

# ***Breastfeeding: The Basics***

Presented by:



**rn.com**

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<b>Acknowledgements</b>	<b>2</b>
<b>Purpose &amp; Objectives</b>	<b>3</b>
<b>Introduction</b>	<b>4</b>
<b>How Breast Milk is Produced</b>	<b>5</b>
<b>Anatomy of the Breast</b>	<b>5</b>
<b>The Role of Hormones</b>	<b>6</b>
<b>Tips for Making Breastfeeding Successful</b>	<b>6</b>
<b>Is My Baby Getting Enough Milk?</b>	<b>10</b>
<b>Benefits of Breastfeeding</b>	<b>12</b>
<b>Nutrition and Growth Benefits</b>	<b>12</b>
<b>Enhanced Immune System and Resistance to Infection</b>	<b>12</b>
<b>Improved Health of Mother</b>	<b>12</b>
<b>Convenience</b>	<b>13</b>
<b>Positive Feelings</b>	<b>13</b>
<b>Overall Benefits</b>	<b>13</b>
<b>How Lifestyle Affects Breast Milk</b>	<b>13</b>
<b>Viruses</b>	<b>14</b>
<b>Diet</b>	<b>14</b>
<b>Smoking, Drugs and Alcohol</b>	<b>15</b>
<b>Coping With Breastfeeding Challenges</b>	<b>16</b>

<b>Sore Nipples</b>	<b>16</b>
<b>Normal Fullness versus Engorgement (Sore Breasts)</b>	<b>17</b>
<b>Plugged Ducts versus Breast Infection (Mastitis)</b>	<b>19</b>
<b>Thrush</b>	<b>20</b>
<b>Nursing Strike</b>	<b>21</b>
<b>Special Situations and Breastfeeding</b>	<b>22</b>
<b>Jaundice</b>	<b>22</b>
<b>Babies with Reflux</b>	<b>22</b>
<b>Breastfeeding Made Easier at Home and at Work</b>	<b>23</b>
<b>Preparation before Birth</b>	<b>24</b>
<b>Family Support</b>	<b>25</b>
<b>Breastfeeding and Pumping Accessories</b>	<b>25</b>
<b>Human Milk Banks</b>	<b>27</b>
<b>Milk Bank Publications</b>	<b>28</b>
<b>Milk Bank Organizations</b>	<b>28</b>
<b>Where to Go For Help with Breastfeeding</b>	<b>29</b>
<b>Breastfeeding Helpline</b>	<b>29</b>
<b>Post Test Viewing Instructions</b>	<b>34</b>

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**...The National Women's Health Information Center** ([www.4women.gov](http://www.4women.gov)). Part of the US. Department of Health and Human Services this website and toll-free call center (1-800-994-WOMAN) were created to provide FREE, reliable health information for women everywhere.

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## Purpose & Objectives

The purpose of this course is to outline the process of breastfeeding, discuss issues and challenges that can affect successful nursing and offers links to tools for patients that are breastfeeding.

***After successful completion of this course, you will be able to:***

1. Describe the anatomy and physiology of breastfeeding.
2. Identify two lifestyle issues that impact breastfeeding.
3. Define two breastfeeding challenges and steps to resolve them.
4. Identify one resource for the breastfeeding mother.

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## Introduction

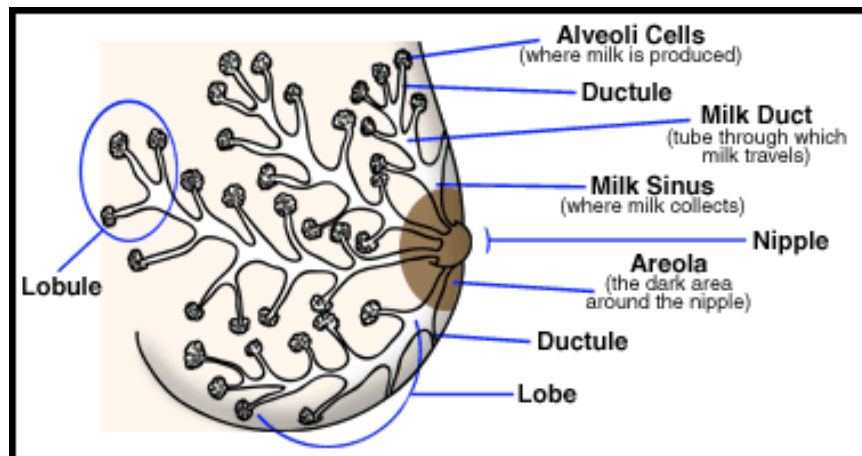
Breastfeeding is nature's way of providing nutrition to the newborn infant. In the past, breastfeeding was encouraged and then later discouraged. Today's research tells us that, if possible, breastfeeding has many advantages for the infant and the mother. Breastfeeding, however, is not without its challenges and potential problems. This course outlines the physiology of breastfeeding; the "how to" of breastfeeding, and the challenges that a new mother might face. Information and solutions are also offered as the course progresses.

# How Breast Milk is Produced

## Anatomy of the Breast

Becoming familiar with the anatomy of the breast and the physiology of milk production are helpful in understanding the breastfeeding process. The breast actually begins developing in the first few weeks of gestation, long before birth. The mammary gland, the gland that produces milk, does not become fully functional until lactation begins. When a woman's breasts become swollen during pregnancy, this is a sign that the mammary gland is stimulated and getting ready to produce milk.

The breast itself is a gland that is composed of several parts, including glandular tissue, connective tissue, blood, lymph, nerves, and fatty tissue. Fatty tissue is the component that affects the size of a woman's breast. Breast size does not have an effect on the amount of milk or the quality of milk a woman produces.



Milk is secreted from the alveoli cells. When the alveoli cells are stimulated by oxytocin, they contract and push the milk into the ductules and down into larger mammary ducts. These mammary ducts are underneath the nipple and areola and they widen to collect the milk. These widened ducts are called milk or lactiferous sinuses. When the baby's gums press on the areola and nipple, it is the lactiferous sinuses that are being compressed, squeezing the milk into the baby's mouth. The nipple tissue protrudes and becomes firmer with stimulation, which makes it more flexible and easier for the baby to grasp in the mouth.

In the diagram above, you can see that each mammary gland forms a lobe in the breast. Each lobe consists of a single branch of alveoli, milk ducts, and a lactiferous sinus that narrows into an opening in the nipple. Each breast has about 15 to 25 lobes.

## **The Role of Hormones**

Hormones play a key role in breastfeeding. The increase of estrogen during pregnancy stimulates the ductules to grow. After delivery, estrogen levels drop and remain low in the first several months of breastfeeding. The increase of progesterone during pregnancy also causes the alveoli and lobes to grow. Prolactin is another hormone that is increased during pregnancy and adds to the growth of breast tissue. Prolactin levels also rise during feedings as the nipple is stimulated. As prolactin is released from the brain into the mother's bloodstream during breastfeeding, alveolar cells respond by making milk. Oxytocin is the other hormone that plays a vital role because it is necessary for the let-down, or milk-ejection reflex to occur. It stimulates the alveoli cells to contract so the milk can be pushed down into the ducts. Oxytocin also contracts the muscle of the uterus during and after birth, which helps the uterus to get back to its original size and lessens any bleeding a woman may have after giving birth. The release of both prolactin and oxytocin may be responsible in part for a mother's intense feeling of needing to be with her baby.

## **Tips for Making Breastfeeding Successful**

Breastfeeding can be a wonderful experience for mother and baby. It is important for the mother not to become frustrated if there are problems with the mechanics of breastfeeding since what works for one mother and baby may not work for another. It is also important to help the new mother to focus on finding comfortable positions that facilitate feeding. Establishing a routine that works for the new mother and baby is essential. The following information includes tips that will help make breastfeeding a success.

### ***Get an early start***

Encourage mothers to start nursing as early as possible after delivery (within an hour or two if it is possible) when the baby is awake and the sucking instinct is strong. At first, the breasts contain a kind of milk called colostrum, which is thick and usually yellow or golden in color. Colostrum is gentle to the baby's stomach and helps protect the baby from disease. The milk supply will increase and the color will change to a bluish-white color during the next few days after the baby's birth.

### ***Use proper positioning for baby's mouth***

- Tell new mothers to support the breast with the thumb on top and four fingers underneath. Keep the fingers behind the areola. They may need to support the breast during the whole feeding, especially in the early days or if breasts are large. Bring the baby to the breast rather than leaning forward to bring the breast to the baby. This will be more comfortable for the mother and baby.
- Brush or tickle the baby's lips with the nipple to encourage the baby's mouth to open wide by stimulating the rooting reflex.



- Hug the baby in close with the whole body facing the mother. The baby will take a mouthful of all of the nipple and most of the areola. The baby should never be latched onto the nipple only.
- Look for both of the baby's lips to be turned out (not tucked in or under) and relaxed. If you can't tell if the lower lip is out, press gently on the lower chin to pull the lower lip out. The tongue should be cupped under the breast.
- The baby's jaw will move back and forth and you may hear low-pitched swallowing noises as the baby nurses. The baby's nose and chin may touch the breast.

Breastfeeding should not hurt. If your patient complains of pain, take the baby off of the breast and try again. The baby may not be latched correctly. Break the baby's suction to the breast by gently placing a finger in the corner of the baby's mouth.



**HOW TO BRING BABY TO BREAST:**

1. Tickle baby's lips to encourage him to open wide.
2. When open wide, pull him onto the breast chin first.
3. When baby is latched on well, his/her nose and chin touch the breast.



**PROPER POSITION OF BABY'S MOUTH AROUND NIPPLE:**

Note that baby's lips are around the nipple AND the areola, and the nose and chin are touching the breast. Baby's lips are turned out or "flanged," not tucked in.

## Breastfeeding Positions

There are a number of positions in which the new mother can hold her baby while breastfeeding. She should choose the one(s) that she and the baby feel most comfortable in. No matter which one is chosen, make sure the baby's mouth is near the nipple and that the infant doesn't have to turn the head to breastfeed. For most positions, the baby should be on the side with the whole body facing the mother. This helps him/her to properly "latch on" to the nipple. Try using pillows under the mother's arms, elbows, neck or back, or under the baby for support.

### Cradle Hold

This is the most commonly used position that is comfortable for most mothers. The mother holds the baby with the head on her forearm and the whole body facing the mother.



### Cross Cradle or Transitional Hold

This is good for premature babies or babies who are having problems latching on. Hold the baby along the opposite arm from the breast the baby is nursing from. Have the mother support baby's head with the palm of her hand at the base of the neck. This initially looks similar to the Cradle hold, but the opposite arm is supporting the baby.

### Clutch or "Football" Hold

This is good for mothers with large breasts or inverted nipples. She holds the baby at her side with the baby lying on the back, with the head at the level of the nipple. Support baby's head with the palm of the hand at the base of the baby's head.





### **Side-Lying Position**

This allows mother to rest or sleep while baby nurses. This can be a good position for mothers who had a Cesarean birth. The new mother lies on her side with the baby facing her. She pulls the baby close and guides the baby's mouth to her nipple.

### ***Nurse on demand***

Newborns need to nurse often. They need to breastfeed at least every 2 hours and when they show signs of hunger. Hunger signs include being more alert or active, mouthing (putting hands or fists to mouth and making sucking motion with mouth), or rooting (turning head in search of nipple). Crying is a late sign of hunger. Most newborn babies want to breastfeed about 8 to 12 times in 24 hours.

### ***Feed the baby only breast milk***

Nursing babies don't need water, sugar water or formula. Breastfeed exclusively if possible for about the first six months. Giving other liquids reduces the baby's intake of vitamins from breast milk.

### ***Delay artificial nipples (bottle nipples and pacifiers)***

A newborn needs time to learn how to breastfeed. It is best to wait until the newborn develops a good sucking pattern before introducing a pacifier. Artificial nipples require a different sucking action than real ones. Sucking at a bottle can also confuse some babies when they are first learning how to breastfeed. If, after birth, a baby needs to be taken away from the mother for a length of time and has to be given formula, try to use a syringe or cup when feeding him/her to avoid nipple confusion.

### ***Breastfeed a sick baby during and after illness***

Sick babies may refuse to eat but may continue to breastfeed. Breast milk will give the baby needed nutrients and help to prevent dehydration.

## ***Eat right and get enough rest***

The new mother may be thirstier and have a bigger appetite while breastfeeding. Encourage her to drink enough non-caffeinated beverages to keep from being thirsty. Producing milk requires about 500 extra calories a day.

Women often try to improve their diets while they are pregnant. Continuing with an improved diet after the baby is born will help her stay healthy; however, even if she doesn't always eat well, the quality of milk won't change much. The new mother's body adjusts to ensure the baby's milk supply is protected.

New mothers need as much rest as possible. This will help prevent breast infections, which are worsened by fatigue.

If you are on a strict Vegetarian diet, you may need to increase your vitamin B12 intake and should talk with your healthcare provider. Infants breastfed by women on this type of diet can show signs of not getting enough vitamin B12.

## **Is My Baby Getting Enough Milk?**

Most new mothers are concerned about their babies getting enough milk. When the mother and baby are in the hospital, the baby should stay with the mother whenever possible. Remind mothers that the baby will be sleepy and not to expect the baby to wake up when hungry. A newborn will need to be awakened about every two hours to feed.

The first milk produced is colostrum, a thick yellowish milk. Even though it looks like only a small amount, this is the only food the baby needs. It is important to let the mother know that the baby may initially lose some weight. This is very normal and is not related to breastfeeding. A baby shouldn't lose more than seven to ten percent of the birth weight during the first three to five days.

You can tell if a baby is getting enough milk (or fluid) by keeping track of the number of wet and soiled diapers. In the first few days, when milk is low in volume and high in nutrients, the baby may have only one or two wet diapers a day. After the milk supply has increased, the baby should have five to six wet diapers and three to four soiled diapers every day. Encourage new mothers to consult their pediatrician if they are concerned about the baby's weight gain.

This chart shows the *minimum number of diapers for most babies*

<b>Baby's Age</b>	<b>Wet Diapers</b>	<b>Dirty Diapers Color and Texture</b>
Day 1 (birth)	1	Thick, tarry and black
Day 2	2	Thick, tarry and black
Day 3	3	Greenish yellow
Day 4	5 - 6	Greenish yellow
Day 5	5 - 6	Seedy, watery mustard color
Day 6	5 - 6	Seedy, watery mustard color
Day 7	5 - 6	Seedy, watery mustard color

After mother and baby go home from the hospital, the baby still needs to eat about every one to two hours and will need frequent diaper changes. It is possible that she will need to wake the baby to feed because some babies are sleepy for up to one month after delivery. If the mother is having a hard time waking her baby, instruct her to stimulate the baby by loosening the baby's blanket, clothing or tickle the baby's feet.

Overall, mothers can feel confident that the baby is getting enough to eat because the amount of milk produced is regulated by the baby's needs. If the baby needs to eat more or more often, breasts will increase the amount of milk they produce. Other signs that a baby is getting enough milk are:

- Steady weight gain, after the first week of age. From birth to three months, typical weight gain is four to eight ounces per week.
- Pale yellow urine, not deep yellow or orange.
- Sleeps well, yet baby is alert and looks healthy when awake.

Remember that the more often and effectively a baby nurses, the more milk there will be. Breasts produce and supply milk directly in response to the baby's need or demand.

# Benefits of Breastfeeding

There are many benefits to breastfeeding. Even if a mother is only able to nurse for a short time, the baby's immune system can benefit from breast milk. There are many other benefits related to nursing that include the following.

## Nutrition and Growth Benefits

- Breast milk is the most complete form of nutrition for infants. A mother's milk has the right amount of fat, sugar, water, and protein that is needed for a baby's growth and development. Most babies find it easier to digest breast milk than they do formula.
- Breastfed infants tend to gain less unnecessary weight and tend to be leaner. This may result in being less overweight later in life.
- Premature babies do better when breastfed compared to premature babies who are fed formula.
- Although researchers are not certain, results from some studies show that breastfed children have greater brain development than non-breastfed children.

## Enhanced Immune System and Resistance to Infection

- Breast milk has antibodies in it to help protect infants from bacteria and viruses. Breastfed babies are more able to fight off infection and disease, such as diarrhea, ear infections, and respiratory illnesses such as pneumonia. They tend to be sick less often and have fewer visits to healthcare providers.
- Breastfed infants' immune systems have a better response to immunizations like polio, tetanus, diphtheria, and Haemophilus influenzae, and to respiratory syncytial virus infection, a common infant respiratory infection.
- When breastfeeding, there are no bottles and nipples to sterilize. Human milk straight from the breast is always sterile.

## Improved Health of Mother

- Nursing uses up extra calories, making it easier to lose the pounds of pregnancy. It also helps the uterus to return to its original size and lessens any bleeding a woman may have after giving birth.
- Breastfeeding lowers the risk of breast and ovarian cancers.

## Convenience

- Breastfeeding saves time and money. There is no need to purchase, measure, and mix formula. There are no bottles to warm in the middle of the night!
- A mother can give her baby immediate satisfaction by providing her breast milk when the baby is hungry.
- Breastfeeding requires a mother to take some quiet relaxed time for herself and her baby.

## Positive Feelings

- Breastfeeding can help a mother to bond with her baby. Physical contact is important to a newborn and can help them feel more secure, and warm and comforted.
- Breastfeeding mothers may have increased self-confidence, feelings of closeness, and bonding with their infants.

## Overall Benefits

- Breastfeeding saves on healthcare costs. Total medical care costs for the nation are lower for fully breastfed infants than never-breastfed infants since breastfed infants typically need fewer sick care visits, prescriptions, and hospitalizations.
- Breastfeeding contributes to a more productive workforce. Breastfeeding mothers miss less work, as their infants are sick less often. Employer medical costs also are lower and employee productivity is higher.

## How Lifestyle Affects Breast Milk

Lifestyle can have an affect on breast milk, and therefore on the baby. It is important for the new mother to take care of herself so she can provide the best care to her baby. This includes getting enough rest and proper nutrition so she has enough energy to take care of the baby and avoid illness.

Some women think that when they are sick, they should not breastfeed. But, most common illnesses, such as colds, flu, or diarrhea, can't be passed through breast milk. In fact, if a breastfeeding mother is sick, her breast milk will usually have antibodies in it. These antibodies will help protect the baby from getting the same sickness. However, she should always check with her pediatrician about continuing to breastfeed.

Some other lifestyle issues that affect breast milk:



## **Viruses**

A few viruses can pass through breast milk. HIV is one of them. If a mother is HIV positive, she should not breastfeed. Also, there is evidence that Hepatitis C may be transmitted through breast milk. Bleeding or cracked nipples on the breast of a woman with Hepatitis C puts a breastfeeding infant at higher risk for getting the virus.

## **Diet**

### ***Nutrition***

Even if a mother doesn't generally eat a healthy diet, she will produce nutritious breast milk for her baby. But, chronically undernourished women who have had diets very low in vitamins and minerals, and low stores in their bodies may produce milk that is lower than normal in some vitamins, especially vitamins A, D, B6, or B12. These breastfeeding mothers can help the vitamin levels in their milk return to normal by improving their diets or by taking vitamin supplements. It is recommended that nursing mothers take in about 2700 calories every day (about 500 calories more than a non-pregnant, non-nursing woman).

### ***Fluids***

Many women think they have to drink a lot of fluids to have a good milk supply. This is actually untrue. She does, however, need to drink enough fluids to stay well hydrated for her own health and strength to give her baby the best care she can. She should always drink when she is thirsty, which is the body's signal that it needs fluid. An easy way to remember to get enough fluid is to drink a glass of water or a nutritious beverage (milk or juice) every time she feeds the baby.

### ***Caffeine***

Many breastfeeding women wonder about how caffeine will affect their baby. Results from studies show that excessive caffeine intake (more than five 5 ounce cups of coffee per day) can cause the baby to be fussy and not able to sleep well. Moderate caffeine intake (fewer than five 5 ounce cups) usually doesn't cause a problem for most breastfeeding babies.

### ***Allergies***

Sometimes a baby may have a reaction to something the new mother eats (like spicy foods, foods that can cause gas or dairy products). Symptoms of an allergy to something in the maternal diet include diarrhea, rash, fussiness, gas, dry skin, green stools with mucus, or the baby pulling up his/her knees and screaming. This doesn't mean the baby is allergic to breast milk. If the new mother stops eating whatever is bothering her baby, the problem usually goes away on its own.



## **How to tell if something being eaten is upsetting the baby**

It takes about two to six hours for the body to digest and absorb the food eaten and pass it into breast milk.

- If dinner was eaten at 5:00 P.M., and the baby shows the symptoms listed above around 9:00 P.M., think about what was eaten for dinner. To be sure if those foods are causing the problem, the mother has to eat them again and see if he/she has the same reaction.
- If the baby seems very fussy, encourage the mother to keep a record of what she eats and drinks.
- The mother should bring the record to her pediatrician to discuss a possible link between certain foods and the baby's symptoms.
- If a breastfeeding mother thinks a particular food is causing a problem, instruct her to stop eating it for a few days and see if the baby improves. The mother can always try re-introducing the food into her diet in small amounts at a later date. If the baby doesn't seem to react to it anymore, she can continue to add more.

## **Lactase Deficiency or Galactosemia**

Sometimes a baby can be born with a condition called primary lactase deficiency or with galactosemia, in which breast milk cannot be tolerated. This happens when the body can't break down lactose, a sugar found in the milk of humans and animals. Symptoms include diarrhea and vomiting. Babies with severe galactosemia may have liver problems, malnutrition, or mental retardation. Babies with these conditions must be fed formula that comes from plants, such as soy milk or a special galactose-free formula.

## **Smoking, Drugs and Alcohol**

### ***Smoking***

Nursing mothers should not smoke. Tobacco from cigarettes contains nicotine which transfers to breast milk and may even affect the amount of milk produced. The risk for sudden infant death syndrome (SIDS) is greater when a mother smokes or when the baby is subjected to second-hand (or passive) smoke. Smoking and passive smoke may also increase respiratory and ear infections in babies. If a mother smokes and is breastfeeding, encourage her to talk to her physician about what she can do to quit smoking. If she can't quit, breastfeeding still is best because the benefits of breast milk still outweigh the risks from nicotine.

### ***Illegal Drugs***

Some drugs, such as cocaine and PCP, can intoxicate the baby. Others, such as amphetamines, heroin, and marijuana, can cause a variety of symptoms, including irritability, poor sleeping patterns, tremors, and vomiting. Babies can become addicted to these drugs.

## **Alcohol**

Alcohol passes to the baby through breast milk, and has been found to peak in its concentration about 30 to 60 minutes after consumption, or 60 to 90 minutes if it is taken with food. The effects of alcohol on the breastfeeding baby are directly related to the amount of alcohol a mother consumes. Moderate to heavy drinking (2 or more alcoholic drinks per day) can interfere with the let-down reflex and the milk-ejection reflex. It also can harm the baby's motor development and cause slow weight gain. For this reason, and for the general health of the mother, if alcohol is used, intake should be limited. Light drinking by a breastfeeding mother has not been found to be harmful to a breastfeeding baby

## **Medications**

The breastfeeding mother should always talk with her healthcare provider before taking any medications. Most medications pass into breast milk in small amounts. If taking medication for a chronic condition such as high blood pressure, diabetes or asthma, the medication may already have been studied in breastfeeding women, so there may be information available to help make an informed decision with the help of the mother's healthcare provider. Newer medications and medications for rare disorders may have less information available. The American Academy of Pediatrics has information about many prescription and over-the-counter medications posted on their web site at: [www.aap.org](http://www.aap.org).

## **Coping With Breastfeeding Challenges**

Some women breastfeed without any problems, but for many women, it is natural for minor problems to arise at first, especially if it is their first time breastfeeding. The good news is that most problems can be overcome with a little help and support. Some of the more serious problems such as infection may require intervention from the healthcare provider. It is important for your patients to become familiar with the warning signs of the following potential problems.

### **Sore Nipples**

Poor latch-on and positioning are the major causes of sore nipples because the baby is not getting enough of the areola into his or her mouth, and is sucking mostly on the nipple. If a new mother has sore nipples she is more likely to postpone feedings because of the pain, but this can lead to breasts becoming overly full or engorged. This engorgement can then lead to plugged milk ducts in the breast. If the baby is latched on correctly and is able to suck effectively, the baby should be able to nurse as long as needed without causing any pain.

## Solution

- Check the positioning of the baby's body and the way the baby latches on and sucks. Your patient will find that it feels better right away once the baby is positioned correctly.
- Don't delay feedings, and try to relax so the let-down reflex comes easily. She also can hand-express a little milk before beginning the feeding so the baby doesn't clamp down as hard, waiting for the milk to come.
- If your patient's nipples are very sore, it can help to change positions each time she nurses. This puts the pressure on a different part of the nipple.
- After nursing, encourage your patient to express a few drops of milk and gently rub it on her nipples. Human milk has natural healing properties and emollients to soothe them. The new mother can try letting her nipples air-dry after feeding, or wear a soft-cotton shirt.
- Wearing a nipple shield during nursing will not relieve sore nipples. They actually can prolong soreness by making it hard for the baby to learn to nurse without the shield.
- Encourage your patient to avoid wearing bras or clothes that are too tight and put pressure on the nipples.
- Change nursing pads often to avoid trapping in moisture.
- Avoid using soap or ointments that contain astringents or other chemicals on the nipples. Make sure to avoid products that must be removed before nursing. Washing with clean water is all that is necessary to keep the nipples and breasts clean.
- Making sure new mothers get enough rest, eat healthy foods, and drink enough fluids can also help the healing process. If she has had very sore nipples, she needs to check with the physician about using non-aspirin pain relievers.
- If sore nipples last or the new mom suddenly gets sore nipples after several weeks of nursing without pain, your patient could have thrush, a fungal infection that can form on nipples from the milk. Later in this course, thrush will be discussed in detail.

**Remember:**  
If breast feeding hurts,  
remove the baby from the  
breast and try again!

## Normal Fullness versus Engorgement (Sore Breasts)

Anything that reduces the amount of time the baby is at the breast or postpones regular nursing can cause overly full or engorged breasts. A breastfeeding mother usually feels a normal fullness (slight heaviness that is not painful) in her breasts, especially in the first couple of days when her milk comes in. But overly full or engorged breasts can be very painful and feel very hard. She may have breast swelling, tenderness, warmth, redness, throbbing and flattening of the nipple. Engorgement sometimes also causes a low-grade fever and can be confused with a breast infection. Engorgement is the result of the milk building up, and usually happens during the third to fifth day after birth. This slows circulation and when blood and lymph move through the breasts, fluid from the blood vessels can seep into the breast tissues.

All of the following can contribute to engorgement:

- Poor latch-on or positioning
- Trying to limit feeding times or infrequent feedings
- Giving supplementary bottles of water, juice, formula, or breast milk
- Overusing a pacifier
- Changing the breastfeeding schedule to return to work or school
- The baby changes the nursing pattern by beginning to sleep through the night or breastfeed more often during one part of the day and less often at other times
- A baby that has a weak suck who is not able to nurse effectively
- Fatigue, stress, or anemia in the mother
- An overabundant milk supply
- Nipple damage
- Breast abnormalities

Engorgement can lead to plugged ducts or a breast infection, so it is important to try to prevent it before this happens. If treated properly, engorgement should only usually last for one to two days.

## **Solution**

- Minimize engorgement by making sure the baby is latched on and positioned correctly at the breast. Encourage the mother to nurse frequently after birth. Allow the baby to nurse as long as the baby likes, as long as the infant is latched on well and sucking effectively. In the early days when milk is coming in, awaken a sleepy baby every 2 to 3 hours for breastfeeding. Breastfeeding often on the affected side helps to remove the milk, keep it moving freely, and prevent the breast from becoming overly full.
- Avoid supplementary bottles and overusing pacifiers.
- Try hand expressing or pumping a little milk to first soften the breast, areola, and nipple before breastfeeding, or massage the breast and apply heat.
- Cold compresses in between feedings can help ease pain.
- If the new mother is returning to work, she should try to pump milk on the same schedule that the baby is breastfed at home.
- Encourage the new mother to get enough rest and proper nutrition and fluids.
- Your patient should try to wear a well-fitting, supportive bra that is not too tight.

**IMPORTANT:** If engorgement lasts for more than 2 days even after treating it, the mother should contact her physician.

## Plugged Ducts versus Breast Infection (Mastitis)

It is common for many women to have a plugged duct in the breast during the period she breastfeeds. A plugged milk duct feels tender, sore, or like a lump in the breast. It is not accompanied by a fever or other symptoms. It happens when a milk duct does not properly drain, becomes inflamed, pressure builds up behind the plug, and surrounding tissue becomes inflamed. A plugged duct usually only occurs in one breast.

A breast infection (mastitis), on the other hand, is soreness or a lump in the breast that is accompanied by a fever and/or flu-like symptoms, such as feeling run down or very achy. Some women with a breast infection also have nausea and vomiting. They may also have yellowish discharge from the nipple that looks like colostrum, or the breasts may feel warm or hot to the touch. A breast infection can occur when other family members have a cold or the flu. Like a plugged duct, mastitis usually only occurs in one breast.

### *Solution*

Treatment for plugged ducts and breast infections is similar.

- Soreness can be relieved by applying heat to increase circulation to the sore area and to speed its healing. A heating pad or a small hot-water bottle can be used. It also helps to massage the area, starting behind the sore spot. Teach your patient to use her fingers in a circular motion and massage toward the nipple.
- Breastfeed often on the affected side. This helps loosen the plug, keeps the milk moving freely, and the breast from becoming overly full. Nursing every two hours, both day and night, on the affected side first can be helpful.
- Rest. Getting extra sleep or relaxing with the feet elevated can help speed healing. Often a plugged duct or breast infection is the first sign that a mother is doing too much and becoming overly tired.
- Wear a well-fitting supportive bra that is not too tight, since this can constrict milk ducts.
- If on an antibiotic, your patient should discuss with the physician if she can continue to breastfeed. There are many antibiotics that do not affect the baby through the breast milk. If she cannot breastfeed, she can continue to pump her breasts and discard the milk until the physician indicates that your patient can safely breastfeed her infant.

## Thrush

Thrush (yeast) is a fungal infection that can form on the nipples or in the breast because it thrives on milk. The infection forms from an overgrowth of the candida organism. Candida usually exists in our bodies and is kept at healthy levels by the natural bacteria in our bodies. However, when the natural balance of bacteria is upset, candida can overgrow, causing an infection. Thrush is more likely to occur when the following situations are present:

- Having an overly moist environment on the skin.
- Nipples that are sore or cracked.
- Taking antibiotics or birth control pills.
- A diet that contains large amounts of sugar or foods with yeast.
- Chronic illness like HIV infection, diabetes, or anemia.

If your patient has sore nipples that last more than a few days even after making sure the baby's latch and positioning is correct, or if she suddenly gets sore nipples after several weeks of nursing without difficulty, she could have thrush. Some other signs of thrush include itching or burning nipples which may look normal or may appear pink or red, shiny, flaky, or have a rash with tiny blisters. Your patient may also have shooting pains in the breast during or after feedings. The infection also can form in the baby's mouth from having contact with the nipples. Thrush appears in the mouth as little white spots on the inside of the cheeks, gums, or tongue. It also can appear as a diaper rash (small red dots around a rash) on the baby that won't go away by using regular diaper rash ointments.

## Solution

- If mother or baby have any of these symptoms, contact the healthcare provider to determine if thrush is present and to begin treatment
- Medication for the mother is usually an ointment for the nipples, and the baby can be given a liquid medication for the mouth, and an ointment for the diaper rash.
- Thrush may take several weeks to cure, so it is important to try not to spread it. Don't freeze milk that is pumped while she has thrush. Change disposable nursing pads often and wash any towels or clothing that comes in contact with the yeast in very hot water (above 122° F). Also wash any toys the baby puts in the mouth in hot soapy water and rinse well.
- Your patient should wear a clean bra every day.
- Teach the new mother to wash hands often, and wash the baby's hands often, especially if the infant likes to suck on fingers.
- If used, boil pacifiers, bottle nipples, or teethers once a day for 20 minutes to kill the thrush. After one week of treatment, discard them and buy new ones.
- Boil daily for 20 minutes all breast pump parts that touch the milk.
- Make sure other family members are free of thrush or other fungal infections. If they have symptoms, get them treatment.

## Nursing Strike

A nursing strike is when the baby has been nursing well for months, then suddenly loses interest in breastfeeding and begins to refuse the breast. There are a number of possible reasons for a nursing strike. Not all babies will react the same way to the situations that may cause a nursing strike. Some will continue to breastfeed without a problem, others may just become fussy at the breast, and others will refuse the breast entirely. Some of the major causes of a nursing strike include:

- Mouth pain from teething, a fungal infection like thrush, or a cold sore
- An ear infection, which causes pain while sucking
- Pain from a certain nursing position, either from an injury on the baby's body or from soreness from an immunization
- Being upset about a long separation from the mother or a major change in routine
- Being distracted while nursing — becoming interested in the surroundings
- A cold or stuffy nose that makes breathing while nursing difficult
- Reduced milk supply from supplementing with bottles or overuse of a pacifier
- Responding to the mother's strong reaction if the baby has bitten her
- Being upset about hearing arguing or people talking in a harsh voice with other family members while nursing
- Reacting to stress, over stimulation, or having been repeatedly put off when wanting to nurse

If the baby is on a nursing strike, it is normal for the new mother to feel frustrated and upset. It is important to help her not to feel guilty or that she has done something wrong. An additional problem is that the breasts also may become uncomfortable as the milk builds up.

## Solution

- Try to express milk on the same schedule as the baby used to breastfeed to avoid engorgement and plugged ducts.
- Try another feeding method temporarily to give the baby mother's milk, such as a cup, dropper, or spoon. Teach your patient to keep track of wet diapers to make the infant is getting enough milk (five to six wet diapers per day).
- Keep offering the breast to the baby. If the baby is frustrated, stop and try again later. Try when the baby is sleeping or very sleepy.
- Try various breastfeeding positions.
- Focus on the baby and provide extra comfort with touching and cuddling.
- Try nursing while rocking and in a quiet room free of distractions.
- The baby may need to see the pediatrician to rule out ear infection or other illness.



## Special Situations and Breastfeeding

Some babies are born with conditions that may interfere with or make breastfeeding more difficult. However, in all of the following cases, breastfeeding is still considered the best nutrition for the baby.

### Jaundice

Jaundice is a condition that is common in many newborns. It appears as a yellowing of the skin and eyes and is caused by an excess of bilirubin, a yellow pigment that is a product in the blood.

All babies are born with extra red blood cells that undergo a process of being broken down and eliminated from the body. Bilirubin levels in the blood can be high because of higher production of it in a newborn, an increased ability of the newborn intestine to absorb it, and a limited ability of the newborn liver to handle large amounts of it. Many cases of jaundice do not need to be treated—the physician will carefully monitor the baby's bilirubin levels. Sometimes infants have to be temporarily hospitalized to receive special treatment with phototherapy. In these cases, breastfeeding may be discouraged and supplements or other fluids may be given to the baby. However, the American Academy of Pediatrics discourages stopping breastfeeding in jaundiced babies and suggests continuing frequent breastfeeding, even during treatment. If a baby is jaundiced or develops jaundice, it is important for the mother to discuss with the physician all possible treatment options and let the physician know that she does not want to interrupt nursing (if this is at all possible).

### Babies with Reflux

It is not unusual for babies spit up after nursing. Usually, babies can spit up and show no other signs of illness, and the spitting up disappears as the baby's digestive system matures. As long as the baby has six to eight wet diapers and at least two bowel movements in a 24 hour period (under six weeks of age), and the baby is gaining weight (at least 4 ounces a week) the baby is likely getting enough milk.

However, some babies have a condition called gastroesophageal reflux (GER), which occurs when the muscle at the opening of the stomach opens at the wrong times, allowing milk and food to come back up into the esophagus (the tube in the throat). Symptoms of GER can include:

- Severe spitting up, or spitting up after every feeding, or hours after eating
- Projectile vomiting, where the milk shoots out of the mouth
- Inconsolable crying as if in discomfort
- Arching of the back as if in severe pain
- Refusal to eat or pulling away from the breast during feeding
- Waking up frequently at night
- Slow weight gain
- Difficulty swallowing



- Gagging or choking
- Frequent red or sore throat
- Frequent hiccups or burping
- Signs of asthma, bronchitis, wheezing, problems breathing, pneumonia, or apnea.

**NOTE:** Many healthy babies might have some of these symptoms and not have GER. But there are babies who might only have a few of these symptoms and have a severe case of GER. **Not all babies with GER spit up or vomit.**

Some babies with GER do not have a serious medical problem, but caring for them can be hard since they tend to be very fussy and wake up frequently at night. More severe cases of GER may need to be treated with medication if the baby, in addition to spitting up, also refuses to nurse, gains weight poorly or is losing weight, or has periods of gagging or choking.

If a baby spits up after every feeding and has any of the other symptoms mentioned above, a physician should evaluate the infant. If there is no other signs of illness, the baby could just be sensitive to a food in the mother's diet or a medication the baby is receiving. If a baby has GER, breastfeeding is generally encouraged. Breast milk still is more easily digested than formula. Trying smaller, more frequent feedings, thorough burping, and putting the baby in an upright position during and after feedings may help with GER.

## **Breastfeeding Made Easier at Home and at Work**

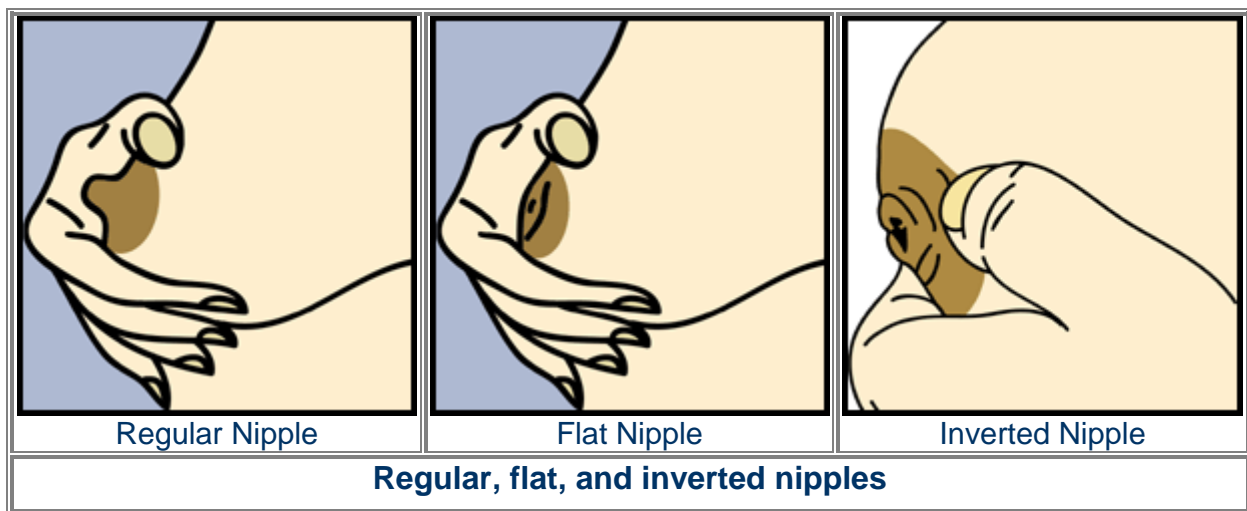
Breastfeeding is a unique experience for each woman and her baby, and each woman has to find her own routine, setting, and positions that work best. Today, many mothers return to jobs outside of their homes after their babies are born, and the breastfeeding routine that they've set up while on leave has to change. Many women continue to breastfeed successfully though, with the help of a breast pump. Whether she chooses to stay at home to care for her baby, or choose to return to a job outside of the home, here are some tips about breastfeeding and pumping to make breastfeeding easier and safe for mother and baby.

## Preparation before Birth

### Nipple Type

- Before the baby is born, it is helpful to know what type of nipples the mother has.

A flat nipple lies flat against the areola (darker circular area around the nipple) instead of protruding outward. Inverted nipples seem pushed inward to the areola. Both flat nipples and inverted nipples can make correct latch-on more challenging for the baby since they are not easy for the baby to grab in his or her mouth. One solution is to wear a breast shell (a round plastic shell that fits around the breast) in the bra to create a moist environment around the nipple to help it protrude for easier latch-on.



### Medications

- Before the birth of the baby, know what medications the mother is taking or may have to take after the birth, and how they will affect the baby through breast milk.

The new mother should talk with her healthcare provider about their safety, and about possible alternative treatments that won't affect the baby. While breastfeeding, if the mother becomes ill and has to take medication, be certain she notifies her healthcare provider that she is breastfeeding. It may be possible to temporarily pump and discard the breast milk while taking the medication. During this time, she can use previously stored breast milk or formula to feed the baby, but she will be keeping her breast milk supply at a level that will meet the baby's needs when treatment is over.

## Family Support

Fathers and other special support persons can be involved in the breastfeeding experience. Breastfeeding is more than a way to feed a baby, it becomes a lifestyle. While no one but the baby's mother can provide breast milk, it is helpful for the mother and the baby if the father or support person encourages this healthy relationship. Fathers or support persons play a major role in the breastfeeding experience by being sensitive and supportive. They can encourage breastfeeding when the mother is feeling tired or discouraged. They can affirm their love, approval, and appreciation for the mother's work and time that she puts into breastfeeding. They also can be good listeners and provide understanding to the mother's and baby's needs to accommodate breastfeeding in the home or when traveling.

All of this support helps the mother feel better about herself and proud that she is giving her baby the best. Many people also feel warmth, love, and relaxation just from sitting next to mother and baby during breastfeeding. Fathers and support persons also can help when the mother begins to wean the baby from breastfeeding by giving emotional nourishment to the child through playing, cuddling, and giving a bottle/cup.

## Breastfeeding and Pumping Accessories

### *Clothing*

- **A new wardrobe isn't necessary to breastfeed.** While no extravagant "breastfeeding clothing" is necessary, encourage mothers to wear clothing that will make breastfeeding and/or pumping easier. Wearing jumpers or one-piece dresses are not as convenient as a blouse or two-piece outfits. Nursing bras and nursing clothes, like blouses that have hidden openings near the chest are available but are not necessary.
- **Disposable or cloth breastfeeding pads are available to line the bra.** These help prevent any leaking from soaking through the mother's blouse. The disposable pads can be thrown away, and the cloth pads can be tossed in the washing machine and used again.
- **If breastfeeding in public, mothers may want to use a receiving blanket or a breastfeeding blanket that covers their breasts and the baby's upper body.**

## **Pumps**

- **There are several types of breast pumps available.**

Some are manual, or require the mother to use her hand and wrist to squeeze a bulb-type device to pump the milk. There also are automatic pumps that run either on battery or hook up to an electrical outlet and automatically simulate the baby's natural sucking action. These pumps are easier to use, and do not require a lot of practice or skill. They can collect more milk in less time; however they cost more than manual pumps (around \$150 to \$200).

- **Mothers should think about pumping needs before buying a breast pump.**

If the new mother plans on going back to work, either full-time or part-time, it may be worth investing in an automatic pump. If she plans to never be away from her baby except for an occasional outing, she may want to use a hand pump or hand express the milk without a pump. Both hand expressing and using a hand pump require practice, skill, strength, and coordination.

- **Pumps also come in "single" or "double" meaning milk can either be pumped from one breast or from both breasts at the same time.**

Most electric pumps are double pumps, but a breastfeeding mother can choose whether to pump one or both breasts at the same time.

- **Although many breast pumps look different, they all operate in basically the same way.**

Each comes with a plastic "shell" that covers the nipple and breast and is also connected to tubing that carries the milk from the breast to a bottle or bag that collects the milk. Experts caution against using the "bicycle horn" type of pump because it cannot be sterilized, can be ineffective, and can cause damage to breast tissue.

- **Most automatic pumps come in convenient, discreet carrying cases that match other accessories carried to work, such as her purse or briefcase.**

- **Be certain to follow the manufacturer's instructions for cleaning and caring for the equipment.**

- **Where to purchase a pump?**

Some pumps can be purchased at baby supply stores or general department stores, but most high-grade, professional quality automatic pumps have to be purchased or rented from a lactation consultant at a local hospital, or from a breastfeeding organization.

## Human Milk Banks

Ideally, breast milk comes from a baby's own mother. But when this is not possible, breast milk from donors (other women's breast milk) can be obtained. This milk provides the same precious nutrition and disease fighting properties as the mother's own breast milk. If a baby has special needs, such as intolerance to formula, severe allergies, is failing to thrive on formula, is premature or has other health problems, donated breast milk may be a great solution.

There are several reasons why a mother may not be able to breastfeed her own baby:

- In a premature delivery, a mother's milk supply may not become established enough to provide milk for her baby. Sometimes the stress of caring for a very ill infant prevents the milk supply from developing.
- A mother who delivers twins or triplets might not have enough milk supply to nourish all of the babies.
- Some medicines taken by the mother for a health problem, such as chemotherapy for cancer, can harm a baby.
- A mother might have an infection that could be spread to her baby through breastfeeding, such as HIV or hepatitis.
- A mother might have a health problem that prevents her from breastfeeding or makes it impossible for her to produce milk.

Breast milk from donors is stored in human milk banks. At the time of this article there are only ten human milk banks in the United States. While the number of infants and children who depend upon donor milk for health or survival is small, their numbers are greater than the supply that is available.

Human milk banks screen the donors, and collect, screen, process, and dispense donor human milk. Because babies who use donor milk are not related to the donors, every possible step is taken to ensure the milk is safe. And the milk is only dispensed by a prescription from the pediatrician. The prescription must show how many ounces of processed milk are needed per day, and for how many weeks or months. The milk bank also needs the mother's name, the baby's name, and address and phone number. Then, the new mother and pediatrician can contact a milk bank to order the milk. If the milk bank is located close to the mother, she can pick up the milk there. If she lives out of the area, the milk bank can ship the frozen milk in coolers every few days.

The cost of donor milk is about \$3 per ounce. Sometimes there is another fee for shipping. Most health insurance companies cover the cost of donor milk if it is medically necessary. To find out if insurance will cover the cost of the milk, call the insurance company or billing personnel in the hospital or physician office. If an insurance company does not cover the cost of the milk, talk with the milk bank to find out how payment can be made later on, or how to get help with the payments. A milk bank will never deny donor milk to a baby in need.

The Human Milk Banking Association of North America operates ten milk banks across the United States. For more information about milk banks and their locations click here:  
<http://www.hmbana.org/index.php?mode=locations>.

## Milk Bank Publications

1. **Where Does Donor Milk Banking Fit In Public Health Policy?** (Copyright © LLLI)  
<http://www.lalecheleague.org/ba/Feb02.html>  
A human milk bank is where lactating mothers can donate their breast milk. Other mothers can have access to breast milk for their babies in any event they cannot produce their own breast milk or if for any reason (such as HIV infection) their milk is not suitable. This publication covers how milk banks fit into public health policy.

## Milk Bank Organizations

1. Mother's Milk Bank at Christiana Hospital  
Christiana Care Health System  
1719 E. 19th Ave  
Denver, CO 80218  
302-733-2340
2. Mothers' Milk Bank of Denver  
[mmilkbank@health1.org](mailto:mmilkbank@health1.org)
3. Mothers' Milk Bank of Iowa  
[www.uihealthcare.com/depts/childrenshospitalofiowa/milkbank/](http://www.uihealthcare.com/depts/childrenshospitalofiowa/milkbank/)
4. Mothers' Milk Bank At Santa Clara Valley Medical Center  
[mothersmilkbank@hhs.co.santa-clara.ca.us](mailto:mothersmilkbank@hhs.co.santa-clara.ca.us)
5. The Mothers' Milk Bank at Austin  
[www.mmbaustin.org](http://www.mmbaustin.org)
6. Mothers' Milk Bank of Michigan  
[Duffc@bronsonhg.org](mailto:Duffc@bronsonhg.org)
7. Mothers' Milk Bank of New England  
[mmbne@yahoo.com](mailto:mmbne@yahoo.com)
8. Mothers' Milk Bank of Ohio  
[gmmorrow@ohiohealth.com](mailto:gmmorrow@ohiohealth.com)
9. Mothers' Milk Bank North Carolina  
<http://www.wakemed.com/body.cfm?id=135>
10. Mothers' Milk Bank of Indiana  
<http://www.immilkbank.org/>

## Where to Go For Help with Breastfeeding

If a you or a mother need more information on breastfeeding or extra help with a breastfeeding challenge, don't get discouraged! There are many people and organizations that want to help new mothers have a successful and happy breastfeeding experience. The following organizations are the most recognized national organizations that provide valuable information on or support for breastfeeding. While their services may vary, they all share the purpose of promoting breastfeeding to mothers, fathers, and families.

### Breastfeeding Helpline

The National Women's Health Information Center (NWHIC) has partnered with La Leche League International to train our Information Specialists so they can help with common breastfeeding issues such as nursing positions, questions about pumping and storage, and provide the support moms and dads need to make breastfeeding a success. The Helpline can also provide tips for working moms who would like to continue breastfeeding, and offer suggestions for financial support.

## ***Publications***

### **1. Ask NWHIC Your Breastfeeding Questions**

[www.4woman.gov/breastfeeding/Breastfeeding.pdf](http://www.4woman.gov/breastfeeding/Breastfeeding.pdf).

This information sheet announces the National Women's Health Information Center Breastfeeding Helpline, a new service to support women and their choices for feeding their infants.

### **2. An Easy Guide to Breastfeeding for African-American Women**

[www.4woman.org/pub/BF.AA.pdf](http://www.4woman.org/pub/BF.AA.pdf).

This guide for all African American women and their families is a supportive tool for women who choose to breastfeed. It explains the benefits for baby, mom and society, and also provides frequently asked questions and answers about breastfeeding. It also stresses the importance of breastfeeding in the African-American community, provides information on how this issue is being addressed, and how to talk to your healthcare provider about breastfeeding.

### **3. Breastfeeding Topics**

<http://www.cdc.gov/breastfeeding/index.htm>

This Internet site highlights some of the many programs and services currently promoting and supporting breastfeeding within health care, worksites, and communities nationwide.

### **4. Find a Lactation Consultant (Copyright © ILCA)**

<http://www.ilca.org/find/index.php>

This on-line resource explains the roll of the International Board Certified Lactation Consultant (IBCLC) in maternal and child health. It lists reasons why mother may need to consult an IBCLC and links to a searchable on-line directory of of IBCLCs in the United States.

### **5. Frequently Asked Questions on: Mother-to-Mother Support for Breastfeeding (Copyright © Linkages)**

[www.linkagesproject.org/media/publications/frequently%20asked%20questions//MTMS\\_FAQ\\_update04-04.pdf](http://www.linkagesproject.org/media/publications/frequently%20asked%20questions//MTMS_FAQ_update04-04.pdf)

This publication provides information on the importance of mother-mother support in breastfeeding and how to begin a support group.



6. **International Board Certified Lactation Consultant - By State and Country** (Copyright © Lactivist)  
<http://www.breastfeeding.com/directory/lcdirectory.html>  
This is a courtesy listing to help breastfeeding mothers find qualified Lactation Consultants.
  
7. **La Leche League Groups in the USA and Territories** (Copyright © LLLI)  
<http://www.lalecheleague.org/WebUS.html>  
Many local La Leche League groups and areas in the United States provide meeting information on the Web. The links provided contain information on LLL meetings and Leaders in these places.
  
8. **US National Registry of International Board Certified Lactation Consultants** (Copyright © IBLCE)  
<http://www.iblce.org/US%20registry.htm>  
This Internet site provides a list of all currently certified IBCLCs registered in the United States.
  
9. **WIC Learning Center**  
[http://www.nal.usda.gov/wicworks/Learning\\_Center/Breastfeeding.html](http://www.nal.usda.gov/wicworks/Learning_Center/Breastfeeding.html)  
This Internet site contains educational materials, journal articles and breastfeeding resources.
  
10. **WIC Nutrition Coordinators and Breastfeeding Coordinators Organized by FNS Region**  
<http://www.fns.usda.gov/wic/Contacts/coor.HTM>  
This Internet site provides local and regional WIC Nutrition Coordinators and Breastfeeding Coordinators.

## **Organizations**

### **1. African-American Breastfeeding Alliance**

<http://www.aabaonline.com/> - AABA is the first organization whose sole purpose is to promote breastfeeding to African-American mothers, fathers and families. AABA's goals are to: improve the overall health status of African-American babies; increase access to breastfeeding information for African-American parents; and create a breastfeeding-friendly culture within the African-American community. If you would like more information on AABA, call toll-free at 1-877-532-8535.

### **2. International Lactation Consultant Association (ILCA)**

<http://www.ilca.org/> - The International Lactation Consultant Association (ILCA) promotes the professional development, advancement, and recognition of lactation consultants worldwide for the benefit of breastfeeding women, infants and children.

### **3. La Leche League International**

<http://www.la lecheleague.org/> - La Leche League International's Mission is to help mothers worldwide to breastfeed through mother-to-mother support, education, encouragement, and information, and to promote a better understanding of breastfeeding as an important element in the healthy development of the baby and mother.

### **4. Lactivist**

<http://www.lactivist.com> - Lactivist provides information to mothers who are breastfeeding. This site contains information on how to breastfeed, solutions to problems that might arise, helping women cope with different issues, and resources on where to go for additional help and assistance.

### **5. Linkages Project**

<http://www.linkagesproject.org/> - LINKAGES is a USAID-funded global program providing technical assistance to organizations promoting breastfeeding. LINKAGES support comprehensive country activities to improve exclusive breastfeeding rates and related complementary feeding and maternal dietary practices and to extend the offering of the Lactational Amenorrhea Method as an effective, modern method of contraception.

**6. Maternal and Child Health Bureau, HRSA, HHS**

<http://www.mchb.hrsa.gov/> - The Bureau provides leadership to both the public and private sector to build the infrastructure for the delivery of health care services to all mothers and children in the nation. A particular responsibility is serving those low-income or isolated populations who otherwise would have limited access to care.

**7. National Women's Health Information Center, OWH, HHS**

<http://www.4woman.gov/> - NWHIC is a service of the Office on Women's Health (OWH) in the U.S. Department of Health and Human Services. The OWH office serves as a focal point within the U.S. Department of Health and Human Services to redress the inequities in health research, health care services, and public and health professional education that have placed the health of American women at risk. Part of the OWH mission is to coordinate women's health initiatives across the Department of Health and Human Services and to disseminate state-of-the-art information to women nationwide.

**8. Special Supplemental Nutrition Program for Women, Infants and Children, (WIC) USDA**

<http://www.fns.usda.gov/wic/> - WIC provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children who are found to be at nutritional risk.

## Post Test Viewing Instructions

In order to view the post test you may need to minimize this window and click "TAKE TEST."  
You can then restore the window in order to review the course material if needed.