

Infant Formula (Breastmilk Substitute) Feeding

Congratulations on your new baby! If you have made an informed decision not to breastfeed, this handout will provide you with information on the safe preparation of formula (breastmilk substitute) for your healthy full-term infant. If your baby is born early, you will need to follow the specific feeding advice provided by your health care provider. You will probably have many questions about formula feeding. Here are some questions which parents and caregivers often ask:

What type of formula should I give my baby?

Give your baby a commercial iron-fortified infant formula.

How long do I need to give my baby infant formula?

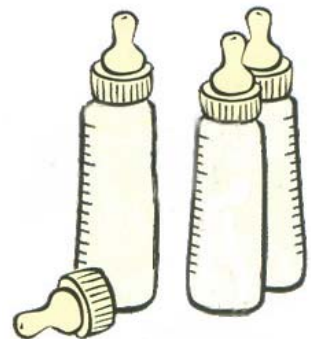
Give your baby commercial iron-fortified infant formula until he or she is 9 to 12 months old and is eating a variety of solid foods. Then you can gradually introduce whole cow's milk. For formula-fed babies, the change from iron-fortified infant formula to whole cow's milk should be completed by around one year of age. At this time, a formula-fed baby should be consuming a healthy diet, including two cups of milk a day, to meet her vitamin D needs.

What should I look for when I buy commercial infant formula?

- Always buy commercial infant formula with iron. It may be labelled “iron fortified” or “with iron”. Iron helps to keep your baby’s blood healthy. Iron-fortified infant formula does not cause constipation.
- Check the expiry date or best before date. These dates may be printed on the bottom or on the side of the package. Do not use infant formula which is out of date.
- There are different types of infant formulas which vary in cost and in preparation. There are three types of infant formulas: concentrated liquid, powdered and ready-to-use liquid. Always check the label for the type of infant formula that you are buying. See the question on page 2 about powdered infant formula.
- Brand name and store brand “generic” formulas are suitable formulas.
- Soy infant formulas are not necessary or appropriate for most babies. There are medical conditions for which a baby may need a soy formula, or soy formula may be chosen for cultural or religious reasons. Only use a soy formula when directed by your health care provider.

What type of baby bottles should I use?

The safest baby bottles to use are ones that are not polycarbonate. Polycarbonate baby bottles contain bisphenol A (BPA) which is an industrial chemical used to make some baby bottles and other types of plastic materials. Most Canadians are exposed to very low levels of BPA. Very low levels of BPA are not a health risk for adults and older children. However, exposure to BPA should be limited for children who are 18 months of age or less. Polycarbonate bottles almost look like glass in that the plastic is very clear, shiny and hard. To be sure as



to whether the bottles are polycarbonate, look for the number 7 in the centre of the recycling symbol on the bottom of the bottle. However, the number 7 is a broad category, and you can only be sure it is polycarbonate if the number 7 also has a PC beside it. If a plastic bottle does not have a recycling symbol on the bottom you cannot be certain if it contains BPA or not. Glass bottles or plastic bottles with a recycling symbol and a number other than seven on the bottom do not contain BPA.

Is Powdered Infant Formula Safe for All Babies?

Powdered infant formula is not sterile. It may contain bacteria that can cause serious illness. Although babies of all ages are at risk, babies who are less than two months of age are at greatest risk. **For this reason, powdered infant formula is not recommended for babies who are less than two months of age.** Breastmilk, concentrated liquid infant formula, or ready-to-use liquid infant formula should be given to these babies instead of powdered infant formula whenever possible.

Babies at greatest risk also include babies who are premature or underweight, have compromised immune systems or whose mothers are HIV positive. Some of these babies may need to use special formulas which are only available in a powdered form. Parents and caregivers should follow the recommendations given by their baby's specialized health care team.

Powdered infant formula is not processed at a high enough temperature for enough time to be considered commercially sterile. **If a parent or caregiver chooses to give powdered infant formula to a baby of any age, special care in mixing and storing the formula must be taken to limit bacteria growth.** Follow these steps carefully:

- Follow the safety suggestions for preparing and storing formula provided on this page and throughout this pamphlet.
- Powdered infant formula should be mixed with water which is not less than 70 degrees Celsius. Bring the water to a rolling boil for one minute. This boiling water will be at 100 degrees Celsius. Then, let the water cool until it reaches not less than 70 degrees Celsius. To reach this temperature, the water should be left for **no more** than 30 minutes after boiling. The water should be covered while cooling.
- Pour the correct amount of water into a clean and sterile bottle. Add the exact amount of formula to the bottle. Place a sterilized cap on the bottle. Mix thoroughly by gently shaking or swirling the bottle.
- Place the bottle under running cold water or in a container of cold or iced water until the right feeding temperature is reached. Make sure that the level of cooling water is below the lid of the bottle. Dry the outside of the bottle with a clean or disposable cloth.
- Giving a baby formula at 70 degrees Celsius would cause scalding in just two seconds. To avoid scalding your baby, the mixed formula **must** be cooled to the right feeding temperature of about 37 degrees Celsius. You can check the temperature by dropping a small amount of formula on your inner arm. The formula should feel like room temperature. Do not drink from the baby's bottle of formula to test the temperature. You may give your baby germs that could make him or her sick.
- It is safer to make one bottle at a time if using powdered infant formula.

Note: Mixing the powdered infant formula with water that is 70 degrees Celsius or greater may reduce some of the nutrients in the formula and cause clumping. However, it is very important that powdered infant formula be mixed with water which is **not** less than 70 degrees Celsius in order to reduce the bacteria which may be in the formula.

How do I prepare infant formula for my baby?

All types of infant formulas have directions on the container about how to prepare infant formula. Here are a few tips:

- Follow the instructions on the infant formula container. Never add extra infant formula, extra water or cereal.
- Wash your hands thoroughly with soap and water. Clean the surface on which the formula is to be prepared. All bottles, nipples, collars and caps, and any other equipment used to prepare the bottles need to be cleaned thoroughly. Wash well in hot, soapy water. Scrub the inside and outside of bottles and nipples with a nipple/bottle brush. Rinse well with hot water.
- Sterilization is very important. Sterilize all equipment for babies less than four months of age. Check the instructions on the infant formula label or see instructions below.
- You can make one or several bottles at one time. It is safer to make one bottle at a time if using powdered infant formula. Keep the bottles in the refrigerator and use within 24 hours. Do **not** keep bottles of formula in the refrigerator door where it is warmer.

How can I warm the bottle of formula for my baby?

Place the bottle of prepared formula in a bowl of warm water for no more than 15 minutes. Leave the bottle of formula in the water until the formula is warm enough. You can check the temperature by dropping a small amount of formula on your inner arm. The formula should feel like room temperature. Do not drink from the baby's bottle of formula to test the temperature. You may give your baby germs that could make him or her sick. Do not heat the bottle of formula in a microwave. The heat is uneven and can cause "hot spots" that may burn your baby's mouth. Use the formula as soon as it is warmed up and do not keep this formula for more than two hours. Throw out any leftovers.

How do I sterilize the equipment?

It is traditionally recommended that all equipment used to make the formula should be sterilized. This equipment includes: bottles, nipples, lids, measuring cups, the mixing jug, tongs, containers to store boiled water, etc.

Check the product labels for instructions about sterilizing the equipment. If none are available, use the following instructions. Clean all of the equipment. Place it in a pot of water. The water should completely cover everything in the pot. Cover the pot and bring the water to a boil. Boil rapidly for two to five minutes. Let cool and remove the equipment with sterilized tongs. Do not use this water to prepare the formula.

If possible, use the sterilized equipment right away. If not, store the equipment in a clean covered container.

Check the nipples for signs of wear before each use. Nipples that are cracked can break off while the baby is feeding and can cause choking. Nipples which are sticky or have cracks or tears should be thrown away.

Do I have to boil water to prepare liquid concentrate infant formula?

Water should be boiled for infants less than four months of age. If your community has a boil water advisory, you should boil the water for mixing with infant formulas for a baby of any age.

Bring cold water to a rigorous rolling boil for one minute. Cool the water before using it to prepare the infant formula. Boiled water can be stored for up to three days in the refrigerator or for 24 hours at room temperature. Water should be stored in a sterilized covered container.

Use water from the cold water tap. Water from the hot water tap may have higher amounts of lead than water from the cold water tap. Let the water run from the cold water tap for two minutes each morning to flush out any overnight buildup of lead and copper from the pipes which may be in the water. Lead and copper from the pipes are not healthy for your baby.

Bottled water can be used to make infant formula, but it has to be boiled like tap water. The only bottled waters suitable for babies are non-carbonated natural spring water from underground springs and non-carbonated treated water with a low mineral content. Bottled water should have less than 500 ppm or mg/L of total dissolved solids. **Note:** natural spring water which is not commercially bottled and has not been tested for safety should not be used.

Health Canada recommends caution when using home water treatment equipment. Some water softeners increase the sodium content of the water, and charcoal filters can increase the silver content of water or may contaminate the water with bacteria.

Health Canada also recommends caution when using well water for infant feeding (birth to 24 months). Well water may naturally contain high amounts of nitrates, nitrites, arsenic, fluoride, or other heavy metals. If you are using private well water for your baby, the water should be tested at least twice a year for these substances. In addition, the well water should be tested for bacteria on a regular basis. Contact your nearest Government Service Centre for information on free testing for bacteria. They can direct you to laboratories where you can pay for testing for the other substances.

How often should I feed my baby infant formula?

Each baby's appetite is different. Feed your baby whenever he or she is hungry. Most formula-fed babies feed every three to four hours during the first 6 months. Sometimes babies feed more often during the first few months. Babies may feed more frequently during different times of the day. Your baby may also feed more during hot weather or growth spurts. These growth spurts can happen at any time. Babies' growth spurts usually occur at 2 weeks, between 4–6 weeks, 3 months and 6 months. During a growth spurt your baby will probably need extra formula. Let your baby's appetite be your guide!

How much infant formula will my baby drink?

Every baby is different. The following table is a guide for the amount of infant formula to **prepare**. Let your baby's appetite guide you on how much infant formula to offer. Your baby should feed until he or she is satisfied. Do not make your baby finish the bottle. Throw away any leftover infant formula in the bottle after each feeding.

Suggested Amount of Infant Formula to Prepare

Age	Approximate Number of Feedings per Day	Approximate Amount of Formula to Prepare per Day
Birth	6 - 10	14 - 22 ounces (410 - 650 ml)
2 weeks	6 - 10	16 - 26 ounces (470 - 770ml)
1 month	6 - 8	17 - 29 ounces (500 - 860 ml)
2 months	5 - 7	22 - 35 ounces (650 - 1030 ml)
3 months	5 - 7	24 - 39 ounces (710 - 1150 ml)
4 months	5 - 7	20 - 37 ounces (590 - 1090 ml)
5 months	5 - 7	22 - 39 ounces (650 - 1150 ml)
6 months	4 - 5	17 - 35 ounces (500 - 1030 ml)
7 months	4 - 5	16 - 35 ounces (470 - 1030 ml)
8 months	4 - 5	17 - 37 ounces (500 - 1090 ml)
9 months	3 - 4	10 - 30 ounces (300 - 890 ml)
10 months	3 - 4	10 - 31 ounces (300 - 920 ml)
11 months	3 - 4	11 - 33 ounces (330 - 980 ml)
12 months	0 - 3	0 - 21 ounces (0 - 620 ml)*

Adapted from: Dietitians of Canada. Practice-Based Evidence in Nutrition (PEN) – Infant Formula Knowledge Pathway. [cited 2008 21 Jul].

***Note:** The amount of infant formula that a baby needs changes as the baby grows and develops. However, the amount of infant formula needed by a baby does not always increase over time. In the table above, the approximate amount of infant formula to prepare actually decreases at four months, six months, nine months and twelve months. These decreases are a result of changes in growth rate as well as solid food intake. Keep in mind that these approximate amounts are just a suggestion. Let your baby's appetite guide you! For information on introducing solid foods and whole cow's milk, please refer to *Feeding Your Baby: 6 – 12 Months*.

How do I know if my baby is getting enough infant formula?

Your baby is getting enough infant formula if he or she is:

- bright and alert
- seems satisfied
- is growing and developing

What is the best way to feed my baby a bottle?

Hold your baby in a semi-upright position during feeding. Cuddle, talk to and look at your baby while feeding. Propping the bottle or putting the baby to bed with a bottle may cause the baby to choke. Do not let your baby fall asleep with the bottle in his or her mouth. It can cause the baby's teeth to rot and may increase the risk of ear infections.



How much weight should my baby gain?

Each baby gains weight at his or her own rate. Most babies do not gain the same amount of weight each week. Talk to your health care provider about how much weight your baby should gain.

How do I store infant formula?

Each infant formula has its own instructions. Check the label. Unopened cans of formula should be stored in a dry place away from heat and direct sunlight. Formula should not be frozen.

Typically, prepared infant formula can be covered and stored in the refrigerator for 24 hours, depending on the manufacturer's instructions on the label. Once warmed, formula should be thrown out after two hours, including the feeding time. This practice is to keep the formula safe, as bacteria begin to grow in the bottle once the formula is taken out of the refrigerator. If your baby doesn't finish a bottle, throw away the formula left in the bottle, as it's not safe to offer that formula later. Cover opened cans of liquid infant formula and use within 24 hours. Powdered infant formula should be used within one month of opening the can.

Should I change infant formulas if my baby is fussy?

People sometimes change infant formulas when their baby is fussy. This is not always a good idea. Babies are fussy for lots of reasons. Speak with your health care provider before you change infant formulas.

Does my baby need to take vitamins?

Babies on commercial iron-fortified infant formula do not usually need to take vitamins. Vitamins should only be given to a baby if prescribed by a physician for special needs.

Does my baby need fluoride drops?

The use of fluoride drops is not recommended for babies less than 6 months of age. Some babies may need fluoride drops after 6 months of age. Fluoride drops should only be given to a baby upon the advice of a dental care provider.

Is formula made with evaporated milk (canned milk) the same as commercial infant formula?

Formula made with evaporated milk is not the same as commercial infant formula. Do **not** use evaporated milk formula to feed your baby. Health Canada and the Department of Health and Community Services do not recommend the use of evaporated milk formula. Evaporated milk formula is **not** nutritionally complete. Evaporated milk formula is missing the iron and some of the vitamins that your baby needs.



Should I use a follow-up infant formula?

Follow-up infant formula is not recommended for babies under 6 months of age. Follow-up formula is made for older babies who are eating a variety of solid foods. There is no nutritional benefit in switching to a follow-up infant formula. You can keep giving your baby the infant formula you have been using until your baby is switched to whole milk. See ***Feeding Your Baby: 6 - 12 Months*** for information about when to introduce whole milk to your baby.

When should I give my baby solid food?

You should give your baby **only** breastmilk or commercial iron-fortified infant formula for the first 6 months of life. New research shows that babies do not need anything but breastmilk or commercial iron-fortified infant formula for the first 6 months. Giving your baby solid foods too early can cause problems because:

- Your baby may not drink enough breastmilk or formula.
- Your baby's system is not ready to digest solid food.
- Your baby's risk of being anemic (low iron) increases.
- Your baby's risk of developing eczema (skin disorder) increases.
- Your baby's risk of developing allergies increases.
- Your baby may choke if he or she is not ready to swallow solid foods.



Studies show that giving babies solid foods will not help them sleep through the night. Putting cereal in a baby's bottle does not help them sleep through the night either and is a choking hazard.

Talk to your health care provider if you have any questions. For information about breastfeeding or introducing solid foods, please refer to the following provincial publications: ***The Breastfeeding Handbook 2008, Breastfeeding Your Baby, or Feeding Your Baby 6-12 Months.***

Looking for More Information?

Talk to your health care provider for more information. Public health nurses, dietitians, Healthy Baby Clubs and Family Resource Centres offer information about caring for babies. You can also check out the following website:

Health Canada www.hc-sc.gc.ca

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