

Formula Feeding Your Baby

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This booklet gives information about feeding formula to healthy full-term infants. Formula can also be called artificial baby milk, breast milk substitutes, non-human milk as well as other terms. If your baby was born premature/preterm, at a low birth weight or has a weakened immune system, talk to your health care provider about feeding your baby.

Your baby's first food – make an informed decision about feeding your baby

Health Canada recommends that babies be fed only breast milk for the first six months of life and that breast milk continue to be given along with the right foods for your baby's age and stage for up to two years of age or longer. If you are considering giving formula to your baby, the following information is provided to help you make the decision that is right for you and your baby.

Breastfeeding promotes the healthy growth and development of babies, protects babies from illness, is environmentally friendly and free. Breastfeeding helps mothers recover from childbirth and protects against diabetes and breast and ovarian cancers.

Formula does not protect a baby from infections or chronic diseases and does not change to meet the growing needs of a baby. Babies may also become sick from contaminated formula.

When breast milk is not available, or when supplemental feeding is needed, store-bought formula may be used to feed a baby. If it is necessary to supplement breastfeeding, consider giving the following in the order listed in addition to breastfeeding:

- expressed breast milk*; or
- expressed breast milk* and formula; or
- formula only.

*Breast milk can be expressed by hand or by pump and fed fresh to your baby, or it can be frozen and thawed for later use.

The decision not to breastfeed can be difficult to reverse or change. If you are breastfeeding, giving formula can reduce your milk supply. If you are thinking about, or have made the decision to feed your baby formula, contact Region of Waterloo Public Health and Emergency Services at 519-575-4400 (TTY 519-575-4608) and ask to speak to a public health nurse for important information about feeding your baby.



Caring for your breasts

After having a baby it is normal for your breasts to produce milk and to become larger and heavier. If milk is not removed, normal breast fullness may lead to engorgement, which can be very uncomfortable. Engorgement, if left untreated, may lead to other complications.

Expressing just enough milk to make your breasts feel comfortable will help avoid engorgement. You can give this expressed breast milk to your baby (for example, by spoon) as it has many benefits. If you experience discomfort, you can apply cold compresses (ice paks, gel packs, or frozen bags of vegetables) wrapped in a dry towel to reduce swelling. You can also take pain medication recommended by your health care provider, as needed. If engorgement does not improve or you begin to feel flu-like symptoms, develop a fever, or notice increased pain or redness of your breasts, call your health care provider.

Hold your baby skin-to-skin

Hold your baby skin-to-skin as often as you can, starting right after birth. Place your baby wearing only a diaper, with their tummy against your bare chest. If you wish, you can then place a light blanket over both of you. Giving your baby lots of skin-to-skin contact will help you feel close to your baby and learn your baby's hunger signs (see page 15).



Ask for help

If you have questions or problems feeding your baby, get help right away. See *page 19* for where to get infant feeding help.

Food safety alerts - recall information

For information about recalls, including formula, you may go to www.healthycanadians.gc.ca and look under the 'Food and Nutrition' link.

Types of formula

Ready-to-feed: No water is added; see *page 9* for instructions.

Liquid concentrate: Water is added. See *page 10* for preparation instructions. It is often less expensive than powdered types when bought by the case.

Ready-to-feed and liquid concentrate formulas are sterile products until opened. It is safest to use sterile liquid formula for babies, especially those who are premature, low birth weight, have a weakened immune system or are less than two months old (WHO, 2007).

Powdered: Water is added. It is not a sterile product, even when unopened and can contain germs that may make a baby sick (WHO, 2007). If you choose to feed powdered formula to your baby, follow the steps for preparation on page 12.

If your health care provider has recommended your baby be fed powdered formula, follow the preparation instructions provided by your health care provider.

What kind of formula should I buy?

All brands of formula must meet the same standards and provide the nutrients that your full term baby needs to grow and develop properly.

- Cow's milk-based iron-fortified formula is recommended for most babies.
- Specialty products should only be used if recommended by a health care provider for medical reasons.
- Soy-based formula should only be used for medical, cultural, or religious reasons.
- Formula with added DHA (omega 3 fatty acids), prebiotics, probiotics, or organic brands are not necessary.
- If it is necessary to give your baby formula after 12 months of age, talk to a health care professional about the type that is best for your baby.

Once you have started feeding one kind of formula, continue to use the same one; it takes a baby several days to get used to a different one. Talk to a health care professional before changing formula.

Do not substitute formula with any of the following: cow or goat milk; soy or other plant-based beverages; evaporated milk, evaporated milk recipes or other recipes for homemade formula. They do not have all the nutrients your baby needs.

TIPS.

- Check the expiry date on the package; do not buy or use a product after that date.
- Do **not** buy or use bulging or dented cans or containers that are leaking.

Choosing safe water to make formula

Water must be used to prepare liquid concentrate and powdered formula. The water must be clean, safe and sterilized.

Note: Do not add water to ready-to-feed formula.

Tap water (municipal water)

Use water from the cold water tap. Before using, run cold water for at least two minutes, especially if the water has been standing in the pipes for a number of hours or overnight. If you live in an older home, there is a chance that lead may be a concern. Running the water for at least two minutes before using it can help reduce the risk.

- Use hard (unsoftened) water when possible; softened water is higher in sodium.
- If a home filter is used for tap water, follow the manufacturer's instructions for use and check how often you should change the filter. Otherwise, contaminants caught by the filter could be re-released into the water or form a build-up of organic matter that could promote bacterial growth.

Private well water

Make sure to use water from the cold water tap (see above) and that it has been tested and is free of bacteria.

- Test well water at least three times a year (spring, summer, fall) for bacteria.
- Nitrates can be present in well water, and at levels over 10 ml/L, is harmful to infants. You cannot get rid of
 nitrates by boiling the water. The only way to know whether there are nitrates in your well water is to have the
 water tested.
- Test for nitrates and other chemicals, such as fluoride, once a year. For more information call Region of Waterloo Public Health and Emergency Services at 519-575-4400 (TTY 519-575-4608) or view our website: www.regionofwaterloo.ca/privatewellwater

TIP:

Unsafe drinking water can cause serious illness, especially for babies and pregnant women. If you use water from a private well, test the water regularly as described above.



Bottled water

If tap water is not available, store-bought bottled water (such as natural spring water) can be used.

- Choose water with the lowest amount of nitrates (≤10 mg/L) and sodium.
- Do not use carbonated, soda, seltzer, mineral, tonic, flavoured, or vitamin waters.
- Avoid using the following types of water, as their safety has not been determined: water from a reverse osmosis system; distilled, deionized, purified and demineralized waters and special baby (nursery) water.

Always sterilize water used to prepare liquid concentrate and powdered types of formula. There is no known age that is safe to stop sterilizing water for preparing formula.

Equipment used to prepare and feed formula

Formula can be fed to your baby from a bottle, cup, spoon, or tube system. If feeding with a bottle, use glass containers if possible. If using plastic containers checkthat they are bisphenol A (BPA) free. For more information call Public Health at 519-575-4400.

- Regularly check nipples. Throw out nipples that are cracked, torn, discoloured, swollen or sticky.
- Rinse feeding equipment as soon as possible after each use.
- Always clean and sterilize equipment used to prepare and feed formula.
- If using a disposable bottle system, sterilize only nipples, rims and caps. Throw out liners after one use.



Cleaning and sterilizing equipment

Always sterilize all feeding supplies. There is no research to indicate an age that is safe to stop sterilizing equipment used to prepare and feed formula.



What you need:

- Large pot with lid
- Bottle brush and nipple brush
- Tongs, knife, spoon
- Can opener
- Glass measuring cup
- Glass bottle (if bottle feeding), nipple, cap, rim

Follow these steps to keep your baby safe:

- **Step 1:** Wash hands with soap and warm water. Dry with a clean towel.
- **Step 2:** Clean counter with soap and warm water.
- **Step 3:** Wash all items in warm soapy water.
- **Step 4:** Make sure holes in nipples are not clogged.
- Step 5: Rinse well.
- **Step 6:** Put clean items in a large pot. Fill pot with water to cover all items.
- **Step 7:** Bring water to a rolling boil and boil for two minutes, making sure the items remain covered with water.
- **Step 8:** Remove items with sterile tongs. Set on a clean drying cloth or paper towel. If not using right away, cover until use.

TIP: If using a home sterilizer system to sterilize equipment, follow the manufacturer's instructions carefully.





Preparing ready-to-feed formula

Follow preparation instructions carefully to make sure the formula is prepared safely for your baby. Do **not** add water to ready-to-use formula.

- **Step 1:** Wash your hands with soap and warm water. Dry with a clean towel.
- **Step 2:** Clean the counter with soap and warm water.
- **Step 3:** Have sterilized items ready on a drying cloth or paper towel (see *page 8*) for how to sterilize equipment).
- **Step 4:** Read the label of the container of formula to check that it is ready-to-feed. Check the expiry date and throw out if expired. Do not use dented or bulging cans or containers that are leaking.
- **Step 5:** Wash the top of the container with warm water before opening.
- **Step 6:** Shake the container and open. Use sterile can opener if needed.
- **Step 7:** Pour the amount of formula for one feeding into the feeding container. Do not add water.
- **Step 8:** If using a bottle to feed, pick up nipple, rim and cap with tongs. Then tighten with your hands.
- **Step 9:** If not feeding your baby right away, put in the fridge. Use within 24 hours.
- **Step 10:** Tightly cover open container of ready-to-feed formula and put in the fridge. Use within 48 hours.

TIPS:

- Throw out formula that has been out of the fridge for two hours or more.
- Do not refrigerate and reuse formula left-over from a feeding; throw it out.
- Never freeze formula.



Preparing liquid concentrate formula

Follow the mixing instructions carefully to make sure that the formula is prepared safely for your baby. Make sure to use the correct amount of liquid concentrate and water.

- **Step 1:** Wash your hands with soap and warm water. Dry hands with a clean towel.
- **Step 2:** Clean the counter with soap and warm water.
- **Step 3:** Have sterilized items ready on a clean paper towel (see *page 8* for how to sterilize equipment).
- **Step 4:** Run cold water for at least two minutes. Put water in a clean pot on the stove and bring to a rolling boil. Boil for two minutes and let it cool. If using an electric kettle to boil water, make sure it boils for two minutes before it shuts off.
- **Step 5:** Read the label on the container of liquid concentrate to see how much concentrate and water to use. Check the expiry date and throw out if expired. Do not use dented or bulging cans or containers that are leaking.
- **Step 6:** Wash the top of the container of concentrate with warm water before opening.
- **Step 7:** Shake the container of concentrate well and open can with a sterile can opener.
- **Step 8:** Measure the amount of desired concentrate into a sterile measuring cup.
- **Step 9:** Measure an equal amount of cooled sterilized water* and add it to the measured concentrate. Mix well with a sterilized spoon.
- *Sterilized water kept in a sterilized tightly closed container for 24 hours at room temperature, or kept for two to three days in the fridge can be used to prepare liquid concentrate formula.



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Preparing liquid concentrate formula

Step 10: Pour the amount of prepared formula for one feeding into the feeding container.

Step 11: If using a bottle to feed artificial baby milk, pick up the nipple, rim and cap with tongs and put on the bottle. Then tighten rim with your hands.

Step 12: If not feeding right away, put in the fridge. Use within 24 hours.

Step 13: Tightly cover open container of unused concentrate and put in the fridge. Use within 48 hours.



TIPS:

- Throw out formula that has been out of the fridge for two hours or more.
- Do not refrigerate and reuse formula left-over from a feeding; throw it out.
- Never freeze formula.

Did you know?

Liquid concentrate is often the same cost or less expensive than powdered formula when bought by the case.

Preparing powdered formula

Powdered formula is not sterile and may contain germs that may make a baby sick. Sterile formula (liquid concentrate or ready-to-feed) is safest for babies, especially those who are premature, low birth weight or under two months of age (WHO, 2007).

Follow the preparation instructions carefully to make sure that the formula is prepared safely for your baby. Make sure to use the correct amount of powder and water.

- **Step 1:** Wash your hands with soap and warm water. Dry hands with a clean towel.
- Step 2: Clean the counter with soap and warm water.
- **Step 3:** Have sterilized items ready on a clean paper towel (see *page 8* for how to sterilize equipment).
- **Step 4:** Run cold water for at least two minutes. Put one litre of water into a large pot and bring to a rolling boil. Boil water for two minutes. If using an electric kettle to boil water, make sure it boils for two minutes before it shuts off. Let water cool and **use within 30 minutes** so that the water is 70°C or higher to kill any germs that might be in the powder.
- **Step 5:** Read the label on the container of powder to see how much powder and water to use. Check the expiry date and throw out if expired. Do not use dented or bulging cans or packages that are leaking.
- **Step 6:** Measure desired amount of boiled water (cooled no more than 30 minutes) in sterile glass measuring cup.
- **Step 7:** Using the scoop provided with the powder, fill the scoop loosely with powder (do not pack). Level with sterile knife.
- **Step 8:** Add the required number of scoops of powder to the measured boiled water. Mix with a sterile spoon until no lumps of powder are left.











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Preparing powdered formula

Step 9: Pour the amount of prepared formula for one feeding into the feeding container.

Step 10: If using a bottle to feed, pick up nipple, rim and cap with tongs and put on bottle. Then tighten rim with your hands.

Step 11: Cool the container under cold running water or in a container of cold water. Make sure that no water gets above the lid and into the container.

Step 12: Check the temperature on the inside of your wrist and feed right away. If not feeding right away, put in the fridge. Use within 24 hours.

Step 13: Cover container of powder and store in a cool dry place (not in the fridge). Use within one month.

TIPS:

- Throw out prepared formula that has been out of the fridge for two hours or more.
- Do not refrigerate and reuse formula left-over from a feeding; throw it out.
- Never freeze formula.

Automatic formula preparation machines do **not** prepare powdered formula in the safest way for your baby. Reasons to **avoid** using them include: bacteria may grow in the water that stays warm in the machine; the water used for preparation may not be hot enough to kill bacteria that may be in the powder; it may not consistently mix the formula well; and it may be difficult or not possible to sterilize the parts of the machine that come in contact with the formula.



Storage of formula

Ready-to-feed and liquid concentrate

- If not feeding prepared formula right away, put it in the fridge and use within 24 hours.
- Tightly cover the open can/container and put in the fridge; use within 48 hours.
- Unopened containers should be stored in a cool, dry place. Avoid exposure to extreme temperatures. Read the label of the product for full storage instructions.

TIP: The temperature of a fridge used to store liquid formula should be four degrees Celsius (4°C) or less. Place formula at the back of the main body of the fridge on the upper shelves above any raw or hazardous foods.

Powdered

- Ideally, prepare only enough for one feeding at a time and feed right away after cooling. If not feeding it right away or if preparing more than one container at a time, store in the fridge and use within 24 hours.
- Cover can of powder with plastic lid and store in a cool dry place (not in the fridge). Use within one month.
- Unopened containers of powder should be stored in a cool, dry place (not in the fridge). Avoid exposure to extreme temperatures. Read the label of the product for full storage instructions.



How to transport prepared formula

- Make sure the formula is cold before transporting.
- Place the container of cold formula in a cooler bag with ice packs to keep it cold.
- Feed the formula to your baby within two hours or put it into a fridge.
- If kept cold and put into a fridge within two hours, it may be kept in the fridge up to 24 hours from when it was prepared.
- Throw out formula that is not fed or put into a fridge within two hours of being prepared.



When should I feed my baby?

Feed your baby when hungry, not at a scheduled time. Every baby is different. Your new baby may need to feed at least eight times in a 24-hour period at first. It is normal for your baby to wake up to feed in the night. Let your baby decide:

- How often to feed. Feed your baby at early signs of hunger (see below).
- How much to have at each feeding. Stop feeding when your baby shows signs of being full (see below).

Learn your baby's hunger signs

Early signs your baby is hungry:	Late signs your baby is hungry:	Signs your baby is full:
 Makes sucking noises Searches with an open mouth Sticks their tongue out and licks Brings hands to mouth Restlessness Don't wait until your baby cries; crying is a late sign of hunger. 	 Fussiness Crying Exhaustion Falls asleep If your baby is really upset, you may need to calm your baby before feeding. 	 Turns head away Looks settled and relaxed Stops sucking Closes mouth Loses interest in feeding Never force your baby to continue feeding.

How much should I feed my baby?

Feed your baby according to their appetite by starting the feed at early signs of hunger and stopping the feed at signs of fullness (see above).

- Newborns have very small stomachs and may only take very small amounts (less than half an ounce) at each feeding in the first 24 hours.
- For the first two days of life a baby's stomach is only about the size of a cherry; on days three and four a walnut; on days five and six an apricot; and from day seven to two weeks it is about the size of an egg.









- Let your baby decide how much to have. Offer smaller amounts at first; you can offer more if your baby is still hungry. Never force your baby to drink a set amount.
- As your baby gets older, they will eat larger amounts at each feeding and may feed less often.
- Babies have times when they grow faster than usual (growth spurts). Your baby may become hungrier at these times and need to eat more often, or have more to eat at each feeding.

TIP: A young infant's stomach often holds more than the amount they can digest at a feeding, so spitting up is common. Watch carefully for signs your baby has had enough and stop the feeding to prevent your baby from being overfed.

The chart below provides a guideline for an approximate amount to prepare each day for the first two months of life. For more information, call Public Health at 519-575-4400.

Age of baby	Approximate daily amount
Birth to 24 hours	40 to 60 mL or 1.5 to 2 ounces
24 to 48 hours	80 to 120 mL or 2.5 to 4 ounces
48 to 72 hours	120 to 240 mL or 4 to 8 ounces
72 to 96 hours	240 to 480 mL or 8 to 16 ounces
4 to 7 days	300 to 600 mL or 10 to 20 ounces
1 to 4 weeks	450 to 750 mL or 15 to 25 ounces
1 to 2 months	750 to 1050 mL or 25 to 35 ounces

Adapted with permission form York Region Community and Health Services

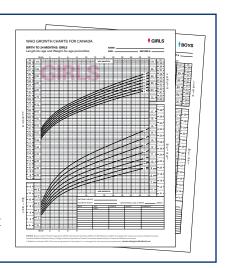
Is my baby getting enough to eat?

Your baby is getting enough to eat if your baby is:

- Having regular wet diapers (at least six wet diapers by day five of life).
- Passing regular, soft bowel movements (one to two daily for the first two weeks; then one every one to two days).
- Gaining weight and is growing.

Your health care provider should keep track of your baby's growth by putting your baby's weight and length on a growth chart at each visit.

If you are concerned about your baby's growth or about whether or not your baby is getting enough to eat, talk to your health care provider.



Feeding your baby with a bottle

Feed your baby at early signs of hunger (see page 15).

If the formula was prepared ahead and kept cold in the refrigerator (fridge), it may be warmed before feeding.

Warming formula

Warm a container of formula by placing it in a container of warm water for up to **15 minutes**.

Do **not** heat formula in the microwave; it can create hot spots that can burn your baby's mouth.

Shake the container and check the

temperature on the inside of your wrist to make sure it is warm (about room or body temperature) but not hot. If it is too hot, let it cool before feeding your baby.

- Hold your baby close in your arms while feeding.
 Never prop a bottle in a baby's mouth or leave your baby alone while feeding.
- Your baby's head should be higher than their body; they should not be lying down.
- Touch your baby's lips with the nipple and wait for your baby to open their mouth to take the nipple in.
- Hold the bottle in your hand at an angle so there is milk in the nipple. The nipple should let the formula come out at about one drop per second.





- Give the baby your full attention; make eye contact, smile and talk to your baby during feedings.
- Switch arms that you hold your baby to feed, halfway through each feed.
- Stop feeding when your baby shows signs of having enough (see *page 15*).

Throw out what is left in the bottle after the feeding, or that has been out of the fridge for two hours or more.

TIP: Let your baby set the pace of the feeding. If your baby looks uncomfortable or upset, or fusses during a feeding, take a short break until your baby is calm. If your baby does not want to take any more, end the feeding.

Burping your baby

When feeding your baby, your baby may get air in their stomach and may need to burp to get the air out. Take short breaks to burp your baby during each feeding and burp again after the feeding.

To burp your baby, hold your baby upright on your shoulder or sit them on your lap and gently pat or rub the middle of their back.



How long do I feed my baby formula?

Pasteurized homogenized (3.25% MF) cow's milk can gradually be introduced in an open cup to replace formula when your baby is nine to 12 months of age and eating a variety of foods every day, including iron-rich foods at least twice a day.

Plant-based beverages such as soy, rice, or almond beverages are not suitable for a child under 24 months of age as they don't provide all the nutrients needed for healthy growth and development.

Vitamin D supplementation

Health Canada recommends a daily vitamin D supplement of 400 IU (10 μ g) for babies less than two years of age receiving any breast milk. If your baby is being fed only formula they do **not** need a vitamin D supplement.

Dental care for your baby

After every feeding, use a clean, warm, damp cloth to wipe your baby's gums. When teeth appear, brush them twice a day using a soft baby toothbrush and water — no toothpaste.

- The most important time to brush teeth is before your child goes to sleep at night.
- Children should be seen by a dentist or dental hygienist by their first birthday.

Where to get infant feeding help

Telehealth Ontario

1-866-797-0000 (TTY: 1-866-797-0007) For breastfeeding support call 24 hours a day, seven days a week.

Call to speak to a Registered Dietitian Monday to Friday during business hours.

Cambridge Paediatric and Breastfeeding Clinic

Call to make an appointment with a lactation consultant:

519-620-3600 (You will need a referral from your health care provider).

Region of Waterloo Public Health and Emergency Services

For more information call 519-575-4400 (TTY: 519-575-4608) and ask to speak to a public health nurse or go to: www.regionofwaterloo.ca/ph for information on our website.

Websites for more information:

Canadian Pediatric Society: www.caringforkids.cps.ca

Healthy Canadians:

www.healthycanadians.gc.ca

World Health Organization Safe preparation, storage and handling of powdered infant formula guidelines: www.who.int/foodsafety/publications/micro/pif_quidelines.pdf



References

Health Canada, Canadian Paediatric Society, Dietitians of Canada, & Breastfeeding Committee for Canada (2012) Nutrition for healthy term infants: Recommendations from birth to six months.

World Health Organization (WHO) and Food and Agriculture Organization (FAO) (2007): Safe preparation, storage and handling of powdered infant formula guidelines.

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Breastfeeding Your Baby Caring for You and Your Baby Feeding Your Baby and Young Child

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The above booklets and alternate formats of this document are available upon request.



PUBLIC HEALTH AND EMERGENCY SERVICES

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