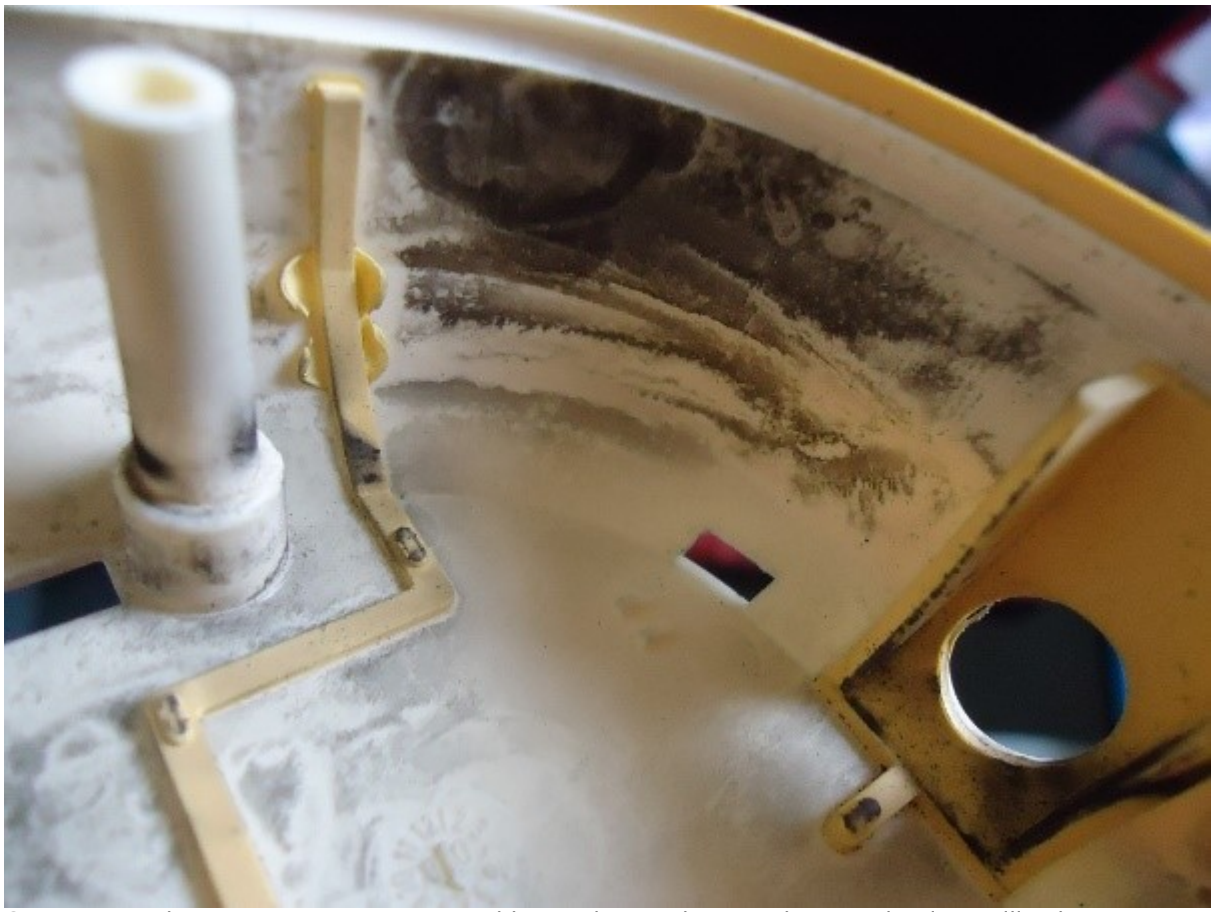
Moldy Milk: How to Avoid Breastmilk Contamination When Pumping

We have all heard that breastfeeding is the best way to feed your baby because you can bond with your child and give them the best nutrients and immunity for lifelong health. Besides that, breastfeeding helps moms stay healthy by getting you back to pre-pregnancy weight faster, preventing breast and ovarian cancer, and ensuring heart health. However, sometimes putting baby on the breast is easier said than done – not all moms can breastfeed in the traditional sense of holding your baby to the breast at all times. Moms may not be available if they need to return to work, care for other children, or if their baby stays in the hospital or Neonatal Intensive Care Unit (NICU) after birth.

Enter breast pumps.

Breast pumps have been used for centuries to help moms extract breastmilk to be given later to their baby. There are different pumps to choose from, including manual, battery powered and electric pumps. The best pump for getting milk out are double-electric hospital-grade pumps.



Open system breast pumps may grow mold over time and cannot be completely sterilized.

The type of pump you use also matters in terms of potential contamination (i.e., when foreign material can pass into the milk). What matters the most is whether a pump uses an “open” or “closed” system. A “closed” system breast pump has a physical barrier between the parts that touch your breastmilk (flanges, bottles, valves), and the tubing and pump motor (called the “backflow protector”). This keeps your milk sectioned off from the body of the pump. The parts that can easily be cleaned and sterilized are separate from the parts that cannot be cleaned and sterilized, like the interior of the pump motor. This is why hospital grade breast pumps are safe for multiple users – because they have this barrier.

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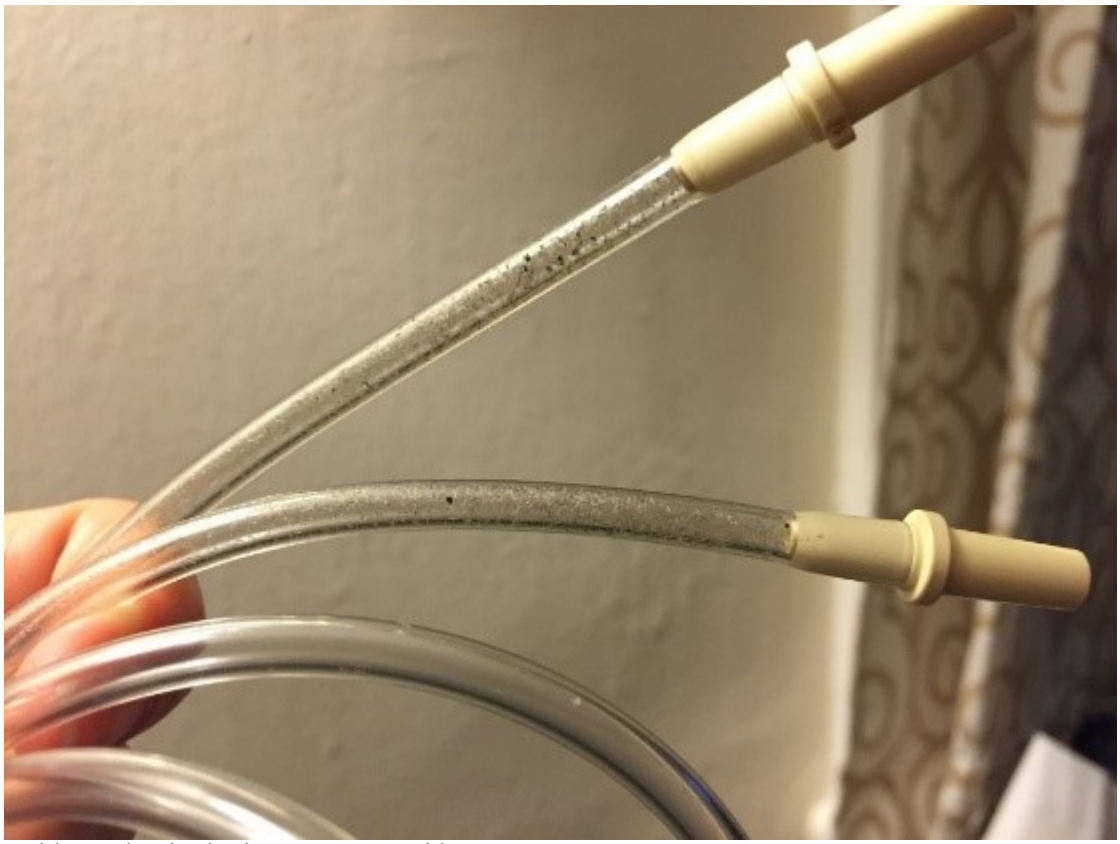
“Open” system breast pumps do not have barriers between the parts that touch your breastmilk and the tubing and pump motor. Because of this, moisture from pumping can enter the tubing and motor. Since mold flourishes in dark, moist places, the open system has a greater risk for mold growth. This means that impossible-to-clean places like the interior of a breast pump motor are very inviting to mold. The most common places to find mold in a breast pump are the tubing, the areas and valves that connect bottles to flanges, and the insides of pumps which have been stored for a long time in a moist basement.

How can I keep mold out of my breast pump and breastmilk?

Prevention of household mold may help prevent mold on your breast pump equipment. Also, a good breast pump should have a protective barrier between the flange (the funnel-shaped part that comes into contact with your breast) and the connected tubing. Pumps without this feature carry extra risk for milk and moisture to get into the tubes and create a breeding ground for mold.



Mold growing in the breast pump tubing.

All breast pump parts that come in contact with breastmilk should be cleaned and fully dried after each use. This includes flanges, bottles, valves and breast shields. You can eliminate possible contaminants by washing them with liquid dishwashing soap and warm water. Rinse each piece thoroughly with hot water for 10-15 seconds. Place the pieces neatly on a clean paper towel or on a clean drying rack and allow them to air dry. A dishwasher with a drying cycle can also be used. Avoid using cloth towels to dry your pump parts because they can carry germs and bacteria that are harmful to your breastmilk and your baby.

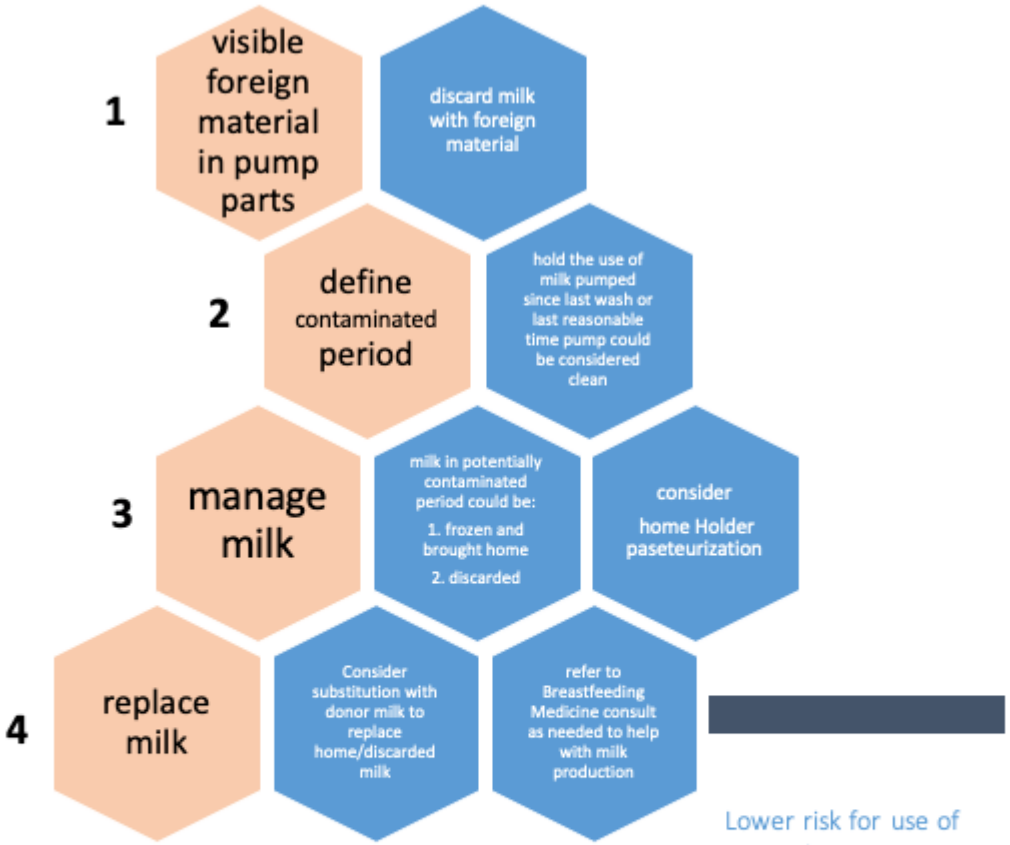
It is not necessary to clean breast pump tubing unless it comes in contact with breast milk. If you wash your tubing, make sure you hang it to air dry before attaching it to your breast pump. If small water drops (condensation) appear in the tubing after you have pumped, attach the tubes to the pump before you attach your flanges/bottles and turn the pump on for a few minutes until the tubing is dry.

What if I find mold in my breast milk?

At MotherToBaby UR Medicine, we have developed an algorithm (set of rules) to help people manage breastmilk that is potentially contaminated. It is meant to be used in hospitals for sick children, but can be useful for you and your health care provider. ***Most full-term, healthy, and older infants do not need the precautions outlined below.*** If you find foreign material in your breastmilk or pump parts, contact your baby's pediatrician to get advice on what to do.

If your baby is sick or premature, consider sharing the information below with your baby's provider if you find mold in your breastmilk or pump parts. It is meant to be followed in order from step 1, which includes discarding any milk with foreign material in it (like mold.) Step 2 can help to determine when any other expressed milk may have been affected. For instance, if you know you washed your pump 4 days ago and found the material today, any milk you pumped in the past 4 days could have been contaminated. Contaminated milk could be frozen, which is likely to kill most bacteria and many fungi, or it could be pasteurized using home pasteurization (Step 3). You also need to think about what should be fed to your baby in the meantime: do you have older, stored milk? Do you need donor milk? If you need to use formula, should it be "hypoallergenic?" (Step 4). These are good conversations to have with your baby's doctor. If you don't have enough breastmilk, some communities will have breastfeeding medicine specialty providers or lactation consultants who can help mothers with milk supply concerns. You can search for these providers online by clicking here.

Algorithm for decision-making when pump parts are found to contain foreign material (potential bacteria or fungus). The box at the lower right reminds providers which babies are at lowest risk from drinking milk that has any foreign material in it.


1
visible foreign material in pump parts
discard milk with foreign material
2
define contaminated period
hold the use of milk pumped since last wash or last reasonable time pump could be considered clean
3
manage milk
milk in potentially contaminated period could be:
1. frozen and brought home
2. discarded
consider
home Holder paseteurization
4
replace milk
Consider substitution with donor milk to replace home/discarded milk
refer to Breastfeeding Medicine consult as needed to help with milk production
Lower risk for use of milk w/ questionable contamination
1. Extubated
2. No central lines
3. Term
4. Normal gut function
5. Milk has been frozen
6. Milk has been pasteurized

Last, we want to leave you with words of encouragement because we know breastfeeding isn't easy. It's downright hard for most. Having that said, please know that resources like MotherToBaby are here for you and just by reading this blog, you're taking steps to ensure your milk is pumped and stored safely. You're doing a great job and we can be certain your baby appreciates all you do.

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Moldy Milk: How to Avoid Breastmilk Contamination When Pumping

By Bethany Kotlar, MPH, Teratogen Information Specialist, MotherToBaby Georgia

Being a new mom is overwhelming. Trying to figure out this brand new role can seem like climbing Mount Everest! Many new moms have questions about breastfeeding, and of those questions, how to increase or maintain supply is one of the most common. Luckily for all those new moms out there, MotherToBaby has teamed up with a lactation consultant to answer all of your burning supply questions.

First, a quick introduction to the experts: Katherine Gama is an International Board Certified Lactation Consultant (IBCLC) who has worked with WIC (Women, Infants, and Children) for 10 years in Atlanta, Georgia. She loves to facilitate breastfeeding discussions. She thrives on supporting breastfeeding mothers in their journey to success. Katherine enjoys traveling with her two boys.

Bethany Kotlar is a Teratogen Information Specialist for MotherToBaby Georgia. She loves answering questions about exposures during pregnancy and breastfeeding and has a wonderful husband of five years and two fur babies.

I've been breastfeeding for a couple of weeks and I feel like my baby always wants to nurse. Is this normal?

Katherine: Yes, in the first weeks you are establishing your milk supply. Your body is figuring out how much your baby needs. It does this through supply and demand. The amount of milk the baby takes out or demands and the amount of times your baby nurses will determine your milk supply. Avoiding pacifiers and formula will help your body capture more accurately how much milk it needs to make. Putting your baby to breast every time your baby shows early feeding cues (rooting, sucking hands) will build your milk supply and meet your baby's needs.

If you worry about baby getting enough you should always take into consideration how much your baby feeds in 24 hours; is baby latching easily; is baby swallowing frequently; does baby have an adequate number of voids and stools; is baby calm and satisfied during the feeding and after feeding. Any time you are concerned about your baby's wellbeing, the best thing is to inform your pediatrician. In addition, you can contact a lactation consultant and ask her to assess your infant's feeding.

My new baby nurses frequently, but I'm not sure how much milk she's getting. My friend's formula-fed baby seems to eat so much more! Am I starving my baby?

Katherine: Your newborn's stomach is small and your baby only needs small amounts of breast milk at each feeding. Remember breast milk is digested naturally and faster so you will feed your baby frequently, at least 8 to 10 times in 24 hours. Your baby and its belly grow quickly while your supply is establishing.

In the first six days of life and beyond if your baby has approximately 6 wet diapers in 24 hours and 3 or more stools you are providing the nutrition that your baby needs.

I want to boost my supply and my friend recommended fenugreek, milk thistle, and red raspberry leaf. Are these safe to take while breastfeeding?
Bethany: These herbs are often marketed to moms to increase milk supply. Unfortunately, research suggests they are unlikely to make much of a difference in supply. In addition, they also haven't been proven safe to use regularly during nursing. If you're thinking about taking any herb or supplement, speak with your doctor first.

Fenugreek has caused allergic reactions in people sensitive to chickpeas and peanuts, and can cause hypoglycemia in diabetic women and potentially babies. Milk thistle and red raspberry leaf supplements haven't been studied well enough for us to say whether they are safe to use regularly. Complicating the picture even more, the Food and Drug Administration doesn't regulate the supplement industry, so there have been reports of supplements being

contaminated with dangerous substances like lead and arsenic.

I heard someone say that drinking beer can increase supply, but I don't want my baby to be exposed to alcohol. Help!

Bethany: There's no conclusive evidence that suggests beer increases milk supply, but that doesn't mean you can't enjoy a drink containing alcohol now and then with while breastfeeding. The rule of thumb is to avoid breastfeeding while alcohol is in your system. For the average woman it takes between 2 to 2.5 hours per drink for alcohol to work its way out of the body. If you feel uncomfortable while you are waiting, you can definitely "pump and dump," but contrary to popular belief this doesn't remove alcohol faster from your milk. Drinking heavily (more than one or two drinks in a sitting where a drink is 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of hard liquor) can decrease your milk supply, so consume in moderation!

If there aren't any herbs or foods that are proven to increase my supply, what can I do to produce more milk?

Katherine: The first thing is to address whether your baby is getting enough food or if he needs to be supplemented; to answer this question, talk to your child's pediatrician. If baby does in fact need more milk, then we need to find out why mom's milk supply is low in order to correct the problem. Is mom supplementing with formula or previously expressed breastmilk on a regular basis? Are there any medical reasons causing low milk production (breast surgery, PCOS or polycystic ovarian syndrome, thyroid issues, diabetes, premature infant, poorly breastfeeding, etc.) If you suspect you might be having any problems related to these conditions, talk to your healthcare provider and a lactation consultant. The best way to improve milk production is to frequently breastfeed, hand-express breastmilk and pump with preferably a hospital grade pump.

Why is breast milk better?

Katherine: Your breast milk is uniquely designed for your baby. It contains the antibodies to build your baby's immune system, the hormones to regulate normal body function and the nutrients for brain development. You are equipped with everything your baby needs!

What do I do if I am having supply issues?

Katherine: Work with a lactation consultant in your area. You can find a lactation consultant here or contact your state's local WIC office.

Bethany: Remember, before you take anything (herb, medication, etc.) while breastfeeding, talk to your doctor, your child's pediatrician, and contact MotherToBaby for up to date information on whether the product could affect your baby's health. It's always better to be safe than sorry!

Helpful Tips to Remember:

- Place baby skin to skin immediately following birth for at least 1 hour
- Breastfeed your baby within an hour of birth
- Keeping the baby in your room helps you learn when your baby is ready to feed
- Learn your baby- watch for early feeding cues and initiate breast feeding on demand
- Give **NO** artificial pacifiers
- Give newborns **NO** food or drink other than breast milk unless medically indicated
- Use hand expression to maximize milk removal when nursing
- Surround yourself with support to help you reach you goals
- If you are having trouble breastfeeding, contact a lactation consultant

***MotherToBaby** is a service of OTIS, a suggested resource by many agencies including the Centers for Disease Control and Prevention (CDC). If you have questions about exposures during pregnancy and breastfeeding, please call MotherToBaby toll-FREE at 866-626-6847 or try out MotherToBaby's **new text information service** by texting questions to (855) 999-3525. You can also visit **MotherToBaby.org** to browse a library of fact sheets about dozens of viruses, medications, vaccines, alcohol, diseases, or other exposures during pregnancy and breastfeeding or connect with all of our resources by downloading the new MotherToBaby free app, available on **Android** and **iOS** markets.*

Moldy Milk: How to Avoid Breastmilk Contamination When Pumping

By Pat Olney, MS, CGC, Pregnancy Risk Specialist, MotherToBaby Georgia

One day in early June I received a frantic call from a woman who had first called Georgia's Poison Control Center worried about the agent used to treat her varicose veins. She thought that she did the right thing by postponing her treatment until after she gave birth, but now was concerned about breastfeeding her newborn. The medical director at poison control, who is one of our advisory board members, gave her the correct information: "Call Pat Olney at MotherToBaby!"

The caller's vascular surgeon advised her to pump her breast milk over the next 24-48 hours, and discard it; otherwise known as pump and dump. The first thing she did before calling poison control was surf the Internet for answers. She began feeling guilty about having had the procedure. She lamented, "Why didn't I wait until after my baby was done nursing!"

First, I needed to learn a little bit about varicose veins. Varicose veins are more common in women than men, and women may first develop varicose veins during pregnancy. Pregnancy puts an added burden on the veins as the amount of blood flowing through the veins increases. Veins in the legs are already working against gravity, and pressure from the increased blood volume can cause veins to swell and bulge near the surface of the skin. They tend to get worse with each subsequent pregnancy, as women get older, or if a woman is overweight. Varicose veins can be very painful. Typically, the problem tends to improve after delivery. For our caller, the pain and discomfort continued and she decided to seek treatment.

The agent used for her varicose vein treatment was sodium tetradecyl sulfate (STS). I consulted my brand new 2014 edition of Dr. Thomas Hale's manual of lactational pharmacology, "Medications & Mother's Milk." Dr. Hale's book is used all over the world, and he is recognized as an expert in this highly specialized field. STS, a sclerosing agent, is injected into the affected vein. Dr. Hale describes this agent: "…an anionic surfactant which causes local inflammation, and thrombus formation, thereby occluding and eventually obliterating the affected vein." He goes on to say "severe reactions such as anaphylactic shock, pulmonary embolism have been reported, although rare."

Sounds terrible, doesn't it? I said to myself…no wonder this woman called poison control!

Dr. Hale developed the following lactation risk categories:
L1 Compatible: drug has been taken by a large number of breastfeeding women without any observed increase in adverse effects in the infant; controlled studies fail to demonstrate a risk to the infant, or the product is not orally

bioavailable in an infant

L2 Probably compatible: drug has been studied in a limited number of breastfeeding women without an increase in adverse effects in the infant, and/or the evidence of a demonstrated risk is remote

L3 Probably compatible: there are no controlled studies in breastfeeding women; however, the risk of untoward effects to breastfed infant is possible, or controlled studies show only minimal non-threatening adverse effects; drugs should be given only if potential benefit justifies potential risk to infant; new medications that have no published data are automatically categorized in this category, regardless of how safe they may be

L4 Possibly hazardous: positive evidence of risk to breastfed infant or to breast milk production; benefits of use may be acceptable despite the risk to infant; e.g. if the drug is needed in a life-threatening situation or a serious disease for which safer drugs cannot be used or are ineffective

L5 Hazardous: studies in breastfeeding mothers have demonstrated significant and documented risk to the infant based on human experience, or is a medication that has a high risk of causing significant damage to infant; drug is contraindicated in women breastfeeding an infant

Did the vascular surgeon give our caller the correct information?

Sodium tetradecyl sulfate falls into lactation category L3. There are no studies done in nursing women, and there is no data on its transfer into human milk. Dr. Hale goes on and states, “This product could be hazardous if introduced in the infant through breast milk. Therefore, extreme caution is recommended with its use in a lactating mother.”

Since there are no published studies, and no data, our caller was given the correct advice: pump and dump. Fortunately, her baby was already taking an occasional bottle, so she thought the baby would easily switch back to breastfeeding.

Sometimes the advice given to lactating mothers is not so straightforward. As summarized in a clinical report published by the American Academy of Pediatrics (AAP), “Many breastfeeding women are wrongly advised to stop taking necessary medications or to discontinue nursing because of potential harmful effects on their infants. Not all drugs are present in clinically significant amounts in human milk or pose a risk to the infant. Certain classes of drugs can be problematic, either because of accumulation in breast milk or due to their effects on the nursing infant or mother.”

When counseling a woman who has chosen to give her baby the best start in life, it’s important to get the facts, even if evidence-based information is lacking.

Questions? For your FREE personalized risk assessment, call MotherToBaby toll-FREE (866) 626-6847. MotherToBaby is a service of the international non-profit Organization of Teratology Information Specialists (OTIS), a society that supports and contributes to worldwide initiatives for teratology education and research. MotherToBaby affiliates and OTIS are suggested resources by many agencies, including the Centers for Disease Control and Prevention (CDC), and are dedicated to providing evidence-based information to mothers, health care professionals, and the general public about medications and other exposures during pregnancy and while breastfeeding. Learn more at MotherToBaby.org.

Patricia Olney, MS, is a certified genetic counselor and pregnancy risk specialist at MotherToBaby Georgia, Emory University. She received her masters degree at the University of California, Berkeley and has practiced genetic counseling for more than 25 years. MotherToBaby GA is funded by the Georgia Department of Behavioral Health and Developmental Disabilities.

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