Mother’s milk, time-tested for millions of years, is the best nutrient for babies because it is nature’s perfect food.—Robert Mendelsohn
Making milk for your baby is one of the most important things you can do when your child is born early or is sick. Your milk contains many factors to help your baby stay healthy and grow better while in the intensive care unit. We know that premature infants who receive their mother’s milk have better brain development and are healthier even when they are older.

We understand that this is a very hard time for families when their child is ill. Pumping can be tough when you are tired and stressed. We hope that the information in the booklet helps you to understand the importance of mother’s milk for your baby, and helps you to be successful in producing milk for your baby.

Please feel free to ask for help or additional information if you have any questions, or are having problems pumping—we are here to help you!

The doctors, nurses, and staff of the Women and Infants Service at UCSD Medical Center

**Important numbers:**

- Infant Special Care Center (ISCC) 619-543-6560
- UCSD Lactation Helpline 619-543-7149
  - Inside the hospital dial 3-7149
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WHY PREMATURE INFANTS NEED THEIR MOTHER’S MILK

Human Milk for Human Babies
• Breastmilk can save preemie’s and ill infant’s lives
• Babies who receive their mother’s milk are healthier
• Breastmilk is like medicine for premature babies!
• Mothers make milk specially designed for their individual baby’s needs
• Premature breastmilk is different than full-term breastmilk

Benefits of Mother’s Milk for Preemies
Preemies that are fed their mother’s milk have:
• Better brain development
• Less life-threatening infections
• Less feeding problems
• Less allergies and eczema
• Stronger bones when they are older
• Higher IQ when they are older
• Less high blood pressure when they are older
• Your baby needs you to provide this milk!

Colostrum is the first type of breastmilk you produce. It is very important because it contains:
• Brain boosting fats
• Hormones to teach the baby’s intestines to move and digest
• Growth factors to help the intestines mature and grow
• Antibodies and live cells to prevent and fight infections
• Nutritious fat, sugars, and protein to start baby growing
• 600 nutrients- no artificial formula can compare!
• Every drop is Liquid Gold for your baby!
The crucial first two weeks

• Your colostrum is packed with protective nutrients for your baby
• You may initially get only a few drops of colostrum, but every drop is precious, so be sure to bring it to the ISCC!
• We will put your colostrum directly into your baby’s stomach to get your baby’s intestines growing
• These first days after delivery are critical for your milk production
• Your goal is to produce more than 500 mls (2 cups) of milk within a 24 hour period by the time your baby is 2 weeks old. This will help you to have enough milk for the baby when he/she gets bigger

Prevention of NEC

• Necrotizing enterocolitis (NEC) is a very dangerous newborn intestinal infection
• 7% of the smallest preemies get NEC
• NEC can lead to other serious complications, and the baby often cannot be fed for 10-14 days. This puts them very behind on their feedings
• The good news is that breastmilk helps protect against NEC
• You can help decrease your baby’s chance of getting NEC by pumping breastmilk!

HOW YOUR BODY MAKES MILK FOR YOUR BABY

How do I make milk?

• Your breasts change during your pregnancy to get ready to produce milk
• Once you deliver the baby, the hormone that is needed to make milk, prolactin, increases
• Glands in your breasts then start making milk
• When your baby sucks on your nipple (or when the breast pump sucks on your breast), your brain releases a hormone called oxytocin; this causes milk to flow out of the breast's glands into the small tubes or ducts you can see in the photo
• The milk then moves down the ducts to the nipple
• At first you will notice drops of yellow colostrum - remember every drop is liquid gold!
• In 3-7 days your milk will start to change in color, thickness, and quantity
• Colostrum and milk can be all different colors. Do not worry if your milk is blue-ish, clear, yellow, orange, or even green-- it is all good!

How the pump works
• The machine’s suction on your nipples makes your body think the baby is sucking
• Using your hands to compress or massage the breast will help the milk move down the ducts
• The suction of the pump will remove the milk
• Emptying the milk from your breasts sends your body a message to make more milk
• More pumping + good milk removal = more breastmilk for your baby!

How much milk does a preemie need?
• In the first days, your baby needs only a tiny amount per feeding
• However, the first few weeks after delivery are critical for successful milk production later
• Very quickly we will feed your baby more and more of your breastmilk
• By the time your baby is ready to leave the hospital (around your due date) your baby will need about 500 mls (1/2 quart) a day
• When you have a good milk supply it helps your baby learn to breastfeed more easily when he/she is ready (at about 32-34 weeks)
• Even though you may have a lot of stored milk in the first few weeks, you will quickly use it when your baby gets bigger and eats more and more - do not be tempted to pump less!

Is it safe for me to keep taking my medication?
• You can continue to take most prescribed medications while pumping breastmilk for your preemie
• The pain medication you are given in the hospital is safe for your baby (only small amounts get into the milk)
• Tylenol and ibuprofen are safe
• Cold medicines can decrease your milk supply
• Coffee and caffeine in soda is fine (in moderation)
• Ask your doctor if any new medication you start taking is okay for the baby. Please check with us if you are not sure
• Safe alternatives for medication are usually available. Never stop pumping without checking with the ISCC doctors or lactation team
• When you are sick, you make antibodies that can protect the baby from the same illness, so there is no need to throw out the milk when you are ill
• Do not throw your milk out without checking with us first!

PUMPING MILK FOR YOUR BABY

What kind of pump?
• We recommend you use an electric, hospital type pump
• We will help you get a pump to use at home (usually covered by insurance)

Getting ready to pump
• Get comfortable and get a drink of water before you start (being hydrated helps with milk production!)
• Wash your hands (You don’t need to wash your breasts. A daily shower is plenty)
• Massage your breasts and do some nipple stimulation before you pump
• Put the pump kit together and plug in!

How to pump
• Pumping both sides at the same time will help you to produce more milk – it will save you time too
• Center the breast flange on your nipple (the flange is the clear plastic cone that you hold up to each breast)
• Hold the flange gently so that you’re not pushing your breasts and compressing the milk ducts
• Having the right size flange will make pumping more comfortable - ask the lactation nurse to check your size
• Start the pump at low suction and increase slowly as you learn what works best for you and what you are most comfortable with
• If pumping hurts, or your nipple doesn’t move easily inside the flange, talk to your nurse or lactation consultant
• Lubricating the flange with a little milk or olive oil may make it more comfortable
• Uterine cramping is normal when you are pumping and is a good sign
• “Hands-free” pumping can really make your life easier. You can buy a special pumping bra, or make one out of an old bra (cut slits at the nipple site for the flange).

How much/how often?
• Pump 7 to 8 times in 24 hours; for example: every 3 hours while you are awake and once at night
• The number of times you pump is more important than how long you pump – you want to be stimulating your breasts to produce more milk
• Initially you should pump for 15-20 minutes each time
• After the first few weeks, once your milk supply is established, you need to keep pumping for 2-3 minutes after your milk flow slows down.
• The middle of the night pumping is important, especially in the first few weeks - this will really help get your milk production up
• Feel your breasts while you pump - if there are hard areas, massage them to empty all parts of the breast, you will see the milk spray out as you empty those areas
• Emptying your breasts also helps you produce higher calorie milk for your baby
• Remember, the more you “ask” your breasts to make milk, the more milk they’ll make- just like the baby would if you were breastfeeding
If you have a Medela Symphony pump (the yellow one)

- This pump has 2 cycles
- The first cycle is a 2 minute “fast suck” stimulation cycle
- The second cycle is a “slower suck” suction cycle
- This type of two-cycle pump has been shown to produce more prolactin (the hormone needed to keep making breastmilk)
- You can restart the stimulation cycle while you pump by pressing the “drops” button
- As you are establishing your milk supply, you may want to press the “drops” button 1-2 more times during your pumping session to give your breasts extra stimulation

Keeping track of your milk

- Write in your log book when and how much you pumped
- You may want to set a schedule to remember to pump on a regular basis
- Mothers who keep track of their pumping make more milk

Cleaning your equipment

- After each pumping clean all pump parts that have contact with the milk
- Warm water and soap is fine
- Using the dishwasher is also okay
- Allow parts to air dry on a clean paper towel
- You can purchase microwave steam bags to clean your kit if you prefer
- Do not wash the tubing (it should not get wet – it could get moldy and contaminate the milk)
To take any moisture out of the tubing, you may leave the tubing connected to the pump (take off the bottles) and pump for 2-3 minutes

**Going home to pump**
- It is hard to leave the hospital without your baby!
- Pumping for your baby is one of the best ways you can help your baby while in the ISCC
- Try to keep up your pumping schedule
- The first 2 weeks are very important for making enough milk for the whole time your baby is here, and for making breastfeeding successful after your baby comes home
- Your first goal is the clear or yellow colostrum drops for your baby
- Two weeks after your delivery your goal is to produce 500 mls (about 2 cups) or more each day
- Remember that you are the only one who can make this most important medicine (mother’s milk!) for your baby
- Keep taking your prenatal vitamins - for you and your baby!

**BRINGING IN YOUR MILK**

**Pumping at home**
- Once you are at home, set up a regular pumping schedule
- Find a comfortable place to pump
- Try looking at pictures of your baby (it’s been shown to help milk production!), listening to music or watching TV to help you relax while pumping
- Try relaxation exercises while you pump - you may make more milk!
- Your partner or a relative can help by helping cleaning the pumping equipment, labeling the milk bottles, and bringing them to the hospital
- For the middle of the night pumping, it may be easier to keep a container full of ice near where you pump, so you don’t have to get up and go to the refrigerator until the morning (you can wash the pump parts in the morning too)

**Putting milk in storage containers**
- We will give you containers and sticky labels with your name on them
- Label your containers with the date/time you pumped
• Combine milk from the left and right pump bottles if needed
• Fill them no more than 3/4 full (milk expands when frozen)
• Put milk in the refrigerator if you plan to bring it to the ISCC within 3 days (unless you are instructed to freeze all your milk)
• Put milk in the freezer if it will be more than 3 days before your next visit
• Do not store your milk in the door of your fridge or freezer—the back of the fridge/freezer is colder

**Storing your milk**

• Breastmilk can be stored:
  * Room temperature for 3 hours
  * Refrigerator for 3 days
  * Home freezer for 3 months
  * Hospital (-20° C) freezer for 12 months

• After being thawed, frozen milk should be used in 24 hours
• Don’t ever throw milk away without checking with one of your baby’s care providers - your milk is precious!

**Bringing in your milk for your baby**

• Keep all milk cold or frozen until you bring it into the ISCC
• Use an ice chest or cold gel pack to keep the milk cold while you travel to the hospital
• Frozen milk should stay frozen until you bring it in
• When you come into the unit, give the milk to your baby’s nurse or the nutrition tech
• We will give you a second pumping kit to keep in the hospital; depending on how long you visit you may pump at your baby’s bedside or in the family room
MAKING ENOUGH MILK FOR YOUR BABY

Skin-to-skin care

• Skin-to-skin care was developed in Bogotá, Colombia because there weren’t enough incubators for preemies. The babies held skin-to-skin did better than the babies in incubators!
• Babies are calmer if they are held skin-to-skin by their parents
• Mothers who practice skin-to-skin make more milk
• Babies who spend time skin-to-skin with their parents grow better and learn to feed faster
• The staff will let you know when your baby is ready to start skin-to-skin
• Once you start, hold your baby skin-to-skin every day - the more time, the better
• Try wearing a button-down shirt, loose blouse, or a stretchy camisole
• Skin-to-skin is best done with a lot of skin contact, so removing your bra and having the baby only in a diaper is best
• Keeping baby simple clothing (not a lot of snaps or decorations; onsies or sacks that open at the bottom are great) will help you do more skin-to-skin, and allow the nurses to assess your baby and safely monitor tubes or IV’s
• Don’t be shy! Ask your nurse to help you pick up your baby for skin-to-skin time!

To make the most milk for your baby:

• It is important to empty your breasts completely every time you pump so that your milk production stays high
• If your breasts get too full and hard in the first 2 weeks, you could have a low milk supply later
• Check to make sure your pump is working well (you can ask your nurse to check it, too)
• Be sure you are pumping both breasts at the same time
• Most women get more milk from one breast than the other, so don’t worry if there is a small difference – it is totally normal
• Review your pumping schedule (are you pumping 15-20 minutes more than 6 times a day?)
• Do you have any pain when pumping? Let us know so we can help
• Make sure you are pumping at least 1 time at night because it makes a real difference in helping you produce more milk for your baby
• Remember to keep pumping for 2-3 minutes after you start to see your milk flow slowing down
• Consider trying more manual expression/massage with pumping
• Relax while you pump by thinking of your baby, looking at his/her picture, smelling a blanket that he/she used
• Try pumping at your baby’s bedside
• Let your nurse or lactation consultant know if you are having any problems, pain, or have seen even a small decrease in your milk supply

HOW WE FEED YOUR BABY

Preemies are fed slowly at first
• Your baby has been swallowing amniotic fluid while inside you to help the intestines develop
• Once born, if the baby is not fed, the intestines quickly get weak
• We will start with small feedings and then slowly increase the quantity of the milk for each feeding
• These small feedings keep the intestines moving and developing, and help prevent intestinal complications common in premature infants
**What is a Gavage Feeding?**

- Babies do not know how to coordinate sucking or swallowing until about 32-34 weeks
- Until they learn, we must feed them through a tube
- Gavage (tube) feedings help your baby get nutrition without having to work and use up energy
- A tube will go through your baby’s mouth or nose and down into the stomach
- We’ll use a syringe to squeeze the milk through this tube

**HELPING YOUR BABY GROW**

**Fortifying (adding calories, fat and protein) your milk**

- In the last months of pregnancy, the fetus needs a lot of calcium to build strong bones, and protein and fat to build body tissues
- Because they missed those last weeks of pregnancy, preemies need extra calcium, phosphorus, protein and fat
- We will fortify your breastmilk with these extra nutrients to help your baby grow better and prevent weak bones (rickets)
- We start to add “fortifier” around the time your baby is taking all nutrition by mouth or gavage
- Fortifier is made from either human or cow’s milk

**Why do preemies need Vitamins and Iron?**

- Preemies need extra vitamin D to help keep their bones strong and prevent rickets
- Preemies all have low iron
- Your baby will be started on an iron supplement before you go home to build up his/her red blood cells
- Iron drops can be poisonous for other children; store your preemie’s iron supplement in a safe place if you have young children in the house