

Information for Health Care Professionals on Safe Handling of Infant Formula

Although experts agree that breast milk is the preferred method for newborn nutrition, in many individual situations breast-feeding isn't possible. Infant formula is a highly researched and regulated substitute for breast milk. It's extremely important that germs do not get into infant formula because babies do not have fully developed immune systems which puts them at higher risk for infections.

FDA Oversight: In the U.S., all infant formula manufacturers must register with FDA and meet the agency's nutritional quality and safety standards for their products.



Exceptions: Some infant formulas are made and labeled for infants that have certain medical conditions, such as metabolism issues, low birth weight, or an unusual medical or dietary problem.

Three types of infant formula:

- Ready-to-Feed — Is the safest. Do not add water.
- Liquid Concentrate — Next safest. Must be mixed with an equal amount of water.
- Powdered — Must be carefully mixed with water according to label instructions.

Cost: Ready-to-feed is the most costly, liquid concentrate is less costly, and powdered is the least costly.

Babies at higher risk of getting sick from pathogens in formula:

- Two months and younger
- With weakened immune systems
- Born prematurely
- Who are ill or receiving medical treatment, such as chemotherapy for cancer.

Preparation

Importance of handling formula safely: *Cronobacter* is a germ found everywhere around us, in water, moist foods, and dry foods like powdered infant formula. *Cronobacter* can get into powdered infant formula after the container is opened. *Cronobacter* can cause rare but possibly deadly infections in infants, such as *sepsis* (a condition caused by a serious infection in the body) or *meningitis* (swelling of the protective membranes covering the brain and spinal cord, which can cause death or permanent disabilities). Avoiding cross contamination of bottles, nipples, and utensils during preparation is vital.

Wash Hands: Always wash hands with soap and water for at least 20 seconds before making formula.

Cleaning Bottles and Feeding Parts: Before first use, boil bottles, nipples, caps, rings, and valves for 5 minutes. Afterward, following each use wash them in the dishwasher, if one is available, using hot water and a heated drying cycle (or sanitizing setting). If cleaning the feeding items by hand, wash them in soapy water in a basin used only for formula feeding parts, rinse, and air dry on a paper towel or clean dish towel.

Powdered Infant Formula Containers and Scoops: Powdered infant formula is unlikely to become contaminated if it stays dry. To clean an unopened powdered infant formula container, use a disinfectant wipe or paper towel sprayed with disinfectant to clean the outside of the container and lid before it is opened for the first time. Don't submerge the container or put it under running water. Don't open the container until all surfaces are completely dry. Never clean the inside of the container. If the scoop falls into a sink, on a kitchen counter, or the floor, or is soiled some other way, clean it as you would the baby's bottle. Let it air dry completely before using it.

Water: Always use water from a safe source to mix infant formula. If uncertain that your tap water, whether from a public drinking water supply or private well, is safe to use for preparing infant formula, contact your local health department. *For babies at higher risk, always follow the boiling instructions at **Water emergencies** below.*

- **Bottled water:** Bottled water isn't sterile unless the label says it is. If it is labeled sterile and is specifically marketed for infants, it must meet FDA requirements for sterility in marketed products. If you use ordinary bottled water to make formula, handle it the same way as safe tap water.
- **Water emergencies:** If your water supply is cut off by a watermain break or polluted by a hurricane or flood, use bottled water to make formula instead of tap water. If you must use tap water that may be polluted, boil it for one minute (3 minutes at elevations above 6500) to disinfect it and then let it cool in the pot for five minutes.

Mixing: Follow the instructions on the product's label. Add the exact amount of water to the bottle and then the exact amount of formula that the label says before shaking to mix the formula. Formula with too little water can cause dehydration (harmful loss of body fluid). Formula with too much water will not provide enough nutrition and, if fed to your baby for a long time, may result in slower growth.

Both liquid ready-to-feed formula and liquid concentrate are made to be sterile (without germs) and are the safer options than powdered infant formula for higher risk infants not receiving breast milk.

If your baby is at higher risk of getting sick from pathogens in formula, take these extra steps:

- Boil water when using liquid concentrate if you are uncertain about the safety of your water source and let it cool in the pot for 5 minutes, then add to the bottle.
- For powder, boil water, let it cool in the pot for 5 minutes, then add to the bottle. Add the powder, shake to mix, then let it cool to body temperature.
- Certain metabolic and specialty products include label warnings against heating above 100°F which could result in a loss of vitamins and nutrients. Follow the label instructions for specialty metabolic formulas.

Storing: Use prepared infant formula within 2 hours. If it is not used immediately, store the bottle in the refrigerator and use it within 24 hours.

Warming: Formula does not need to be warmed. If you prefer it warm, the best way is to place the bottle in a pot of water and heat it on the stove until warm (body temperature). Never use microwave ovens because microwaving can allow the bottle to remain cool while hot spots develop in the formula that can burn the baby's mouth. Before feeding, test the formula's temperature by putting a few drops on your wrist. It should feel warm, not hot.

After Feeding: Throw away any leftover formula because it now contains the baby's saliva which can cause bacteria to grow.

Storing Opened Powdered Infant Formula: Containers of infant formula must have information on how to store it before and after it is opened. They also must tell you how to store and when to throw away prepared formula. Follow the directions on the label. Once opened, a container of powdered formula typically needs to be used within one month. Write the date that you opened the formula on the lid. With the lid tight, store in a cool dry place, not in the refrigerator. Do not freeze.

"Use By" Date: FDA rules require a "use by" date on every container of infant formula. Don't use infant formula after this date. The manufacturer guarantees the nutrient content and quality of the formula only up to the "use by" date.