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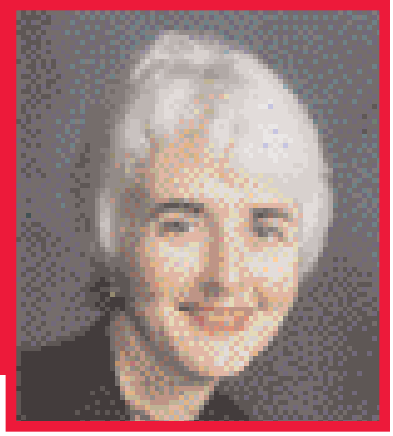
Infant Formula Preparation and Variety Bleach

by Susan S. Aronson, MD



Infant Formula Preparation

Too many child care centers accept bottles of milk prepared at home. When a bottle with liquid formula or other non-human milk comes to a child care facility in a container that was not factory sealed, the bottle may have bacteria or viruses that can cause diarrhea, vomiting, and fever. As more infants come into child care, providers must adopt safe practices for handling formula.

All infant formulas start as powders. For ready-to-feed forms and concentrates, the manufacturer adds water. Stores sell fluid cow milk that has been pasteurized at the dairy to reduce the bacterial load. Generally, regulators carefully monitor the path of milk to the supermarket to be sure it is safe.

When families prepare bottles at home, they may do so under circumstances that can introduce bacteria and viruses into the bottles. The family member may have touched contaminated surfaces at home, or not washed carefully after using the toilet. During home preparation, those germs may end up in the milk. When the parent transports the bottles at uncertain or hazardous temperatures, the organisms in the milk can grow. These bottles are usually refrigerated for a period of time at the child care facility, then reheated before feeding. These time and temperature conditions are ideal for food-borne illness.

Child care programs should accept milk in factory-sealed containers only. Ready-to-feed formula is expensive, especially if purchased in single serving containers. Although ready-to-feed formula comes in quart containers, these may not be used up at child care before the end of the 48 hour period for safe use after opening the can. Cans of concentrated liquid formula make 26 ounces by mixing one can of formula to one can of water. Even this amount may not be used up in 48 hours after opening the can at the child care facility.

Open cans of liquid formula should be kept in the refrigerator, dated when opened, and covered. Unless the baby will accept milk right from the refrigerator, bottles of formula made from multiple-serving cans must be warmed before feeding. One way around this problem is to keep the can of concentrated formula in the refrigerator and to dilute it at the time of feeding with freshly boiled water that warms the milk.

The easiest and the least expensive form of formula is powder. With a supply of tap water that is drawn and boiled fresh each day, or another source of safe water, caregivers can make up formula bottles from powder with the amount the baby is likely to eat at the time that the child wants to be fed. The supply of boiled water can be kept in a thermos so it makes warm milk when powder is mixed into it. Making up individual bottles at the time of a feeding is easier than getting an already diluted cold bottle out of the refrigerator and warming it while a hungry baby waits to eat.

The main risk of using powdered formula is that the caregiver will make a mistake in measuring the amount of powder to mix with the water. Parents and caregivers can mark the child's bottle with a line that shows the amount of water to use and put a label on the bottle that says the number of scoops of powder to add. The recipe for mixing powdered formula is on the formula label: mix one scoop of powder (with the scoop that comes in the can) to each two ounces of water. Put the water in the bottle first, then add the powder so it can disperse into the water as it is

added. If you put the powder in first, it may become a lump on the bottom of the bottle.

Boiling the water need not take a lot of time, but the water must be boiled fresh every day. Although boiling kills infectious agents, it also removes the chlorine that suppresses bacterial growth in the water thereafter. Based on a review of the scientific literature, in 1994 the Centers for Disease Control (CDC) and the Environmental Protection Agency (EPA) recommended that water can be made safe for drinking by bringing it to a rolling boil for one minute. This will inactivate all major waterborne bacterial pathogens.

Although information about inactivation of viruses that cause disease is less complete, the CDC considers one minute of a rolling boil likely to kill the viruses also. At elevations above 6562 feet (2 kilometers), the boiling time should be three minutes. The label on the formula can says bring the water to a rolling boil, but does not specify how long to keep the water boiling. You may hear different instructions from other sources, but the recommendations of the CDC and EPA are reliable.

Breast milk is safer to transport than formula. The anti-infection components of breast milk protect against bacteria and viruses introduced by handling. However, breast milk should be refrigerated or frozen right after it is collected. Breast milk should be transported in a carrier designed to maintain a temperature of 40˚ Fahrenheit or less. Modern carriers with surrounding iced packs usually do the job. A thermometer in the transport container can confirm that a safe temperature has been maintained.

Variety Bleach

False rumors are spreading about scented bleach being unacceptable for disinfecting. The percent of hypochlorite is the key. Domestic bleach sold in most supermarkets contains 5.25% hypochlorite.

To be sure the stock bottle is still full-strength, buy a new one every three months. Each day, make a fresh dilution to use in your spray bottles from this stock solution. Mix 1 tablespoon of bleach to a quart of water (or 1/4 cup to a gallon). If you wet a surface with this solution using a spray bottle and leave the bleach on that surface for two minutes, few, if any, germs will be left. The scent is not relevant to the disinfecting function of the bleach.

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