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## NF91-46 Guidelines for Collection, Storage and Heating of Human Milk

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## Guidelines for Collection, Storage and Heating of Human Milk

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### Collection

Keep your milk as clean as possible when you collect it.

**Wash your hands with soap and clean your fingernails with a good nail brush.**

If your hands are dirty, the microorganisms they carry may contaminate the milk you are preparing for your baby.

### Rinse your breasts with clean water.

Your nipples have fewer microorganisms than any other part of your body. Small glands around the nipple secrete a substance that prevents bacterial growth. It is not necessary to use soaps or harsh cleansers on your nipples. Rinse them with clean warm water.

### Dry your breasts with a clean paper towel.

Paper towels are the cleanest wipe in most homes. Dry the nipple first and then the rest of the breast, so microorganisms from the breast will not spread to the nipple. Your clothes also will have microorganisms; do not let them touch the nipple until you have finished collecting milk.

### Express your milk by hand or with a thoroughly clean pump.

Either hand expression or use of a pump can produce very clean milk. If you prefer to use a pump, wash with hot soapy water and rinse well after each use.

### Express milk into a clean container.

Containers should be sterile or very clean. If your child is hospitalized, you may be asked to use special containers and different collection procedures.

### Storage

**Check your refrigerator and freezer for proper temperatures.**

Test refrigerator temperature by placing a glass of ice cubes and water in the back of the unit. If some ice remains after 24 hours, the temperature is cold enough.

If your freezer is not working well or if you have a power failure, your milk may thaw and become rancid. If your freezer keeps ice cream very solid, the temperature is probably cold enough. To be sure your milk does not thaw, use this simple test. Freeze a half-full bottle of water or milk in an upright position. After freezing, turn the bottle on its side. If the liquid thaws and refreezes in the new position, you will know that your milk has thawed. Discard any milk that has thawed and refrozen.

### Store milk in glass or hard plastic containers.

Glass or hard plastic baby bottles are recommended. Polyethylene bottle bags can develop leaks while freezing or thawing, and some protective compounds in milk stick to the bags.

### Put milk in the refrigerator and use it within 24 hours, or freeze milk and use within three months.

If the milk will be used within 24 hours, date the bottle and place it immediately in the rear of a properly working refrigerator or on ice. Laboratory studies reveal that bacteria does not grow in refrigerated human milk for 48 hours. However, conditions in homes and laboratories are not the same. Twenty-four hours is a safe guideline for home use of refrigerated human milk. Do not worry, however, if you occasionally feed milk that has been in the refrigerator a few hours longer.

If the milk will not be used within 24 hours, date bottle and freeze it immediately in single feeding portions. If stored properly, frozen milk is good for three months. After three months, frozen milk may develop a rancid fat odor.

Freeze milk in single feeding quantities. A small infant may take two to three ounces at most feedings while an infant over three months old may want three to four ounces. Also consider freezing a few one-ounce or half-ounce portions for times when your baby wants a little more to eat.

#### **Do not add warm milk to frozen milk.**

Human milk is very resistant to bacterial growth when fresh. However, bacteria will grow in milk that has been frozen and thawed. If fresh milk is added to frozen milk, a thin layer of milk thaws. This layer is likely to grow bacteria. In addition, any time you open the container there is the possibility of accidental milk contamination. While the risk is small, the best policy is not to open stored milk until you are ready to feed it to your baby.

#### **Heating Milk**

##### **Warm milk quickly.**

Gently shake or rotate the sealed container under warm running water. Be careful not to use too much heat or to shake

too vigorously. Excess heat will damage the protective substances in the milk, and vigorous shaking will make butter out of the milk fat. It takes about four minutes to thaw four ounces of frozen human milk this way. If milk is left on a counter to thaw, it may be forgotten long enough to allow bacterial growth and breakdown of fats.

##### ***Do not thaw or warm human milk (or formula) in microwave ovens.***

Microwave ovens cause uneven heating, and human milk is very sensitive to excess heat. If some of the human milk becomes too hot, much of its protective value will be destroyed. *Infants have been very severely burned when fed liquids warmed in microwave ovens.*

##### **Thaw and warm only as much milk as you will feed.**

Use milk immediately after it is warmed to avoid the chance of bacterial growth. Milk left in the bottle after feeding should be thrown away.

Source: USDA/ARS Children's Nutrition Research Center, Houston Texas

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