° C) or less	0 ° F (- 18 ° C)	-4° F (-20° C) or less
4 hours	96 hours	3 months	6 months

Parents also ask about the length of time that human milk can sit outside the refrigerator before it must be discarded. For term babies, pumped human milk can sit at room temperature (up to 77° F or 25 ° C ) for up to 4 hours before it must be discarded; however, **once a baby’s mouth has touched the bottle, milk must be consumed within one hour. This is because the infant’s oral flora will substantially increase milk bacterial counts.**

### Transporting Human Milk

Human milk can be stored in a small insulated cooler with a blue ice pack (approximately 39 ° F or 4° C ) for up to 24 hours. The ice pack should be in direct contact with milk containers. This is important information for mothers who express milk at work and need to transport it home.

## Cleaning

Mothers should wash hands with soap and water or use waterless hand cleanser before hand expressing or pumping breasts. Breasts do not need to be washed.

Milk containers should be cleaned using hot soapy water.

## Type of Storage Equipment

Glass or polypropylene containers are commonly used. Polypropylene is an acceptable material, but caution is warranted if it is in bag form due to potential for puncture.

Polyethylene container use results in a 60% decrease in immunoglobulin A. Steel material decreases milk white cell counts and viability. Bisphenol A containers are controversial and need further study.

## Preparing Milk for the Freezer

Milk should not fill up the container because it expands when frozen. Ideally 2-4 ounces are stored per container. Containers should be labeled.

Adding milk to partially filled containers of frozen milk, for the purposes of building supply in the freezer, is possible; however, the additional milk must be cooled in the refrigerator first in order to avoid rethawing of the frozen portion

## Thawing Milk

Frozen human milk is thawed by leaving it in the refrigerator overnight or by placing the container over warm running water prior to serving. Caretakers should never microwave **mother's milk due to the potential for oral burns, as well as to extensive destruction of human milk's anti-infective properties.** Once thawed, the milk must be consumed within 24 hours. Thawed milk should not be left in room temperature more than an hour. Refreezing is not recommended.

The smell, taste and color (greenish tinge) of frozen human milk may occasionally change over time due to breakdown of lipids by milk lipase enzymes. Though it may appear unusual, this milk is not harmful.

## TALKING POINTS:

- Storage time recommendations depend on where your milk will be stored. We will now talk about milk storage rules (go over above chart with parents)

- **Once your baby’s mouth has touched the bottle, the milk must be used within an hour**
- **Make sure that you wash your hands with soap and water before hand expression or pumping your breasts. Washing your breasts is not necessary.**
- **Pump equipment and containers should be cleaned with hot soapy water**
- **Don’t fill storage containers to the top with your milk if you plan on freezing it because it will overflow once frozen**
- **If you are in transit, your milk can travel in a small cooler with a blue ice pack for up to 24 hours**
- **Thaw frozen milk by placing it in the refrigerator overnight or running the storage container under warm water before serving. Microwaving milk is dangerous because undetectable hot pockets of milk in the container can cause mouth burns. Microwave ovens also destroy the infection protection substances in the milk**
- **After your milk has thawed, your baby has to drink it within 24 hours. Thawed milk should not sit at room temperature for more than one hour**
- **Milk that has been in the freezer for a while might occasionally have a greenish color and different taste. It is likely this way because the milk fats have broken down, though it is still okay. If you’re not sure if it is okay, call me**

**Mother of 6 week old: “I am returning back to work in 6 weeks. Should I stop nursing or should I pump my milk at work?”**

Background information for the practitioner:

Women returning back to work need to plan ahead of time. Most women have already had a conversation with their employer about return to work issues in the prenatal period. This includes mutually agreeing to a return to work date, as well as agreeing to work hours. Women who plan on breastfeeding will also require a private area to express milk, as well as allotted time to express their milk.

Awareness of state and federal laws on breastfeeding and employment is important. State breastfeeding and employment laws can be found at [www.ncsl.org/issuesresearch/health/breastfeeding-state-laws.aspx](http://www.ncsl.org/issuesresearch/health/breastfeeding-state-laws.aspx). The Patient Protection and Affordable Care Act H.R. 3590 is a federal law that was enacted in 2010. Section 4207 of this law requires that employers allow reasonable break times for breastfeeding mothers of infants under one year of age, in order to express their milk. A room other than a bathroom must be available. There is no requirement for employers to pay for this break time; however, mothers may use normally scheduled breaks that all employees are entitled to without loss of pay. The law does not apply to businesses with less than 50 employees if that

employer determines that the law imposes undue hardship. The Patient Protection and Affordable Care Act does not supersede state laws that give additional protection to working mothers who breastfeed.

Parents also need to make decisions on the type and location of future childcare. Will childcare be in a Daycare setting or home-based childcare setting? Will the location be closest to the home or to work? Some large employers offer onsite childcare. This may enable a mother to nurse her infant right before and after work (and during her lunch break if she has time).

The ideal time to introduce a bottle is between 4 and 8 weeks of age. While introduction prior to 4 weeks of age may on occasion adversely impact establishment of breastfeeding, a delay in introduction beyond 8 weeks may result in bottle rejection.

**The transition back to work is less stressful if a mother participates in a “dry run” day two weeks before her return to the job. On this day, the infant is cared for by childcare personnel while the mother goes somewhere else for the day in order to pump her breasts at planned times that will be compatible with her work schedule. The “dry run” day allows her an opportunity to make more realistic adjustments in her plan.**

The stress of transitioning back to employment is somewhat diminished if a mother makes plans for her work return start date to occur in the middle of the work week.

Women who work outside of their homes will need a breast pump. Though some may use a hand pump, most prefer using a double electric pump due to its high efficiency. Double electric pumps can be rented or purchased. Many mothers like wearing hands-free bras, which hold the breast pump flanges in place without manual assistance. A cheaper alternative to hands-free store bought bras would be cutting holes in the center of each standard bra cup ( a sports bra works well but make sure it is not tight). A hands-free bra allows mothers to type and make phone calls. Additionally, she can use her hands to gently massage the breast tissue while pumping her breasts. Studies show that gentle breast massage while pumping, especially of dense breast tissue close to the chest wall, pulls more milk out. This also causes better release of the fatty hindmilk.

Milk is also pulled out more quickly and efficiently by employing a technique known as “hands on pumping”. In this technique, mothers alternate between electric pump use and brief periods of hand expression within the same session. During the electric pump phase, mothers gently massage their breasts. They then turn the pump off and hand express milk

through the flanges and into the pump bottles for 1-2 minutes. Then the electric pump is turned back on. Research shows that his technique results in higher milk output within a given amount of time when compared to traditional techniques. Often, moms are able to get their milk pumped within a shorter period of time by using this “hands on pumping” technique.

Women use a variety of other techniques to further facilitate milk letdown and therefore increase output. Better milk volume is **observed when mothers don’t constantly stare at the pump’s milk bottles. Presumably, this inhibits the milk letdown reflex. Massaging the breasts for a few minutes before pumping, as well as using warm compresses on the breasts a few minutes before pumping is often helpful. Additionally, some mothers look at their infant’s photo, briefly listen to a recorded baby cry or drape a used baby blanket on their necks (for olfactory stimulation) during milk expression in order to help induce a milk letdown reflex.**

#### TALKING POINTS:

- **If you haven’t done so already, have a discussion with your boss about your intention to continue breastfeeding. Consider discussing that babies who are breastfed have a 50% reduction in illness when compared to those who do not breastfeed. That means there is often less work absenteeism. Discuss where and when you will express your milk.**
- **Certain state and federal laws are in place to protect your right to provide your milk to the baby(go over the Patient Protection and Affordable Care Act H.R. 3590)**
- **If possible, arrange for your first day back at work to start midweek. This will ease your transition back to the job**
- **Consider your childcare options. There are advantages and disadvantages of daycare and home-based child care. Though not always feasible, childcare close to work may allow you to nurse your infant prior to dropping the baby off or right after you pick the baby up at the end of the day. A few large employers have onsite daycare centers which would give you easier access to your baby.**
- **Most women will need to get the baby used to taking a bottle while they are at work. The ideal time for bottle introduction is between 4 and 8 weeks of age. Introduction too soon may cause some babies to reject the breast. Introduction of bottles after 8 weeks of age may result in bottle rejection. Use a wide base bottle nipple and sit your baby upright when bottle feeding, slightly tipping it. Use a bottle of expressed breast milk once a day so the baby remembers what to do.**
- **Most babies accept the bottle easily. However, some babies may need some time to get used to feeding two different ways before a mother’s return to the job. Upon first**

encountering bottles, babies may take the bottle from someone else other than the mother. If accepting a bottle becomes particularly challenging, consider starting a feed by nursing and then slip a bottle with an **ounce of your milk into the baby's** mouth toward the end of the feeding. In this more relaxed and less hungry state, the baby may be more willing to take the bottle. This may help the baby transition to feeding two different ways easier

- Write out a feeding plan that will be feasible with your work schedule. Then plan a **“dry run” day two weeks before actually going back to work. Arrange for childcare on the “dry run” day. Wake up at the time you will need to get up for work. Leave your baby with the babysitter or daycare (if this is too emotionally hard to do, ask your spouse or partner to perform this function). Go to a place where you can express your milk at the same times that you will do so at work in a couple of weeks. This “dry run” exercise will help you adjust your plan.**
- You will need a breast pump. Most women use a double electric pump because it is more efficient. These pumps can either be purchased or rented.
- **If you plan on borrowing or purchasing someone else's breast pump, only hospital grade electric pumps can be cleaned well enough for someone else to use. This is because it is possible for someone else's germs, such as hepatitis, to live on pump equipment for a long time. Hospital grade pumps that have a previous owner or user should be cleaned upon receipt (call the pump company's toll-free phone number for advice on how to do this). The breast pump manufacturer can tell you if a used pump is okay for you to use.**
- Though you will be using a breast pump at work, it is important for you to learn how to hand express your breasts. This will help you in case you forget your pump. You must be able to drain your breasts of milk in order to prevent developing clogged milk ducts that could lead to breast infection. This will also help you get milk out of your breasts faster if you do this along with using the electric breast pump.

A lactation consultant can show you how to do this . You can also watch an online video on hand expression at:

<http://newborns.stanford.edu/Breastfeeding/MaxProduction.htm>

- A fast way to get your milk out at work is to use a method called “hands on pumping”. You will need hands-free bras to hold the breast pump flanges on your breasts without having to hold them in place with your hands. Some women make homemade hands-free bras by cutting holes in the center of each bra cup ( a sports bra my work well as long as it is oversized and not tight). This will free your hands up to massage your breasts (and occasionally make phone calls or type). Massage your breasts for a few minutes. Then use the double electric pump. Massage your breasts while the pump is on, especially the dense round little areas of breast tissue near the

chest wall. After the milk stops flowing turn the pump off. Hand express your breastmilk for a minute or two while keeping the pump flange in place. Then turn the double electric pump on again. Try not to stare at the breast pump bottles too often because it will inhibit your milk letdown reflex and diminish your milk output.

A video of this technique can be found at :

<http://newborns.stanford.edu/Breastfeeding/MaxProduction.htm>

- Some women get more milk out by looking at their baby's photo, briefly hearing a recorded cry of the baby or smelling the baby's used blanket while the pump is on. If you have time to slip warm compresses into your bra for a few minutes before pumping your breasts and/or can massage your breasts for a few minutes , that would also help
- The IRS now allows parents to use pre-tax funds flexible spending accounts to cover breastfeeding pumps and other breastfeeding supplies

### **Mother: "Does my baby need iron drops?"**

Background information for practitioner:

The AAP Section on Breastfeeding has clarified that full term nursing infants do not routinely need iron supplementation. Iron in human milk is twenty times more readily absorbed by the infant gut compared to infant formula. Extra iron is added to cow milk when infant formula is manufactured, due to its poorer absorption in the human gut. Iron absorption in nursing babies is facilitated by breastmilk lactoferrin. Lactoferrin also functions as an anti-infective agent for the baby, as long as it isn't rendered ineffective by iron supplements. As an anti-infective agent, lactoferrin keeps iron-dependant pathogen colony counts down in the gut.

The best way to prevent iron deficiency in the first 6 months of life is delivery with delayed cord clamping. Iron supplements may be necessary in breastfeeding infants if there are conditions that place the infant at increased risk such as prematurity, low iron stores at birth and bleeding. Healthy breastfed infants can begin receiving iron supplements in the way of iron-fortified complementary foods (baby foods) beginning at six months of age.

### **TALKING POINTS:**

- For healthy full term breastfed babies, there is no need for infant iron supplementation because a product in human milk, called lactoferrin, allows iron in human milk to be 20 times more absorbed from the gut compared to infant formula.

Lactoferrin also functions as an infection protector for the baby, as long as it isn't made to become ineffective by iron supplements

- At 6 months of age additional iron may be introduced in the form of iron-fortified foods.

### **Mother: "Does my baby need a vitamin D drops?"**

Background information for practitioner:

The American Academy of pediatrics recommends that breastfeeding infants receive 400 IU of vitamin D by giving supplemental vitamins beginning soon after birth.

#### **TALKING POINTS:**

- Yes. The American Academy of Pediatrics recommends that nursing infants take 400 IU of vitamin D a day
- This does not represent a unique inadequacy. All commercial milk products, including infant formula, do not naturally have enough vitamin D as well. This is why cow milk, including infant formula, gets vitamin D fortified at the factory. An infant would need to drink one liter (32 ounces) of fortified formula or milk per day to meet the recommended dose of 400 IU per day. In a similar way, human milk gets D "fortified" when D drops are given separately to baby.

The most available way to get vitamin D is in the form of a multi-vitamin drops, even though the other vitamins in these drops are unnecessary; however, separate vitamin D drops can be purchased in some stores or be ordered through the internet. The concentration varies between brands; therefore, you should check the package for the right amount to give

### **Mother: "I'm a vegan. Do I have to do anything special with my diet?"**

Background information for practitioner:

Vegetarian mothers who practice a vegan or macrobiotic diet can nurse their infants; however, these moms need vitamin B12 supplementation. The National Institute of Health's Office of Dietary Supplements states that breastfeeding women require 2.8 mcg of vitamin B12 a day.

**Though mother's milk quality will not suffer if she is deficient in calcium or zinc, vegan moms should take adequate calcium and zinc for her own health. The recommended daily calcium dose for adult nursing moms is 1000mg and 1300mg for teen nursing moms. The recommended daily dose of zinc for adult nursing moms is 12 mg and 13mg daily for nursing teen moms.**

### **TALKING POINTS:**

- **Moms who practice a vegan or macrobiotic diet can breastfeed. Mothers should take a vitamin supplement that includes 2.8mcg of vitamin B12 a day**
- **As with all nursing babies, 400 IU of vitamin D for baby is recommended**
- **There is no need for infant iron supplementation in full term babies because a product in human milk, called lactoferrin, allows iron in milk to be 20 times more absorbed from the gut when compared to infant formula. Lactoferrin also functions as an infection protector for the baby, as long as it isn't made ineffective by iron supplements (see page 45 regarding iron requirements and special circumstances)**
- **All adult women, whether they are breastfeeding or not, require the standard 1000mg of calcium (1300mg for teen moms). Your baby will get enough calcium from your milk even if you don't consume enough daily calcium, but you should make sure that you take in enough calcium for your own health. Alternative sources of calcium include either using a supplement or eating a balanced diet .**
- **Your baby will get enough zinc from your milk even if you are zinc deficient. However, for your own health, you should consider ingesting 12 mg of zinc a day if you are an adult nursing mom and 13 mg if you are a teen**

**Mother: "I'm going to a wedding this weekend. Can I drink a glass of wine? What do I do with my milk?"**

### **TALKING POINTS:**

- **An occasional alcoholic drink (once or twice a week) is acceptable**
- **Yes, you may have one glass of wine or champagne. Here are the limits:**
  - 12 ounces of beer**
  - 4 ounces of wine**
  - 1 ounce of whiskey or hard liquor**

- You can nurse your baby two or more hours after you have finished your alcoholic beverage. There is no need to “pump and dump” your milk because the alcohol will be out of the milk by then
- Despite the myth that beer promotes milk letdown, studies show that this is not true
- Milk test strips are unnecessary and have not been sufficiently studied
- You should avoid excessive drinking as this may impair your baby’s milk intake and may have harmful effects on brain development

### **Mother: “Can I drink a cup of coffee?”**

#### **TALKING POINTS:**

- One moderately potent cup of coffee or one cup of tea per day is safe for you to drink. If you want more, switch to the decaffeinated type for the rest of the day
- Most infants will show signs of jitteriness with consumption of 5 cups of coffee
- Remember that some sodas and occasionally medications (some pain medications, cold remedies and diet pills) also contain caffeine
- If your baby was born prematurely and has not reached his or her due date yet, hold off on caffeinated coffee or tea until this point in order to avoid jitteriness.

### **Mother: “I am a cigarette smoker. Should I nurse?”**

#### **TALKING POINTS:**

- Yes, you should still nurse, even if you haven’t been able to quit smoking cigarettes. Your baby will best maintain good health if he or she receives your milk. Your health will be better maintained now and in the future if you nurse.
- Nursing infants of smokers have less colds than infant formula fed infants of smokers
- Make sure that you smoke outside of your house or apartment so that the baby does not breathe in the cigarette smoke (smoke travels from room to room even with the door shut)
- Smoking after nursing rather than before nursing the baby is preferable but not mandatory
- If it has been too hard to quit, consider cutting down

- Some women who smoke tobacco have problems with maintaining a good milk supply. You and I will monitor your baby's growth by checking weight, urine and bowel movement numbers in order to pick up on any issues early, should they arise.

### **Mother: "If I go on a diet, will it impact my milk?"**

Background information for the practitioner:

Some studies suggest that well-nourished mothers who are in good health can lose up to 1 kg (2.2 pounds) per week without compromising milk volume or composition. This general recommendation does not apply to severely undernourished women, where any weight loss will likely compromise both volume and composition. Generally, a daily minimum intake of 1800 calories per day is recommended, though one small study suggests that consuming at least 1500 calories per day for up to a week does not compromise lactation.

#### **TALKING POINTS:**

- If a doctor or other medical practitioner has told you that you are in good health and are not undernourished, a moderate diet where you lose 1-2 pounds per week is acceptable
- **Don't decrease your dietary intake to less than 1800 calories a day**
- **Don't use weight loss medication**
- Make sure that you eat a well-balanced diet
- Stay away from fad diets

### **Mother: "Can I fast for a religious holiday?"**

Most religions give nursing mothers exemptions or deferrals during periods of required fasting. A few require small offerings in lieu of fasting. Women should discuss their options with their religious leader, as well as with their health practitioners.

In general, nursing mothers who wish to fast may safely do so on occasion for approximately 24 hours without impacting the volume or content of their milk, provided that they are healthy (no other medical problems including- but not limited to- diabetes or hypoglycemia) and are well-nourished. Ideally, breastfeeding should be well-established, an achievement that is usually attained by 3-4 weeks of life.

Though Islamic tradition generally excuses nursing women from fasting, some mothers from certain regions of the world prefer to fast during Ramadan. One study of fasting nursing mothers during the month of Ramadan, where participants fast from sunset to sundown, showed changes in the potassium, magnesium and zinc content of human milk. However, there were no significant changes in macronutrients. With the exception of vitamins A, C and E, vitamin and mineral intake diminished in mothers. Infant growth was not impacted. Although some experts recommend that nursing mothers avoid fasting during this holiday, if a mother chooses to fast during Ramadan, she should drink and eat well before sunset and after sundown. She should also consider taking a daily multivitamin with minerals.

### TALKING POINTS:

- Ask your religious leader about what is required of nursing mothers and then talk it over with me and your other doctors
- Occasional fasting for approximately 24 hours is unlikely to compromise your milk provided that breastfeeding has been well-established (at least 3-4 weeks after the baby is born), **you don't have medical problems and you are not undernourished**. It is important to communicate with both your religious leader and doctor about whether fasting in your particular case is reasonable
- If you will be fasting for a portion of the day over the course of a few weeks, you should eat and drink well before the fast starts and after the fast is broken. Consider taking a multivitamin with minerals before or after you break fast.

### **Mother: “Is it true that I can increase my milk supply by drinking extra water?”**

Studies have shown that drinking extra water beyond a mother's natural thirst does not result in more milk production. **However, it is appropriate for mothers to “drink to thirst”** in order to stay well-hydrated. Maternal thirst naturally increases in response to oxytocin release while nursing.

The breast autocrine system primarily drives human milk production starting in the second stage of lactation (known as Lactogenesis II) which begins 2-4 days post-partum. However, the endocrine system hormones, prolactin and oxytocin, continue to play an influential role. Through autocrine mechanisms, sufficient removal of milk from the breast signals breast cells to produce milk; conversely, insufficient and infrequent removal prompts down-regulation which may ultimately over time lead to involution of glandular tissue.

**Addressing this mother’s underlying concern about the status of her milk supply is essential. Check the infant’s urine voids, stool output and weight (see page 17 ). If these parameters are within normal limits, address the specific observations that concern her. Often, anxieties about milk supply stem from misinterpretations of observations. If her worries are based on a misunderstanding of her baby’s behavior (such as frenzied frequent nursing during cluster feeding) or a change in her body (such as breasts softening after a baby reaches 2 months old, a natural and expected change) she will likely experience some relief once she is aware of what is normal.**

### **TALKING POINTS:**

- I see that you are concerned about your milk supply. What is happening that causes you to worry?
- **Let’s talk about the number of times the baby urinates and has bowel movements. Let’s check the baby’s weight.**
- We know from research that drinking extra water beyond your normal thirst will not help your body make more milk. However, you should definitely drink enough fluids to satisfy your natural thirst in order to keep yourself healthy.
- The breasts get the signal to make more milk when they detect that milk has been removed from the breast ducts. The breasts get a signal to make little or no milk when they detect that there is a lot of milk in the breast ducts. Making sure that you offer your baby a chance to nurse whenever he or she shows hunger cues (hands in the mouth, rooting ) usually leads to frequent removal of milk from the breast ducts This gives the breast cells the signal to make a lot of milk.

### **Mother: “Can I work out at the gym?”**

### **TALKING POINTS:**

- After receiving post-delivery approval from your obstetrical provider, you can and should exercise for your own health and well-being
- It is okay to nurse your infant after a workout. An occasional baby may notice a change in the taste of the milk, but most don’t

**Mother: “Can I color my hair if I am nursing?”**

**TALKING POINT:**

- Yes, you can color your hair. There is no evidence that hair dye affects your milk

**Mother: “Can I straighten my hair if I am nursing?”**

**TALKING POINT:**

- Yes. There is no evidence that hair straightener causes problems with mother’s milk. As a precaution, make sure that you don’t have sores or scratches on your scalp.

**Mother: “I want to get Botox on my forehead. Can I still nurse my baby?”**

**TALKING POINT:**

- The amount of Botox used cosmetically is very unlikely to have any impact on mother’s milk

## References:

- Becker, A et al. Breastfeeding and environmental tobacco smoke exposure. *Arch Ped Adolesc Med* 1999;153:689-691
- Berlin, C et al Disposition of dietary caffeine in milk saliva and plasma of lactating women. *Pediatrics* 1982;73:59-63
- DaSilva VA, Malhieros LR, Moraes-Santos AR, Barzano MA, McLean AE Ethanol pharmacokinetics in lactating women. *Braz J Med Biol Res* 1993;26 (10):1097-1103
- Dewey K, et al A randomized study of the effects of aerobic exercise by lactating women on breastmilk volume and composition. *N Engl J Med* 1994;330(7):440-53
- Dewey K, Symposium: Maternal Body Composition, Caloric Restriction and Exercise during Lactation. *J Nutr.* 1998;128: 386-389S
- Dusdieker L, et al Is milk production impaired by dieting during lactation? *Am J Clin Nutr* 1994;59: 833-840
- Dusdieker L, et al Effect of supplemental fluids on human milk production. *J Pediatr* 1985;106(2):207-11
- Eglash A, Academy of Breastfeeding Medicine Protocol Committee. ABM Protocol #8. Human Milk Storage Information for Home Use for Full-Term Infants (Original Protocol March 2004;Revision #1). *Breastfeeding Medicine* June2010;5(3): 127-130
- Eidelman A, The Talmud and Human Lactation: The Cultural Basis for Increased Frequency and Duration of Breastfeeding Among Orthodox Jewish Women. *Breastfeeding Medicine* 2006;1:36-40
- Hale,TW Medications and Mothers' Milk 14<sup>th</sup> ed Amarillo TX:Pharmasoft Medical Publishing;2010
- Ho E, Collantes A, Kapur BM ,Moretti M, Koren G Alcohol and Breastfeeding: calculation of time zero level in milk. *Biol Neonate.* 2001;80 (3):219-222
- Lee H, Macbwh A, Pacani J, Young S Oxytocin: the Great Facilitator of Life. *Prog Neurobiol* 2009;88 (2):127-151
- Morton J Maximizing Milk Production with Hands On Pumping. Stanford University  
<<http://newborns.stanford.edu/Breastfeeding/MaxProduction.htm>>
- Nafstad,P Breastfeeding, maternal smoking and lower respiratory tract infections. *Eur Respir J* 1996;9:2623-29
- Nehlig A, Debry G Consequences on the newborn of chronic maternal consumption of coffee during gestation and lactation: a review. 1994;13 (1):6-21

Nishmat Women's Online Information Center Breastfeeding and Jewish Law Breastfeeding and the Four Fasts  
<http://www.yoatzot.org/index.php>

Prentice AM, Lamb WH, Prentice A, Coward WA The effect of water abstention on milk synthesis in lactating women. Clin Sci (Lond) 1984;66(3):291-8

Prentice AM, Prentice A, Lamb WH, Lunn PG, Austin S, Metabolic consequences of fasting during Ramadan in pregnant and lactating women. Hum Nutr Clin 1983;37(4):283-94

Rakicioglu N, Samur G, Topcu A, Topcu AA The effect of Ramadan on maternal nutrition and composition of breast milk. Pediatr Int 2006; 48 (3):278-83

Specker B, Nutritional concerns of lactating women consuming vegetarian diets. Am J Clin Nutr 1994; 59: 1182S-1186S

US. National Library of Medicine. Lactmed. 0 . 17 Mar. 2012 <<http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>>.

Wagner C, Greer F American Academy of Pediatrics Section on Breastfeeding and Committee on Nutrition Prevention of Rickets and Vitamin D Deficiency in Infants, Children, and Adolescents. Pediatrics. 2008;122(5): 1142 -1152

Vio F, Salazar G, Infante C, Smoking during pregnancy and lactation and its effects on breast-milk volume. Am J Clin Nutr. 1991;54(6):1011-1016

Wallace J, et al Infant acceptance of postexercise breastmilk. Pediatrics 1992;89 (6):1245-47

Wright K, et al Infant acceptance of breastmilk after maternal exercise. Pediatrics 2002; 109(4):585-589

Zimmerman DR, Goldstein L, Lahat E, Braunstein R, Stahi D, Berkovitch M, Effect of a 24+ hour fast on breast milk composition. J Hum Lact. 2009 ;25(2):194-8

# APPENDIX A

## MEDICATION AND LACTATION: RELIABLE SOURCES

Lactmed <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>

*Medications and Mother's Milk* Hale, TW 14<sup>th</sup> ed Amarillo TX:Pharmasoft Medical Publishing;2010

Lactation Studies Center University of Rochester 585-275-0088

The transfer of Drugs and Other Chemicals Into Human Milk. AAP Committee on Drugs. PEDIATRICS Vol. 108 No. 3 September 2001, pp. 776-789.

<http://aappolicy.aappublications.org/cgi/content/full/pediatrics;108/3/776>

Infant Risk Center, Texas Tech University, Health Sciences Center, (806) 352-2519 (Monday-Friday 8am-5pm Central Time)

---

# APPENDIX B

## Use of Radiocontrast materials in Nursing Mothers\*

### Radiocontrast Not Requiring Breastfeeding Interruption

Barium Sulfate (Anatrast, Baricon, Baro-cat, Barobag, Barospense, Bear-E-Yum CT, Bear-E-Yum GI, Cheetah, Enecat CT Medescan, Enhancer, Entrobar, EntroEase, EnteroEase Dry, Epi-C, Flo-Coat, HD 85, HD 200 Plus, Imager ac, Intropaste, Liqui-CoatHD, Liquid Barospense, Medebar Plus, Prepcat, Tomocat, Tonopaque)

Gadolinium-containing Radio-Contrast Agents

Gadobenate (MultiHance)

Gadodiamide (Omniscan)

Gadopentetate (Magnevist, Magnevistan, Magnograf, Viewgam)

Gadoteridol (Prohance)

Gadoversetamide (Optimark)

Iodinated containing radiopaque medium (Ionic and Nonionic)

Diatrizoate (Angiovist, Cardiografin, Cystografin, Ethibloc, Gastrovist, Hypaque, Reno-30, Reno-60, Reno-Dip, Reno-M, Retroografin, Sinografin, Urovist)

Iodipamide (Cholografin, Sinografin)

Iodixanol (Visipaque)

Iohexaol (Accupaque, Myelo-Kit, Omnigraf, Omnipaque, Omnitrast)

Iopamidol (Gastromiro, Iopamiro, Iopamiron, Iopasen, Isovue, Isovue-M, Jopamiro, Niopam, Pamiray, Radiomiron, Scanlux, Solustrast)

Iopanoic acid (Biliopaco, Cistobil, Colegraf, Colepak, Neocontrast, Telepaque)

Iopromide (Colegraf, Proscope, Ultravist)

Iothalmate (Angio-Conray, Conray-30, Conray-43, Conray-60, Conray 325, Conray-400, Cysto-Conray, Cysto-Conray II, Vascoray)

Ioversol (Optiject, Optiray)

Ioxaglate (Hexabrix, Hexabrix 160, Hexabrix 200, Hexabrix 320)

Ioxitalamic acid (Telebrix)

Metrizoate (Angiocontrast, Isopaque)

Metrizamide (Amipaque)

### Radiocontrast Agent Requiring Interruption

Mangafodipir Trisodium (Teslascan) Interrupt breastfeeding for 4 hours followed by pumping and discarding milk once

---

\*See Appendix A to obtain additional information on radiocontrast material

# Appendix C

## Breastfeeding and Radioactive Products: Sources

Infant Risk Center, Texas Tech University, Health Sciences Center, (806) 352-2519 (Monday-Friday 8am-5pm Central Time)

Lactmed <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>

*Medications and Mother's Milk* Hale, TW 14<sup>th</sup> ed Amarillo TX:Pharmasoft Medical Publishing;2010

US Nuclear Regulatory Commission NUREG 2008; 9(2):U 9-10

American Academy of Pediatrics  
DEDICATED TO THE HEALTH OF ALL CHILDREN™



New Jersey Chapter



**PCORE**

Pediatric Council on Research & Education  
Foundation of the American Academy of Pediatrics / NJ Chapter