



## The Four Pillars of Safe Breastmilk Sharing

The use of healthy, commerce-free donor milk is a natural option when a baby cannot receive milk from their own lactating parent. However, there are risks associated with feeding a baby anything outside of the closed bio-system of parent-child, including breastmilk. It is our mission to provide evidence-based information for the safe sharing of human milk. The Four Pillars of Safe Breastmilk Sharing came out of the extensive research that is compiled in this document and they form the foundation from which families can learn how to safely share human milk. The Four Pillars are not only useful to parents and caretakers, but also to pediatricians, midwives, and those active in birth and parenting communities. By understanding these easy to implement principles, they too can help babies in their communities by supporting safe milksharing.

### The Four Pillars of Safe Breastmilk Sharing

#### **Informed Choice**

- Understanding the options, including the risks and benefits, of all infant and child feeding methods
- Know thy source

#### **Donor Screening**

- Donor self-exclusion for, or declaration of, medical and social concerns
- Communication about lifestyle and habits  
Screening for HIV I and II, HTLV I and II, HBV, HCV, Syphilis, and Rubella

#### **Safe handling**

- Inspecting and keeping skin, hands, and equipment clean
- Properly handling, storing, transporting, and shipping breastmilk

#### **Home pasteurization**

- Heat treating milk to address infectious pathogens
- Informed choice of raw milk when donor criteria are met

## **1. Informed Choice**

An informed choice is made by examining all credible, verifiable, and relevant information available and using it to carefully and objectively weigh options as well as potential consequences. When parents or professionals look for information in order to safely share human milk or support milksharing, it is important that ALL of the information is taken into consideration (not just those which supports personal dogma in regards to breastfeeding), in order to make truly informed choices. To date, milk banks have set the standard for milksharing. Unfortunately, these standards are based on blood bank safety protocols, as breastmilk is considered a potentially infectious bodily fluid. Also, in certain situations or “non-normal” circumstances (such as cultural or religious need for donors to be identified, or for special dietary considerations), informed parents may choose to deviate from the milk bank standards in order to provide breastmilk in such a way that will allow them to maintain their beliefs or to suit their unique circumstances. For example, it is common for donors who have spent time in Great Britain to be excluded from milk banks due to a concern for exposure to Creutzfeldt-Jakob disease, which upon investigation many recipients may not find to be a cause for donor exclusion. Informed health care providers should support and respect the individual rights of parents to make their own decisions about milksharing. Deviation from the standard is and should be a matter of personal and informed choice.

## **2. Donor Screening**

Donor screening is based on three elements: donor self-exclusion, health and lifestyle communication and blood testing. Proper donor screening reduces exposure to potential disease- and non-disease causing contaminants in human milk.

- **Donor self-exclusion**

**Health**

- Poor general health
- Suffering from severe psychiatric disorder(s)
- Confirmed positive for HIV I, HIV II, HTLV I or HTLV II
- At risk for HIV (incl. sexual partner)
- Current outbreak of herpes or syphilis lesion
- Current open sores, blisters, and/or bleeding cracks on the skin
- Undergoing chemotherapy or radiation treatment
- Receiving radiation treatment or thyroid scan with radioactive iodine
- On medication contraindicated for breastfeeding
- In the fever stage of chicken pox or shingles

**Lifestyle Choice**

- Currently abusing drugs, alcohol or OTC
- When donating to a premature or critically ill baby:*
- Drinking, smoking, using certain herbal supplements or taking megavitamins

**Social**

- Feeling coerced
- At risk due to religious/social conventions
- Undue stress on herself or her family

**Other**

- Having difficulty meeting needs of her own baby
- Not meeting recipient criteria/request

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**• Health and Lifestyle Communication**

The first question that parents usually ask a potential donor is if they have any communicable diseases. Discussing lifestyle and personal history is also a normal part of milksharing. Some parents may ask to see test results, and others may request screening to be done. Complete and current screening is essential for the safety of breastmilk sharing. It is important to know thy source. For non-infectious contamination of milk, getting to know a donor and building a relationship is an important element in establishing the factor of trust. Milk banks do NOT test donor milk for non-infectious contaminants (alcohol, nicotine and other substances) and primarily rely on self-exclusion and self-reporting to reduce the possibility that of these non-infectious contaminants being present in the milk that they distribute. In their own communities, families can talk with each other on the phone, chat online, check out each other's Facebook page, ask for references and meet in person to discuss lifestyle, diet, hygiene habits, use of medication, and non-infectious substances (not just recreational substances but also potential allergens or philosophic oppositions such as nuts, dairy, eggs and meat). Eats on Feets provides a list of suggested questions for addressing donors.

- **Donor Blood Testing**

Typical blood testing of milk donors includes HIV I & II, HTLV, HBV, HCV, Syphilis and Rubella. CMV, TB and WNV can also be considered for additional screening. Milk banks recommend that screening be done every three to six months. For donors without insurance coverage, free clinics are an option for screening as is becoming a blood donor in most cases.

### **3. Safe Handling**

While some viral diseases, like Hepatitis B (HBC) and HepatitisC ( HCV), are not passed via breastmilk, contamination can occur when there are lesions and open sores anywhere on the skin. Breasts and body should be inspected for lesions, infectious blisters and bleeding nipples before expressing milk, and hands should be diligently washed before expressing milk and handling milk, milk collection equipment and supplies. Bacterial contamination of breastmilk can occur due to improper handling of pumping and storing supplies and of breastmilk. Parents can educate themselves about proper handling techniques and follow generally accepted guidelines for storage, transport and shipping of expressed milk.

### **4. Home Pasteurization**

There are two methods of pasteurization that are safely and easily done at home: Low Temperature Long Time (LTLT) like the Holder method and Pretoria Heating, and High Temperature Short Time (HTST) like flash heating. Holder pasteurization is the method used by most US milk banks. It can be performed in the home using a marketed single bottle pasteurizer. Pretoria Heating is done on the stove top, and is used in resource-poor areas for HIV positive lactating parents. These methods have been demonstrated to kill a wide variety of viruses and bacteria. However, they also have been shown to denature the milk of much of its nutritive properties, many of which may be especially beneficial for premature infants. Flash heating, not to be confused with commercial flash pasteurization, was also developed for use in resource-poor areas for HIV-positive lactating parents. Flash heating can be accomplished on the stovetop or other direct heat source. Flash heating has been demonstrated to kill HIV, but its effect on other viruses is theoretical. Due to its relatively lower exposure time, this method has been demonstrated to preserve more of the milk's nutritive qualities than the LTLT methods.

- **Sporeforming Bacteria**

It is important to note is that any pasteurizing of breastmilk raises the risk of spore release from spore-forming bacteria, like *Bacillus cereus* (*B. cereus*). While *B. cereus* is less of a concern for healthy-term babies, it can pose a significant risk to premature babies or those with gastrointestinal issues. This makes a good case for using raw milk from a thoroughly screened donor, and raw milk should also be taken into consideration for feeding premature or sick infants.

- **Raw Milk**

Many families will prefer to use raw, unpasteurized milk so that their babies receive milk with the greatest nutritional value. In the case of using raw donor milk, it is imperative for the recipient-donor relationship to be well established and/or for the donor to be thoroughly and recently screened. If this is not the case, the recipient may choose to pasteurize the milk.

## **Overview of both pasteurization techniques compared to raw milk**

|                          | <b>Holder Pasteurization</b>   | <b>Pretoria Heating</b>   | <b>Flash-Heating</b>  | <b>Raw (fridge)</b>   | <b>Raw (frozen)</b>  |
|--------------------------|--|---|---|---|--|
| <b>Temperature</b>       | 62.5°C (144.5°F)   | 62.5°C (144.5°F)  | 72°C (161.5°F)  | 4°C (39°F)  | -15°C (5°F)  |
| <b>Time</b>              | - Temp. is held for 30 minutes   | - Temp. is held for 20- 30 minutes  | - Milk is exposed to this heat for a few seconds<br>- Whole process takes ± 5 min.  |   |  |
| <b>Efficacy</b>          | - Virtually eliminates the threat of viral and bacterial contaminants  | - Virtually eliminates HIV<br>- Less inhibition of E. coli and S. aureus than Flash-heating<br>- Other pathogens not directly addressed<br>- Less effective than Flash-heating on HIV<br>- Other pathogens not directly addressed   | - Virtually eliminates HIV, E. coli and S. aureus<br>- Other pathogens not directly addressed   | - Milk may contain pathogens if from unscreened donor<br>- CMV gone in 7 days when refrigerated                           | - Milk may contain pathogens if from unscreened donor<br>- CMV virtually gone in 3 days when frozen                          |
| <b>Results</b>           | - Some decrease in bacteriostatic properties<br>- Lipase destroyed<br>- IgA reduced by 70%<br>- Lactoferrin is reduced by 40%<br>- Post heat treatment increase in thiamin, riboflavin, vitamin B6, folate, and vitamin B12, possibly due to release of vitamins from binding proteins in the milk.* | - Some decrease in bacteriostatic properties assumed<br>- Reduced but biological activity of lactoferrin not impaired<br>- Post heat treatment increase in thiamin, riboflavin, vitamin B6, folate, and vitamin B12, possibly due to release of vitamins from binding proteins in the milk. | - Some decrease in bacteriostatic properties<br>- Lipase significantly reduced<br>- IgA mostly intact<br>- Reduced but biological activity of lactoferrin not impaired<br>- Post heat treatment increase in thiamin, riboflavin, vitamin B6, folate, and vitamin B12, possibly due to release of vitamins from binding proteins in the milk.* | - No decrease in bacteriostatic activity<br>- Lipase activity breaks down milk fats<br>- Anti-infective properties intact | - Bacteriostatic properties 66% by 3 months<br>- Lipase activity breaks down milk fats<br>- Anti-infective properties intact |
| <b>Spore Propagation</b> | Potentially  | Potentially   | Potentially   | None  | None   |

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\*We have not found any research to indicate that this is a positive result.

## **Safe Community-based Milksharing**

Safe and conscientious milksharing does not stop at medical screening, proper handling and pasteurization. Donors are often invested in the milksharing relationship on a more intimate level. Pumping or expressing milk is time consuming and donors who dedicate themselves to freely give their milk are nothing short of miracles to their recipients. Just as recipients may want to screen donors, donors often want to know more about the recipient baby and family, especially when seeking a long term arrangement. The stories that have been shared with us about milk matches have been a wonderful testimony of how families have become friends, not only through sharing breastmilk, but by sharing their lives. In some religions, such as Islam, donor and recipient babies become unmarriageable kin (Mahram). The realization that someone else's baby is growing on their milk makes a donor feel empowered. Recipients, realizing that they are not limited to feeding their babies formula when using their own milk is not feasible, feel empowered as well. The vigilance that we practice when taking care of our children translates beautifully into growing communities and families that support each other in times of need. A parent-to-parent milksharing network can also be vital for a fast mobilization of aid in emergencies. Identifying key decision makers who influence infant and young child feeding practices at household, community and local health facility levels is crucial information when determining the priorities of action and response in emergencies. Supporting safe community breastmilk sharing has far reaching benefits, and through milksharing, we can all contribute to infant, family, community, and ultimately, global health. Please see the Eats on Feets Resource for Informed Breastmilk Sharing for in depth safety information.