



Royal College  
of Nursing

# Formula feeds

*RCN guidance for nurses  
caring for infants  
and mothers*



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# Introduction

Exclusive breastfeeding is recommended for the first six months of a baby's life and for the majority of babies, breast milk is the perfect first food. Early results from the 2005 Infant feeding survey (IC NHS UK, 2006) show that a large majority of mothers breastfeed at birth. Precise figures were: in England 78 per cent; in Scotland 70 per cent; in Wales 67 per cent; and in Northern Ireland 63 per cent.

However, the 2000 Infant feeding survey (DH, 2002) demonstrated that, after six months, breastfeeding figures dropped significantly. Consequently, infant formula is an important source of nutrition for many infants, and parents need education and support in using it appropriately and safely.

While nurses should continue to promote and support breastfeeding, equally they should be able to advise parents and help with formula feeding. To enable parents to feed their baby safely, nurses need to have skills in the safe preparation and storage of formula, and knowledge of the different formulas available.

This document gives nurses who are caring for infants and their mothers, whether in hospital or community settings, some basic information to enable safe formula feeding.

## Questions and answers

### **Why are some infants given formula feeds?**

Some parents choose to introduce formula feeds either exclusively, or in addition to breastfeeding. This may be when returning to work; so others can help with feeding; or because they have difficulty with breastfeeding. Parents have a right to choose how to feed their baby and a nurse's knowledge of different formulas can help them to make a suitable choice.

Infant factors may include: some inborn errors of metabolism; and sucking difficulties and prematurity where there is insufficient breast milk (although special 'fortifiers' can be added to expressed breast milk).

Maternal factors can make formula feeding desirable, for example, pharmacotherapy; maternal ill health; infectious diseases; alcoholism; mental health problems; multiple births; or personal choice.

## **How does the Nursing and Midwifery Council (NMC) code of professional conduct: standards for conduct, performance and ethics (2004) relate to formula feeding?**

Sections 2.1 and 3.2 require practitioners to respect the autonomy and preferences of their patients and clients. Section 3.1 emphasises the patient/client's right to receive information that is accurate, truthful and understandable. It also highlights the nurse's responsibility for helping individuals to gain access to health, social care, information and support relevant to their needs. Whatever infant feeding method a mother chooses, nurses should not be judgemental or allow personal beliefs about formula or breastfeeding to influence the care, support and information they give (NMC, 2004).

## **What does the Baby Friendly Initiative say about formula feeding?**

The World Health Organization (WHO) and United Nations Children's Fund (UNICEF) UK Baby Friendly Initiative informs parents that if they decide not to breast-feed, staff will support them. Staff will ask if they want to be taught how to make up a bottle properly, and be able to answer any questions (Babyfriendly, 2007).

## How do mothers who use formula feel?

With the over-riding emphasis on the benefits of breastfeeding, mothers who use formula can feel they have failed (Lee & Furedi, 2005).

*“I tried to (breastfeed) but I was worried about her (the baby). I don’t have milk so I gave her formula. But I didn’t tell the health visitor... ..I told her that I am using the breast pump. I just didn’t tell her, I just didn’t tell her.”*

*“... there’s nothing to guide you towards which formula milk to choose.....breastfeeding is always promoted.”*

## What could happen if mothers don’t get the information they need about bottle feeding?

Inadequate information may result in unhygienic storage and preparation of feeds and possible risk of infection, malnutrition and hypernatraemia.

## Are formula feeds nutritionally safe?

Modern formulas have been developed to high nutritional standards. Their composition must comply with European regulations. Many scientifically validated formulas are available in the UK to meet the needs of normal healthy infants and those with special dietary needs. Although infants grow and develop on formula feeds, they do not replicate all the nutritional factors found in breast milk.

## Which formula should be used when caring for babies in hospital?

When caring for a formula-fed infant, nurses should aim to continue to use the same feed as at home, unless this is medically contraindicated. While cost influences the types of feed stocked on a ward, any change in formula should be with the mother's agreement and the advice of a paediatric dietitian.

## What are the differences between formulas?

There are differences between types and brands of formulas. As a nurse, you should be aware of these differences so you can give parents appropriate advice.

**Infant formula** - whey-based or 'first stage' infant formulas have a protein profile closer to that of breast milk than cows' milk. They can be used when moving from breastfeeding to bottle feeding, or to complement breastfeeding. They are easily digestible and may contain long chain polyunsaturated fatty acids and nucleotides to support healthy growth and development. Some infant formula have an Alphalactalbumin enriched whey protein profile that is closer to that of human milk. Some also contain prebiotics to encourage the growth of 'friendly' gut bacteria. Casein based 'second stage' formulas have a composition closer to cows' milk. Formulas with higher casein content and a lower whey: casein ratio (20:80) are marketed for hungry babies. This is probably because the curd formed by the higher casein level slows gastric emptying (Billeaud et al, 1990).

Either of these types can provide the sole source of nutrition up to six months of age, but the whey-based 'first stage' formulas have a better balance of essential amino acids and should be recommended to mothers choosing to use formula.

**Follow-on formulas** - have higher levels of protein, iron and other nutrients than those designed to be given from birth. They can be used from six months of age and as part of a weaning diet.

**Specialist formulas** - are available on prescription for infants with specific requirements, for example, faltering growth, prematurity, food allergic disease and metabolic disorders. A paediatric dietitian can advise on their use.

From 1 March 2007, infant milks based on goats' milk protein can no longer be sold in the UK. The Department of Health advises health care professionals not to recommend infant milks based on goats' milk protein for infants less than one year old (DH, 2006a).

## How should formula be stored and prepared?

Infant formula powder is not sterile and may contain microorganisms, such as *Enterobacter sakazakii* and salmonella, although infection from these is rare. Neonates - particularly if preterm, of low birthweight or immuno-compromised - are most at risk. Good hygiene practices, following the manufacturer's guidance, and local policies reduce the risks. For some vulnerable infants, ready-to-use feeds may be preferable. Detailed guidance on preparing feeds is available from the Department of Health (FSA & DH, 2006). Key points to remember are:

- ◆ wash and dry hands; clean the work surface; sterilise all bottles and equipment
- ◆ use the scoop provided with the tin of formula feed, ensuring this is level and not compacted
- ◆ reconstitute the powder with freshly boiled water cooled to a temperature above 70 °C. This means using water that has been left covered for less than 30 minutes after boiling. Cool the bottle under cold running water before feeding

- ◆ it is best to make up infant formula fresh for each feed. Where this is not possible or practical, prepare feeds in separate bottles and store in a fridge at a temperature below 5 °C for no more than 24 hours. Remove from the fridge just before needed, and then warm in a bottle warmer or with warm water. Do not use a microwave
- ◆ at home, any feed started should be discarded within an hour; any unused feed kept out of refrigeration should be discarded after three hours. In a hospital environment, discard any remaining feed after an hour (Robbins & Becker, 2005).

## How much feed should be given?

As a guide, for a term baby receiving all its nutrition from a feed, the fluid requirement from about one week to three months is 150 ml/kg body weight. Newborn babies gradually increase their intake from about 20 ml/kg on the first day of life to 150 ml/kg by seven days (Shaw & Lawson, 2001).

The containers of formula powder show tables of the typical volume to use, based on the age and weight of the baby. At home, it is advisable for infants to be fed on demand, and offered adequate feed to satisfy their hunger and growth needs. All babies are individual, but most term infants will need feeds every two to four hours, day and night. If a parent is at all concerned, they should seek further advice from a midwife, specialist public health nurse or paediatric dietitian. Where possible, home routines should be continued in hospital.

## Should water be given in hot weather?

Completely breast-fed infants should not be given water until after they have started eating solid food. Babies fed on formula milk should be offered extra drinks of freshly boiled and cooled water in very hot weather (DH, 2006b).

## When should weaning begin?

The recommended age for solid foods to be introduced is about six months old. However, breastfeeding and/or formula, should continue after six months, in addition to solid foods. Cows' milk should not be used as a main drink until after 12 months of age. Mothers who are unable, or choose not, to follow these recommendations should be supported to optimise their infant's nutrition.

## Where can I find out more?

Midwives and specialist community public health nurses have specific expertise in infant feeding. They can assist you in giving optimum care to a particular infant, and support to the mother. Similarly, a paediatric dietitian will be able to advise on breastfeeding, formula feeding and weaning.

Advice, guidance and further information is also available from these websites:

- ◆ Baby Friendly Initiative: [www.babyfriendly.org.uk](http://www.babyfriendly.org.uk) - this includes sections on latest news, research and training.
- ◆ Department of Health: [www.dh.gov.uk/Home/fs/en](http://www.dh.gov.uk/Home/fs/en)
- ◆ Food Standards Agency: [www.food.gov.uk](http://www.food.gov.uk) - this includes sections on safety and hygiene; and nutrition.
- ◆ Nursing and Midwifery Council: [www.nmc-uk.org](http://www.nmc-uk.org)

The RCN believes breastfeeding gives babies the best start in life, providing them with the optimal source of nourishment.

We strive for a society where:

- ◆ women feel enabled to initiate and continue breastfeeding as long as they wish
- ◆ parents are supported to make informed choices about feeding their babies
- ◆ everyone is aware of the significant benefits associated with breastfeeding

To learn more about the RCN commitment to breastfeeding and participation in initiatives please log on to [www.rcn.org.uk](http://www.rcn.org.uk)

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