



Infant milks:

A simple guide
to infant formula,
follow-on formula
and other
infant milks



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www.firststepsnutrition.org

This resource is provided for information only and individual advice on infant feeding should always be sought from appropriate health professionals. **The information in this resource is updated regularly so check that you are using the latest version available.**

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First Steps Nutrition Trust is a charity which provides clear, evidence-based and independent information and support for good nutrition from pre-conception to five years of age. For more information, see our website
www.firststepsnutrition.org

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This simple guide to infant formula, follow-on formula and other infant milks provides information about these breastmilk substitutes to ensure simple, clear, evidence-based information is available to all.

First Steps Nutrition Trust fully supports public health recommendations that mothers should exclusively breastfeed for the first six months wherever possible, and continue to breastfeed alongside complementary foods in the second six months of life and for as long after that as the mother wishes to do so.

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What is in this guide?

This guide provides simple advice on the infant milks to choose in the first two years of life if parents are not breastfeeding. The reasons for these recommendations are summarised in the frequently asked questions on page 4. The guide also provides information on the amount of milk that current recommendations suggest an infant and young child needs, and on how to make up powdered formula milk safely.

If you want support or further information about infant milks, talk to your midwife or health visitor. If you have any concerns about your baby's health, talk to your GP or another health professional.

Types of infant milks

In the UK there are a variety of infant milks for sale. These are marketed as:

- **infant formula** – milks which are the sole food for infants from birth
- **follow-on formula** – milks only to be used after 6 months of age
- milks which are called **foods for special medical purposes**, and
- **milks for children over the age of 1 year**.

There are clear regulations that govern the composition, safety and marketing of infant formula and follow-on formula in all areas of the UK. There are different regulations for some of the specialist formula (which should in theory only be available under medical supervision). There are currently no regulations for milks marketed for children over 1 year of age.

A safe, nutritionally adequate infant formula is needed where parents cannot, or choose not to, breastfeed their infants. However, there is little evidence for many of the claims made for ingredients used in milks marketed for infants and young children. It is therefore important that everyone has access to independent, simple and evidence-based information about which milks to choose in the first years of life.

First, we give a simple guide to which infant milks are suitable at what age. Then, in the *Frequently asked questions* section on page 6, we give some explanations about this guidance.

All of the evidence for the information given is explained and referenced in the comprehensive guide *Infant milks in the UK: A practical guide for health professionals*, which you can download from www.firststepsnutritiontrust.org



You may see lots of adverts and information on company websites about different milks, why they are useful and claims about special properties. Remember that infant milk manufacturers use their marketing budgets to provide information on infant feeding to parents and health professionals, and that the information on their websites can be misleading, biased and may not reflect current health policy in the UK. Sources of independent information for the UK can be found at the back of this resource.

A simple guide to choosing milks for infants and toddlers

✓ = Safe to give this milk.

X = Do not give

	Infants 0-6 months	Infants 6 months – 1 year	Toddlers 1 year – 2 years
Breast milk	✓	✓	✓
Whole cows' milk (or goats' milk, sheep's milk or unsweetened calcium fortified soya milk or milk alternative) as main milk drink	X	X	✓
Infant formula suitable from birth (cows' or goats' milk based)	✓	✓	Only needed if recommended by a health professional
Infant formula marketed for hungrier babies, suitable from birth (cows' milk based)	Not recommended	Not recommended	Not needed
Foods for special medical purposes available over the counter: anti-reflux, lactose-free, partially hydrolysed, and comfort milks	Only use under medical supervision	Only use under medical supervision	Only use under medical supervision
Soya protein based infant formula suitable from birth	Only use under medical supervision	Only use under medical supervision	Not needed
Follow-on formula suitable from 6 months of age (cows' or goats' milk based)	X	Not recommended	Not needed
Goodnight milk	X	Not recommended	Not needed
Growing-up milks and toddler milks suitable from around 1 year of age (cows' milk, goats' milk or soya milk based)	X	X	Not needed
PaediaSure Shake for fussy eaters	X	X	X
Rice milk – Do not give to children under 5 years of age.	X	X	X

Frequently asked questions

- Where can parents get advice to help them continue breastfeeding if they are having difficulties, or are thinking about introducing formula milk?
- Is there a formula milk that is closest to breastmilk?
- Is there any evidence that a hungry baby formula will help babies to sleep better?
- Is formula based on goats' milk less allergenic than formula made from cows' milk?
- If a baby is bringing up milk after feeds, do they need a special formula to prevent reflux?
- My baby is unsettled in the evenings and cries a lot. Will a comfort milk help settle her stomach?
- My baby has diarrhoea and I think he may be in pain after feeds. Could he need a lactose-free formula?
- I am worried my baby might be allergic to cows' milk protein. Is there a milk I can buy which is suitable for babies with this allergy?
- Is soya-based formula a good option if there are allergies in the family?
- We are vegetarians. Which milk should we use if we want a vegetarian formula for our baby?
- We are vegans. Is there a suitable infant formula if we want to bring our baby up as a vegan?
- Are infant formula halal?
- Are ready-to-feed milks different to powdered milks?
- Can a partially hydrolysed formula prevent eczema in infants?
- Do babies need follow-on formula after 6 months of age?
- At what age can I use cows' milk as the main drink?
- What non-dairy alternatives to cows' milk are suitable from 1 year of age?
- How do toddler milks and growing-up milks differ from whole animal milk?
- Is an infant milk for 'fussy eaters' useful?
- Is home-made infant formula safe to use?

Q. Where can parents get advice to help them continue breastfeeding if they are having difficulties, or are thinking about introducing formula milk?

A. There are a number of national helplines and organisations that can offer support to women who are breastfeeding. Many women regret giving up breastfeeding and really value the opportunity to get support to continue. Most health professionals and lactation consultants agree that, once formula milk is introduced, breastfeeding continuation is compromised. Every drop of breastmilk counts, however, so seek help to continue breastfeeding even if you plan to introduce formula as you can still give your baby some breastmilk. Never be afraid to ask for help at any stage of your breastfeeding journey. All the helpline volunteers know what you are going through.

Breastfeeding helplines

National Breastfeeding Helpline

0300 100 0212

The National Breastfeeding Helpline is staffed by volunteers from the Breastfeeding Network and The Association of Breastfeeding Mothers. Calls can be answered in English, Welsh and Polish.

La Leche League Helpline

0845 120 2918

NCT Helpline

0300 330 0771

Q. Is there a formula milk that is closest to breastmilk?

A. No. It is impossible to recreate breastmilk. Breastmilk is not only nutritionally uniquely suited to the human infant; it also contains hundreds of unique components and living cells to protect infants from infection and to aid development. These components cannot be made in a laboratory. All formula milks have to be of a similar composition to comply with EU compositional requirements and they are all nutritionally adequate for infants. If a substance was found that was definitely beneficial for infant health that could be added to formula milks, it would be in all formula by law.

Q. Is there any evidence that a hungry baby formula will help babies to sleep better?

A. No. There is no evidence that milks marketed for hungry babies offer any advantage, and it is recommended that first milks are used throughout the first year of life if babies are not being breastfed. Hungry baby milks have more 'casein' than 'whey' in the protein mix, and casein is harder for babies to digest. An infant has a

tiny tummy and needs to eat little and often, day and night, in the first few weeks and months. First infant milk (whey-based) will provide the best alternative if babies are not being breastfed (or are not receiving milk from a milk bank). Whey-based infant formula is the only breastmilk substitute needed throughout the first year of life.

Q. Is formula based on goats' milk less allergenic than formula made from cows' milk?

A. No. Milk based infant formula can have cows' milk or goats' milk protein as the main protein source. They are equivalent in terms of allergenicity and safety.

Q. If a baby is bringing up milk after feeds, do they need a special formula to prevent reflux?

A. Many babies will bring up small amounts of milk after feeds or if they burp, and this causes them no distress. Crying, vomiting milk after feeds, and back-arching or being unsettled are not symptoms of reflux in most babies. Reflux is rare and should be properly diagnosed by a paediatrician. If your baby brings up milk after feeds, it may be that he needs smaller milk feeds more often, or may need more frequent winding during a feed. As long as your baby is growing adequately, many of these problems will disappear as he gets bigger. You can talk to your health visitor or GP for reassurance if you are worried. Thickened (anti-reflux) milks do not have to comply with infant formula regulations in the UK, and they should only be used under medical supervision. There are several reasons to be cautious about using these milks:

- These formula contain cereal-based thickeners, and infants do not need anything other than milk in the first few months of life.
- Manufacturers recommend that anti-reflux formula are made up at lower temperatures than the temperature currently recommended for safety, and it is important that this potential risk is considered by a medical practitioner. Powdered formula are not sterile, and making them up at lower temperatures will not kill any harmful bacteria that might be present.
- If your baby is taking certain medicines, it may not be advisable to give them an anti-reflux formula.

In 2015 NICE published guidelines to support health professionals, including GPs and hospital doctors, that will help everyone provide consistent, evidence-based support for anyone concerned about infant reflux and regurgitation. You can read the guidance at

<http://www.nice.org.uk/guidance/ng1/resources/gastrooesophageal-reflux-disease-recognition-diagnosis-and-management-in-children-and-young-people->

51035086789. This guidance has also been reiterated in NICE Quality Standards published in 2016 available at www.nice.org.uk/guidance/qs112

Q. My baby is unsettled in the evenings and cries a lot. Will a comfort milk help settle her stomach?

A. It is not uncommon for young babies to be unsettled or fussy in the evenings and to cry more than they might at other times of the day. You may be surprised to know that the average amount a baby cries in the first six weeks of life is about 110 minutes a day, reducing to about 75 minutes a day at 10-12 weeks. All babies are different and many need more attention and soothing in the evenings, frequent small feeds and frequent winding (during and after feeds) in the first few months. There is no consistent evidence that comfort milks improve babies' wind, colic, constipation or fussiness, and these will pass as the baby gets older. Often small changes to the timing and quantity of feeds can be effective in managing periods of fussiness.

Q. My baby has diarrhoea and I think he may be in pain after feeds. Could he need a lactose-free formula?

A. Lactose intolerance is rare in babies and it is important not to self-diagnose lactose intolerance in case your baby has a cows' milk protein allergy, which is serious and needs to be treated very differently. Cows' milk protein allergy is also uncommon but, if your baby has sickness or diarrhoea and has signs of an immediate allergic reaction after a milk feed (a red itchy rash around his mouth, facial swelling, red lumps on the body, or a streaming nose), or symptoms of a delayed reaction such as eczema or poor growth, it is important to seek help as soon as you can for a proper diagnosis. If a baby ever has breathing problems or goes floppy after a feed, call an ambulance. Thankfully this is very rare. Diarrhoea may be a symptom of a gastro-intestinal infection rather than an intolerance, and some babies might have a temporary lactose intolerance after a bout of gastrointestinal illness. If you think this might be the case, you should talk to your GP or health visitor. It is important to use lactose-free milks under medical supervision, as the source of carbohydrate in these milks is more likely to damage teeth and the risks of using any specialist milk products should always be weighed up against any potential benefit.

Q. I am worried my baby might be allergic to cows' milk protein. Is there a milk I can buy which is suitable for babies with this allergy?

A. If you have allergies in your family, there is lots of evidence that breastfeeding is the best way to protect your baby from developing allergies. Some infant formula may claim to reduce the risk of a baby developing an allergy, but experts in the UK

do not believe there is good enough evidence to make this claim. Cows' milk protein allergy is uncommon (it is thought that between 6% and 8% of children aged 0-3 years in the UK have food allergies). Cows' milk protein allergy can only be diagnosed and managed by your GP or a paediatrician, and they will follow specific clinical guidelines to do this. If you are breastfeeding, you can carry on doing so if you make some changes to your own diet. If a baby is on formula milk already, an extensively hydrolysed or elemental formula is suitable for managing cows' milk protein allergy, and these are only available on prescription. Don't try and self-diagnose your baby. Talk to your GP about your concerns, and avoid websites which may offer confusing information or suggest tests which are not recognised as helpful.

You can see the NICE guidance about what to do if cows' milk protein allergy is suspected, at <http://cks.nice.org.uk/cows-milk-protein-allergy-in-children#!scenario> For NICE guidance about what to do if cows' milk protein allergy is diagnosed, see: <http://cks.nice.org.uk/cows-milk-protein-allergy-in-children#!scenario:1>

Q. Is soya-based formula a good option if there are allergies in the family?

A. No. Soya-based formula is not recommended for use in infants under 6 months of age unless recommended by a medical practitioner. These milks are not recommended for use without medical supervision for a number of reasons:

- Children are as likely to be allergic to soya as to cows' milk protein, and this needs to be investigated.
- Soya is a rich source of phyto-oestrogens and these mimic sex hormones in the body. For older children and adults, some soya is not a problem, but for babies under 6 months who have soya protein based formula as their sole source of nutrition, current guidance in the UK is that the phyto-oestrogens in soya-based formula should be carefully considered as a risk.

The carbohydrate source of soya protein based formula is glucose, which is more likely to damage teeth.

If infants are allergic to cows' milk, they will be prescribed a suitable formula by their GP, and it is recommended that parents and carers should not use soya formula without taking professional medical advice.

Q. We are vegetarians. Which milk should we use if we want a vegetarian formula for our baby?

A. Many of those who choose a vegetarian diet will breastfeed their babies and will not require an infant milk in the first year of life. Currently the only first animal milk based infant milk powders on the market suitable for vegetarians are Similac First

Infant Milk, Kendamil First Infant Milk, Kendamil Mehadrin First Infant Milk and Holle organic goats' milk formula 1. Other milks either contain fish oils and/or use the animal-derived enzyme rennet during the lactose production process. Rennet is used to separate curds from whey and, although vegetarian alternatives are available, they are not used by all manufacturers. Although soya protein based infant formula are vegetarian and are advertised as suitable for vegetarians by manufacturers, these are not recommended for use in the first 6 months of life without medical supervision.

Q. We are vegans. Is there a suitable infant formula if we want to bring our baby up as a vegan?

A. Currently there are no infant milks suitable for vegans on the UK market, since even those that do not contain a source of animal protein do all contain vitamin D sourced from sheep's wool. Those who choose a vegan diet for themselves and who breastfeed throughout the first year can move their child onto a non-animal milk at one year of age. It is recommended that parents who want to bring up their baby as a vegan seek expert advice to make sure that all their baby's nutritional needs are met. Guidance on how to ensure a breastfed baby with a vegan mum gets all the nutrients he or she needs, can also be found in the resource *Eating well: vegan infants and under-5s*, which can be downloaded from www.firststepsnutrition.org/pdfs/Eating_well_for_veg_infants_for_web.pdf

Q. Are infant formula halal?

A. Some, but not all infant milks, are halal approved, and it is important to check the label. Status may also vary by type of milk within the same brand. The powdered infant milks may be halal approved but the ready to feed versions of the same milks might not be for example.

Q. Are ready-to-feed milks different to powdered milks?

A. There are some small compositional differences between powdered and ready-to-feed milks, but there is little information available as to whether these are of any significance. There can also be differences in composition between different sized cartons of the same brand of ready to feed milks as these can be made in different factories in different countries. Ready to feed milks are less likely to be halal approved than powdered formulations so always check the packaging. There may be some changes to the composition of the milk since it is ultra heat treated, but this is not known, and current evidence does not support anecdotal ideas that ready-to-feed milks are 'easier to digest'. Ready-to-feed milks are much more expensive than

powdered milks, particularly when sold in 'starter kit' 70ml bottles. Ready to feed milks also require considerably more packaging, which has an impact on the environment.

Q. Can a partially hydrolysed infant formula prevent eczema in infants?

A. One of the partially hydrolysed infant formulas sold in the UK – SMA HA – made claims that, if used as the sole milk from birth, it could prevent eczema in babies from families at increased allergy risk, but this has been changed since there was no evidence to support this, and the milk now claims that it can reduce the risk of cows' milk protein allergy. These claims are not made for the other partially hydrolysed infant milks available, which are sold as comfort milks. Current UK policy says there is insufficient evidence that a partially hydrolysed formula can prevent allergies in infants, and this is supported by the European Food Safety Authority. A recent academic review also stated that insufficient is known about the long term effect of these milks on infants. Exclusive breastfeeding is strongly recommended for infants from families who may have allergies.

Q. Do babies need follow-on formula after 6 months of age?

A. No. The Department of Health does not recommend that babies move on to follow-on formula at 6 months of age and this is why it is not possible to buy these milks with Healthy Start vouchers. The World Health Organisation has made a clear statement that follow-on milks are not needed. Current advice suggests that parents and carers who use infant formula continue with a first whey-based infant formula throughout the first year, as this is closer in composition to breastmilk than follow-on formula. Follow-on milks were created by formula milk companies to allow them to advertise infant milk products, since advertising infant formula is not allowed in the UK. There is evidence that many parents are confused by the advertising of these products, and a third of parents have been found to use follow-on milks for children under 6 months of age. There is no advantage to moving on to follow-on milks, and the WHO suggests potential nutritional risk. In the second six months of life, if babies are not breastfed or receiving breastmilk, a first infant formula should be used as a breastmilk substitute alongside a good variety of foods.

Q. At what age can I use cows' milk as the main drink?

A. After 1 year of age, children should be consuming three meals and two 'mini-meals' a day, and be eating a wide variety of nutrient-dense foods and avoiding salty and sugary foods. (Nutrient-dense foods are foods that contain lots of vitamins and minerals in a relatively small amount of the food.) They will also need to drink about

350ml of whole animal milk, or a suitable alternative, a day. If there are concerns about the quantity and quality of food consumed, health professionals may recommend continued use of first infant milk into the second year, but this is rare, and food should be the main source of nutrients for toddlers.

Q. What non-dairy alternatives to cows' milk are suitable from 1 year of age?

A. Any whole animal milk is suitable as the main drink from 1 year of age – cows', goats' or sheep's milk, as long as these are pasteurised. Alternatively, an unsweetened calcium-fortified soya milk alternative, oat milk alternative, hemp milk alternative or nut based milk alternative can be given. These can also be called soya drink, oat drink etc. However care needs to be taken if milk alternatives are used for children under 5 that the diet is energy and nutrient dense as milk alternatives are lower in energy. Some milk alternatives do not provide important nutrients such as riboflavin and iodine that animal milks provide. Seek advice from a health professional if you want to use a milk alternative. Do not give rice milk alternative (also called rice milk drink) to infants or children under 5. For information on non-dairy sources of calcium and milks to choose for children who avoid dairy products, see *Eating well: vegan infants and under-5s*, available from www.firststepsnutrition.org

Q. How do toddler milks and growing-up milks differ from whole animal milk?

A. Toddler milks and growing-up milks contain more sugar than animal milk and less of some important nutrients such as riboflavin, calcium and iodine. Manufacturers add some nutrients to toddler milks – such as iron, vitamin D and omega 3 fatty acids – but they do not replace all the nutrients that may have been destroyed in processing. Experts across Europe have agreed that young children do not need fortified milks to obtain particular nutrients. Children who are eating well do not need additional nutrients from fortified milks in their second year and beyond, and there is some evidence that giving lots of extra nutrients in fortified drinks to children who don't need them may be bad for health in the longer term. Offering sweetened drinks to young children may also contribute to development of a sweet tooth and to overweight in childhood.

Q. Is an infant milk for 'fussy eaters' useful?

A. Periods of fussy eating are common in young children and in most cases resolve themselves if families continue to offer a range of foods, eat with their children and act as a good role model for eating a range of foods. Occasionally a child will have a more serious case of food refusal, and advice should be sought on how to manage this most effectively. Giving a fussy child a sweet milkshake drink will not help them

eat better in the long term, and we discourage the use of any fortified milks for this purpose. For information on managing fussy eating, see the factsheet *Sources of information on fussy eating* at www.firststepsnutrition.org

Q. Is home-made infant formula safe to use?

A. No. We do not recommend that anyone attempts to make home-made infant formula. Home-made infant formula may not have an appropriate nutritional composition and therefore may not support proper growth and development. The ingredients themselves, or the way in which they have been prepared, increases the risk of severe bacterial infection in infants. Unlike commercially prepared infant formula, home-made infant formula are not subject to any compositional standards and their preparation, storage and handling have not been subject to risk assessment and subsequent recommendations for safe usage.

Whilst there is no national guidance in the UK on the use of home-made infant formula, international health authorities in other developed countries do not endorse the use of any home-made infant formula. Healthy infants who are not breastfed, or receiving breastmilk, should only be given commercially prepared first infant formula based on cows' or goats' milk protein. Infant formula based on soya protein or hydrolysed proteins should only be used under medical supervision.

Do you have any more questions? Email helen@firststepsnutrition.org

How to bottle-feed

Unicef UK Baby Friendly Initiative makes the following recommendations about how to encourage responsiveness and discourage overfeeding when bottle-feeding:

- Hold the baby close and look into their eyes during feeds.
- Respond to cues that baby is hungry.
- Invite the baby to draw in the teat rather than forcing the teat into the mouth.
- Pace the feed so that the baby is not forced to feed more than they want to.
- Recognise the baby's cues that they have had enough milk.

NHS Choices makes the following suggestions about bottle-feeding infants.

Equipment

You will need a number of bottles and teats, as well as sterilising equipment. There is no evidence that one type of teat or bottle is better than any other. A simple, easy-to-clean bottle is probably best. Make sure your bottles and teats are sterilised.

Giving a feed

- Hold your baby fairly upright for feeds, with their head supported so that they can breathe and swallow comfortably.
- When feeding, keep the teat full of milk; otherwise your baby will take in air. If the teat becomes flattened while you're feeding, pull gently on the corner of your baby's mouth to release the vacuum. If the teat gets blocked, replace it with another sterile teat.
- Your baby may need short breaks during the feed and may need to burp sometimes. When your baby does not want any more feed, hold them upright and gently rub or pat their back to bring up any wind. This may be a very small amount.
- Check that the hole in your baby's teat is not too big – giving milk too quickly can cause sickness. Sitting your baby upright on your lap after a feed may help.
- Don't forget to throw away any unused formula or breast milk after the feed.
- Babies differ in how often they want to feed and how much milk they want to take. Feed your baby when they're hungry, and don't try to force them to finish a bottle.
- Never leave a baby alone to feed with a propped-up bottle, as they may choke on the milk.

Bringing up milk after feeds

Some babies bring up more milk than others during or just after a feed. This is sometimes called 'possetting' or 'regurgitation' or 'reflux'. It can be upsetting when this happens, and you may be worried that something is wrong. If it happens often, or if your baby is violently sick, appears to be in pain or you're worried for any other reason, talk to your health visitor or GP.

If your baby brings up a lot of milk, they may be hungry again quite quickly. Don't force them to take more milk than they want during a feed. Every baby is different. Some prefer to feed little and often.

You can access a 1 page leaflet produced by UNICEF Baby Friendly and First Steps Nutrition Trust on 'What formula to choose' and responsive bottle feeding at:

<https://www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2015/10/simple-formula-guide.pdf>

How much milk do babies need, and how often should I offer milk feeds?

The guidance below suggests approximate amounts of infant formula milk needed at different ages, based on average energy requirements and weights of babies. All babies are different however, and in the first few weeks and months some babies may need more, smaller feeds more frequently. Always be guided by your baby and follow the responsive feeding guidelines.

Age	Feeding guidance: infant formula	Suggested intake per day
Up to 2 weeks	7-8 feeds per day ¹ 60-70ml per feed	420-560ml per day
2 - 8 weeks	6-7 feeds per day 75-105ml per feed	450-735ml per day
2 - 3 months (9 - 14 weeks)	5-6 feeds per day 105-180ml per feed	525-1,080ml per day
3 - 5 months (15 - 25 weeks)	5 feeds per day 180-210ml per feed	900-1,050ml per day
About 6 months (26 weeks)	4 feeds per day 210-240ml per feed	840-960ml per day
General guidance on feeding after 6 months		
7 - 9 months	Infant formula could be offered at breakfast (150ml), lunch (150ml), tea (150ml), and before bed (150ml).	About 600ml per day
10 - 12 months	Infant formula could be offered at breakfast (100ml), tea (100ml), and before bed (200ml).	About 400ml per day
1 - 2 years	Full-fat cows' milk could be offered at snack times twice a day (100ml x 2), and as a drink before bed (200ml).	About 350-400ml per day of full-fat cows' milk or another suitable animal milk or milk alternative. Seek advice if using milk alternatives as these milks are lower in energy than full-fat animal milk.

¹ Breastfed babies may feed much more frequently and that is perfectly normal. Breastfeeding mothers are advised to feed responsively.

Making up powdered milks safely

It is very important that powdered milks are made up carefully. Using too much powder, or too little, can both impact on an infant's health and well-being. Always follow the instructions on powdered formula milk tins carefully.

Powdered infant milks are **not** sterile and they may contain harmful bacteria. However, if milks are made up appropriately for infants, they should be safe. *Salmonella* and *Cronobacter sakazakii* are the organisms of greatest concern in infant formula. Bacteria multiply most rapidly at temperatures between 7°C and 65°C (and they like body temperature 37°C best of all). Even at 5°C – the temperature recommended for domestic fridges – multiplication will continue but at a much reduced rate.

The guidelines for making up powdered infant milks are designed to reduce the holding time between reconstituting and using feeds, in order to minimise the amount of time during which bacteria can multiply. The guidelines also include recommendations for cleaning and sterilising all feeding equipment.

General recommendations

Recommendation	Why?
Make up feeds one at a time as the baby needs them.	To reduce the holding time between reconstituting and using feeds, in order to minimise the amount of time during which bacteria can multiply.
Sterilise all bottles and equipment to be used.	The infant's immune system is not as well developed as an adult's. This recommendation minimises the risk of illness and infection.
Use water from the cold tap to make up feeds. Do not use bottled or artificially softened water or water that has been re-boiled.	Bottled water is not sterile and may contain too much sodium or sulphate. If you must use bottled water, check on the label that the sodium (Na) level is less than 200mg per litre and the sulphate (SO or SO ⁴) level is no higher than 250mg per litre. Re-boiled water is not recommended as it has concentrations of some minerals that might be harmful in large amounts.

Recommendations for making up a feed using formula milk powder

Recommendation	Why?
<p>Boil at least 1 litre of fresh water taken from the cold tap in a kettle. Do not use previously boiled water. Leave the water to cool for no more than 30 minutes.</p>	<p>This step should ensure that the water used to reconstitute the feed is at a temperature above 70°C, which will kill most of the pathogenic micro-organisms that may be present in powdered formula.</p>
<p>Clean and disinfect all equipment and work surfaces to be used, and wash your hands.</p> <p>Keep the teat and bottle cap on the up-turned lid of the steriliser. If using a cold-water steriliser, shake off excess solution and rinse bottles in cooled boiled water from the kettle. Do not use tap water.</p>	<p>To avoid contamination of bottles with bacteria from tap water or unclean work surfaces.</p>
<p>Pour the correct amount of cooled, boiled water (this will still be at more than 70°C if it has been left to cool for less than 30 minutes) into bottles and double-check the volume before adding the powder.</p> <p>Fill the scoop loosely with milk powder according to the manufacturer's instructions. Level off the scoop using the leveller provided or the back of a clean, dry knife. Always use the scoop provided with the powder you are using. Add the powder to the water in the bottle.</p>	<p>Scoop sizes differ between manufacturers and between different milk powders from the same manufacturer. Too much powder may result in constipation or dehydration.</p>
<p>Holding the edge of the teat, put it on the bottle and then secure the retaining ring and cap. Shake the bottle until the powder is dissolved.</p>	
<p>Cool the formula by holding the bottom of the bottle under cold running water. Do not allow the tap water to touch the bottle cap.</p> <p>Test the temperature of the milk by shaking a small amount onto the back of your wrist. It should be body temperature and feel warm or cool but not hot.</p>	
<p>Discard any of the feed that has not been used.</p>	

For more information

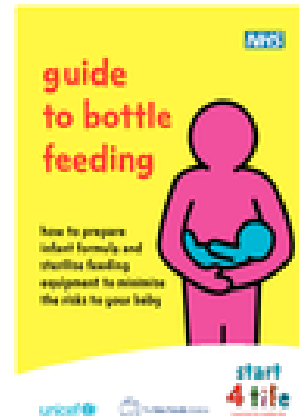
Bottle-feeding advice is available from the **NHS Choices website**.

<http://www.nhs.uk/Conditions/pregnancy-and-baby/Pages/bottle-feeding-advice.aspx>

and from **Unicef UK Baby Friendly and Start4Life**

Guide to bottle feeding, shows all the information on how to make up bottles safely in picture form at:

www.nhs.uk/start4life/documents/pdfs/start4life_guide_to_bottle_feeding.pdf



Additional sources of Information for those living in Scotland

The **NHS Health Scotland** bottle feeding leaflet can be accessed at

<http://www.healthscotland.com/documents/5523.aspx>

Information on feeding your baby can also be found in the **Pregnancy Book, Ready Steady Baby**;

<http://www.readysteadybaby.org.uk/first-days-together/feeding-your-baby/formula-feeding-your-baby/index.aspx>

Information on infant feeding can also be found at **Feedgood**
www.feedgood.scot

Additional sources of information for those living in Northern Ireland

In NI parents who are bottle-feeding are provided with a leaflet which provides safety information on the preparation and storage of infant formula milk. Photographs are used to explain how to sterilise feeding equipment and make up formula milk, and the leaflet highlights the safety precautions that need to be observed.

You can download this very useful leaflet from
<http://www.publichealth.hscni.net/publications/bottlefeeding>

Information on feeding your baby can also be found in the Pregnancy Book
<http://www.publichealth.hscni.net/publications/pregnancy-book-0> (Chapter 9)

and
Birth to Five
<http://www.publichealth.hscni.net/publications/birth-five> (Chapter 1)

Additional sources of information for those living in Wales

Information on **Making up a bottle feed** from **Bump, Baby & Beyond** can be accessed at

<http://www.healthchallengewales.org/sitesplus/documents/1052/Guide%20to%20Bottle%20feeding%20leaflet.pdf>

Information on **Sterilising equipment** from **Bump, Baby & Beyond** can be accessed at

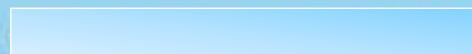
<http://www.healthchallengewales.org/sitesplus/documents/1052/PHW%20Sterilising%20Equipment.pdf>

This information is also available in Welsh at:

<http://www.heriechydymru.org/cyhoeddiadau-bwydo-fron>

Additional information on making up milk safely when out and about and using baby milk preparation machines can be accessed at www.firststepsnutrition.org.

Infant milks: A simple guide to infant formula,
follow-on formula and other infant milks



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