

5. The use of milk other than breastmilk

Key findings

- As babies got older, mothers made more use of formula, either as the sole source of milk or in addition to breastmilk. Thus, at Stage 1 (when babies were four to ten weeks old) around two-thirds of mothers (67%) had given their baby infant formula in the last seven days and nearly half (46%) had only given formula. By Stage 3 (when babies were eight to ten months old), nearly nine in ten mothers (89%) had given formula or other milk in the last seven days, with over seven in ten (73%) giving this as the sole source of milk.
- At Stage 1, 56% of mothers who had used both breastmilk and formula said they had used infant formula as their predominant feed (at least half of all feeds since the baby was born). Usage among this group has declined since 2005 (64%).
- At each stage of the survey mothers were asked at what age they had first given their baby any sort of milk other than breastmilk. It is not possible from the information collected in the survey to be sure of the exact type of milk other than breastmilk that mothers first gave to their baby, although in the majority of cases it can be assumed that it was infant formula.
- Almost three-quarters of mothers (73%) had given their baby milk other than breastmilk by the age of six weeks. This proportion rose to nearly nine in ten (88%) by six months. It is not possible from the information collected in the survey to be sure of the exact type of milk other than breastmilk that mothers first gave to their baby, although in the majority of cases it can be assumed that it was infant formula. Mothers from managerial and professional occupations and older mothers were the most likely to introduce milk other than breastmilk at a later age, which reflects the higher levels of breastfeeding amongst these mothers.
- The proportion of mothers giving their baby milk other than breastmilk was slightly lower in 2010 than in 2005 at all time points up to six months. When babies were four months old, 83% of mothers were giving milk other than breastmilk in 2010, compared with 88% in 2005.
- At Stage 2 of the survey (when babies were four to six months old), most mothers who had given their baby milk other than breastmilk in the last seven days were mainly giving infant formula (88%). Use of follow-on milk or liquid cow's milk was low at this stage (nine and one per cent respectively). By Stage 3 of the survey, mothers were more likely to be using follow-on formula (57%) as their baby's main source of milk other than breastmilk, rather than infant formula (35%).
- At Stage 3 of the survey, 69% of all mothers had given their baby follow-on formula, an increase from 53% in 2005.
- Most mothers followed the recommendation of not giving their baby follow-on formula before the age of six months (16% had given follow-on formula when their baby was four months old, increasing to 50% at six months). Mothers from routine and manual occupations and mothers who had never worked were more likely than average to say they had given their baby follow-on formula at an earlier age (18% and 27% respectively at four months).
- At Stage 3 of the survey, about two in five mothers (42%) had given their baby liquid cow's milk. Twenty-nine per cent had used it to mix with food while 24% had used it as an occasional drink. Only four per cent of mothers had introduced liquid cow's milk as their baby's main source of non-breastmilk by this stage of the survey.
- Almost half (49%) of all mothers who had prepared powdered infant formula in the last seven days had followed all three recommendations for making up feeds (only making one feed at a

time, making feeds within 30 minutes of the water boiling and adding the water to the bottle before the powder). This is a substantial increase since 2005 when 13% did so.

- Mothers from Black and Asian ethnic groups (72% and 64% respectively), those who had never worked (64%), those aged under 20 (63%) and those living in the most deprived IMD quintile (57%) were the most likely to follow all three recommendations on preparing powdered formula.
- About two-thirds (65%) of mothers who had prepared powdered infant formula in the last seven days followed recommendations for feeding away from the home (either not using powdered formula, or doing so correctly by making up feeds with hot water or keeping pre-prepared feeds chilled). This was similar to 2005 (63%).
- Four in five mothers (80%) at Stage 1 had used a bottle to feed their baby. Among mothers who used bottles, steam sterilisers were the most common sterilisation method (67%), followed by sterilising in a microwave (16%) and soaking in sterilising solution (9%).

This chapter examines mothers' use of milk other than breastmilk at each stage of the survey. It looks at what type of milk mothers were giving their babies and at what age babies were first given any sort of milk other than breastmilk. The chapter also looks specifically at mothers' use of both follow-on formula and liquid cow's milk and at what age these milks were first given. Finally, the chapter looks at whether mothers who used powdered formula were following the recommended guidelines for preparing and storing feeds and what sterilisation methods were used by all mothers using bottles.

5.1 Types of milk other than breastmilk given to babies

There are several types of milk other than breastmilk that mothers can use during their baby's first year.

Infant formula (or first milk) is an artificial feed, which can act as an alternative for breastmilk as the sole source of nutrition for babies until they are first given solid food. The majority of infant formulas are based on cow's milk with additional components and usually have whey as the dominant cow's milk protein. Infant formula based on soy protein is available, but is only recommended for use in exceptional circumstances. More appropriate hydrolysed protein preparations can be prescribed for babies who cannot tolerate cow's milk.¹

As babies grow older, other types of infant formula may be introduced such as follow-on formula (or second milk) and liquid cow's milk. While infant formula is usually whey-based, follow-on formula is casein-based and fortified with iron. Follow-on formula takes longer to digest and it is sometimes claimed that it is especially suitable for hungrier babies, although there is no evidence for this claim.² It is not recommended that follow-on formula is given to infants before the age of six months.³

Liquid cow's milk is not recommended to be given to infants as a main drink until they are a year old and at this age only full-fat milk is recommended. Semi-skimmed milk is not recommended for infants until they are two years old, while skimmed milk should not be given to children under five years old. It is acceptable, however, to introduce liquid cow's milk to mix in foods that are prepared for the baby from the age of six months. Other types of milk such as goat's milk and sheep's milk are not recommended to be given as drinks until infants are a year old.¹

5.2 The use of different types of milk

In 2010, around a fifth of mothers (19%) in the UK did not initiate breastfeeding at birth but instead used infant formula as the sole source of nutrition for their baby. The proportion of mothers who only ever used infant formula from birth was lower in 2010 compared with the 2005 survey (when it was 24%), which is related to the increase in the incidence of breastfeeding seen in Chapter 2.

Although the majority of mothers (81%) breastfed initially, it was shown in Chapter 2 that some mothers breastfed only for a relatively short period of time before introducing infant formula. Table 5.1 shows what types of milk mothers had given their baby in the previous seven days at each stage of the survey.

At Stage 1, two-thirds of mothers (67%) had given their baby infant formula in the last seven days. Just under half of all mothers (46%) had given their baby only infant formula during this period, indicating that this was the baby's sole source of nutrition, while about a fifth of mothers (21%) had used mixed feeding during this period, giving their baby both breastmilk and infant formula.

At Stage 2 of the survey, 79% of mothers had given their baby formula in the last seven days, with three in five (60%) having only given their baby formula during this period. At Stage 3, 89% of mothers had given their baby formula in the last seven days, with over seven in ten (73%) giving this as the sole source of milk. Note that at Stage 1, mothers were asked if they had given infant formula, but at Stages 2 and 3, mothers were asked if they had given formula or other milk, reflecting the fact that as babies grow older, other types of milk may be given. For simplicity, this is referred to as formula.

This pattern of mothers increasingly using formula or other milk as their baby gets older, either as the sole source of milk or in addition to breastmilk, is in line with the fall-off in the prevalence of breastfeeding and exclusive breastfeeding that was seen in Chapter 2. Relative to 2005, however, fewer mothers had used formula in the last seven days at each stage and this was particularly the case for using formula only, indicating that mothers continued to breastfeed alongside giving formula for longer. For example, at Stage 1, the proportion of mothers giving formula had decreased from 72% in 2005 to 67% in 2010. The gap had narrowed by Stage 3, when the figures were 91% for 2005 and 89% for 2010. Regarding giving formula only, there were larger decreases between 2005 and 2010. For instance, the proportion of mothers giving formula only at Stage 1 had dropped from 53% in 2005 to 46% in 2010, and the drop was even greater at Stage 3, when there had been a decrease from 83% in 2005 to 73% in 2010.

Table 5.1

It is also useful to look specifically at the milk feeding patterns of mothers who breastfed initially, to see how these changed over the different stages of the survey. Table 5.2 shows that at Stage 1 of the survey just under three in five mothers (59%) who breastfed initially had given their baby formula in the last seven days, with a third (33%) having only given their baby formula during this period.

At Stage 2, nearly three-quarters of mothers (74%) who had breastfed initially had given their baby formula in the last seven days, with 50% having only used formula during this time. By Stage 3, the equivalent proportions were 86% and 67%.

Table 5.2

For mothers who had used both breastmilk and infant formula, it is interesting to examine what the baby's predominant source of nutrition was. At Stage 1 of the survey all mothers who had ever used formula were asked how often they had used formula since their baby was born.

Table 5.3 shows that across the UK, 56% of mothers who had used both breastmilk and formula at Stage 1 of the survey said that they had used infant formula as their baby's predominant feed, that is for at least half of all feeds since the baby was born. A further 22% of mothers who had used both breastmilk and infant formula said they had used infant formula on an occasional but regular basis (either daily or weekly) since their baby had been born, but it was not their baby's main source of nutrition, while 20% of mothers said they had used it on a sporadic basis since their baby had been born, perhaps on only a few occasions. In fact, 14% of mothers who had given their baby both breastmilk and infant formula said they had used infant formula only once or twice since their baby was born.

Mothers who had used both breastmilk and formula at Stage 1 used formula less frequently in 2010 than in 2005. For example, nearly two-thirds of mothers (64%) in 2005 had used infant formula for at least half of all feeds since the baby was born, but this had decreased to 56% by 2010.

Stage 1 mothers in Northern Ireland and Wales were most likely to have used infant formula for at least half of all feeds since the baby was born (65% each, compared with 57% in Scotland and 55% in England). This reflects the fact that mothers in Northern Ireland and in Wales were less likely to be exclusively breastfeeding from birth, and at six weeks, as discussed in section 2.5.2.

Table 5.3

5.3 Age at which milk other than breastmilk was first introduced

At each stage of the survey mothers were asked at what age they had first given their baby any sort of milk other than breastmilk. It is not possible from the information collected in the survey to be sure of the exact type of milk other than breastmilk that mothers first gave to their baby, although in the majority of cases it can be assumed that it was infant formula.

Table 5.4 shows that across the UK just under a third (31%) of mothers gave their baby infant formula at birth. Since the proportion of mothers who did not breastfeed initially was 19%, the difference between these two figures shows that more than one in ten (12%) initiated breastfeeding when their baby was born but also gave them infant formula on the first day.

By one week around half of all mothers (52%) had given their baby infant formula, while almost three-quarters (73%) had done so by six weeks. Nearly nine in ten mothers (88%) had given their baby formula by the time he or she was six months old.

The proportion of mothers giving their baby formula was slightly lower in 2010 than in 2005 at all time points up to six months. Thirty-one per cent of mothers gave their baby formula at birth in 2010, compared with 35% in 2005. When babies were four months old, 83% of mothers were giving formula in 2010, compared with 88% in 2005.

There was relatively little variation by country in terms of the age at which mothers first gave their baby infant formula. Mothers in England were the slowest to give their babies formula, with 29% of mothers in England having given their baby formula at birth compared with 37% of mothers in Scotland, 43% of mothers in Wales and 48% of mothers in Northern Ireland. This pattern tends to reflect the different levels of breastfeeding within each country seen in Chapter 2, since there is inevitably an association between the proportion of mothers who breastfeed initially and the age at which mothers first introduce infant formula.

Younger mothers tended to first give their baby formula at a younger age compared with older mothers. Over half (54%) of mothers aged under 20 gave their baby formula at birth compared with almost a quarter (24%) of mothers aged 30-34 and 35 or over. This differential also continued as the babies got older, although it was less marked at later ages (for example, at six months, 95% of mothers aged under 20 had given formula compared with 86% of those aged 30-34 and 35 or older).

Mothers in managerial and professional occupations tended to introduce infant formula at a later age compared with other mothers. For example, one fifth of mothers (20%) in managerial and professional occupations gave their baby formula at birth compared with almost a third of mothers (30%) in intermediate occupations, almost two-fifths (39%) of mothers in routine and manual occupations and almost half (46%) of mothers who had never worked. Mothers in managerial and professional occupations were still less likely to have introduced formula at six months, although the gap narrowed over time (85% at six months compared with 92% of those in routine and manual occupations and 89% of those who had never worked).

Table 5.4

5.4 Different types of milk other than breastmilk given to infants

As mentioned at the beginning of this chapter, mothers can give their babies different types of milk as they get older, either as their only milk feed or to supplement breastfeeding. Thus, while mothers who give their babies milk other than breastmilk at an early age will start by using infant formula, as the baby gets older they may introduce follow-on formula and eventually liquid cow's milk.

At Stage 1 of the survey, all mothers who were using milk other than breastmilk were assumed to be using infant formula and so were not asked any details about the specific type of milk they were giving their baby. However, by Stages 2 and 3 of the survey, all mothers who were using milk other than breastmilk were asked a series of questions about the exact type of milk they were using. Mothers were asked about the different types of milk they had ever given their baby, and the type of milk (excluding breastmilk) they had given their baby most often in the last seven days.

Table 5.5 shows that across the UK, 88% of mothers at Stage 2 who had given their baby milk other than breastmilk in the last seven days had mainly used infant formula, 9% had mainly used follow-on formula, and one per cent had mainly used liquid cow's milk. It should be borne in mind that mothers were asked which type of milk they had given most often in the last seven days, excluding breastmilk, so for those who were breastfeeding at this point, breastmilk may still have been the main type of milk babies were receiving. Since most babies at Stage 2 of the survey were between four and six months, it is not surprising that infant formula was the main type of milk other than breastmilk being used, since this is what is recommended for all babies under six months.³

Of the mothers who gave milk other than breastmilk at Stage 2, mothers in Scotland were the most likely to have given their babies infant formula (92%) whilst mothers in England were the least likely to have done so (87%). Conversely, mothers in England were the most likely to have used follow-on formula (10%) whilst mothers in Scotland were the least likely (5%).

At Stage 3 of the survey, a higher proportion of mothers than at Stage 2 were using follow-on formula. Nearly three in five mothers (57%) who had given their baby milk other than breastmilk in the last seven days said that this was mainly follow-on formula. By contrast, the proportion of these mothers mainly using infant formula in the last seven days decreased from 88% at Stage 2 to 35% at Stage 3. Additionally, 4% of mothers said they had used liquid cow's milk as their baby's main source of non-breastmilk in the last seven days.

At Stage 3 (similarly to Stage 2), mothers in England who had given their baby milk other than breastmilk in the last seven days were the most likely (58%) to have mainly used follow-on formula, while mothers in Scotland (40%) were the least likely to have done so.

Relative to 2005, there was a slight drop at Stage 2 in the use of follow-on formula as the main type of milk other than breastmilk (9%, compared with 12% in 2005). Conversely, the use of follow-on formula had increased at Stage 3 in 2010 (57%, compared with 47% in 2005).

Table 5.5 also shows that mothers who were supplementing breastfeeding with other milk at Stage 2 were less likely to have used follow-on formula as their main type of milk other than breastmilk, when compared to those who were not breastfeeding (7% compared with 10%). There was no difference in levels of usage of infant formula.

At Stage 3 of the survey, mothers who were breastfeeding as well as giving other milk were less likely to have used formula (both infant and follow on formula) than those who were not breastfeeding (28% and 36% respectively for infant formula and 53% and 57% respectively for follow on formula). Mothers who were breastfeeding as well as giving other milk were more likely to have used liquid cow's milk as their main type of milk other than breastmilk (11% compared with 3% for those who were not breastfeeding). They were also more likely to say they had no main type of milk other than breastmilk (5% compared with less than 0.5%).

Table 5.5

Among mothers giving milk other than breastmilk, mothers who had mainly used infant formula or follow-on formula in the last seven days were asked whether they had used powdered or ready-to-feed formula. Table 5.5 showed that at both Stages 2 and 3 of the survey the majority of mothers used powdered formula, whether they were giving their baby infant or follow-on formula.

Table 5.6 shows the types of formula used by mothers who had mostly used formula in the last seven days (i.e. excluding those who mostly used liquid cow's milk or other types of milk). At Stage 2 of the survey, 19% of mothers who mainly used formula in the last seven days had used ready-to-feed formula, whilst at Stage 3 this proportion had decreased to 16%. At both Stages 2 and 3, mothers were more likely to have used a combination of powdered and ready-to-feed formula than to have solely used ready-to-feed formula (12% and 7% at Stage 2, 10% and 6% at Stage 3).

Mothers who were breastfeeding and used formula as their main type of milk other than breastmilk were more likely to use ready-to-feed formula at both stages than those who were not breastfeeding (29% compared with 16% at Stage 2 and 28% compared with 14% at Stage 3). As mentioned earlier in this section, it should be borne in mind that mothers were asked which type of milk they had given most often in the last seven days, excluding breastmilk, so for those who were breastfeeding at this point, breastmilk may still have been the main type of milk babies were receiving. Thus, mothers who were breastfeeding and giving formula may have been more likely to use ready-to-feed formula because they were using formula as an occasional feed.

At both Stages 2 and 3, mothers in England were the most likely to mainly use ready-to-feed formula (19% and 17% respectively among mothers giving formula) and mothers in Northern Ireland were the least likely (13% and 12% respectively). This may be linked to lower breastfeeding rates in Northern Ireland⁴: as discussed above, mothers who were breastfeeding as well as giving other milk were more likely to use ready-to-feed formula.

Table 5.6

5.5 Use of follow-on formula

As already mentioned, at Stages 2 and 3 of the survey mothers who had used any sort of milk other than breastmilk were asked exactly what type of milk they had used. While the previous section focused on the proportion of mothers using milk other than breastmilk in the last seven days who used follow-on formula, this section examines the proportion of all mothers who had ever given their baby follow-on formula and at what age this type of milk was first introduced.

Since there is some doubt as to whether all mothers fully understand the difference between infant formula and follow-on formula, at Stage 2 all mothers were asked if they knew the difference between the two.

Just over two thirds of mothers (68%) said they knew the difference between infant formula and follow-on formula⁵, with mothers in Northern Ireland most likely to claim this knowledge (76%). Just under a third (31%) of all mothers did not know the difference.

Since the results are based on all mothers, whether or not they knew the difference between the two types of formula, it is worth bearing in mind that the results are likely to contain a degree of respondent reporting error (i.e. a proportion of mothers may have reported giving their baby follow-on formula when they had not, and vice versa). Mothers who said they did not know the difference between infant formula and follow-on formula were just as likely to say they had used follow-on formula as those who did.

Table 5.7

Table 5.8 shows that at Stage 2 of the survey, when babies were between four and six months old, 10% of mothers said they had given their baby follow-on formula. At Stage 3 of the survey, when babies were between eight and ten months, this had increased to 69% of all mothers. There were few differences by country, although at Stage 3, mothers in Scotland and Northern Ireland were less likely than mothers in England or Wales to have introduced follow-on formula.

Table 5.8 also shows that at Stage 2 mothers who had never worked were the most likely to say they had given their baby follow-on formula (19%), while mothers from managerial and professional occupations were the least likely to have done so (6%). However, by Stage 3 of the survey there was little difference by occupational group.

Table 5.8

The proportion of mothers using follow-on formula at Stage 2 has remained at the same level as in 2005 (11% in 2005, 10% in 2010), but it has increased since 2005 at Stage 3 (from 53% to 69%) (also shown in Table 5.8). This may reflect active marketing of follow-on formula in recent years. At Stage 1, nearly nine in ten mothers (89%) had seen advertising on television, radio or in a magazine or newspaper for baby milks and nearly four in five mothers (79%) said this was for follow-on formula.⁶

Table 5.9

Mothers who said they had ever given their baby follow-on formula were asked at what age they had first given it to their baby. Table 5.10 shows that a small proportion of mothers (7%) reported that they had first given their baby follow-on formula by three months, while 16% said they had done so by four months. Half of mothers (50%) said they had first given their baby follow-on formula by six months, while over two thirds (70%) had done so by nine months.

As mentioned above, it is recommended that follow-on formula is not introduced before six months. Mothers from routine and manual occupation groups and mothers who had never worked were most likely not to have followed this recommendation and to have first given their baby follow-on formula at an early age. Thus, 27% of mothers who had never worked and 18% of mothers from routine and manual occupations had given their baby follow-on formula by four months compared with 12% of mothers from managerial and professional occupations.

Table 5.10

At Stage 2 of the survey, mothers who said they had ever given their baby follow-on formula were asked their reasons for giving their baby this type of milk; answers could either be picked from a prompted list or mothers could write in other reasons. As shown in Table 5.11, the most common reason given by mothers was that they thought it provided more nutrients for the baby or was better for the baby (18%). Other reasons commonly mentioned were that mothers were advised to do so by a doctor, health visitor or other health professional (17%) and experience with previous children (13%).

First-time mothers who had introduced follow-on formula at Stage 2 were more likely to say they had done so because they thought it provided more nutrients for the baby or was better for the baby (20% compared with 15% of mothers of second or later babies). They were also more influenced by friends or relatives (12%) and leaflets/information (11%) than mothers of second or later babies (5% for each). The primary reason for mothers of second or later babies giving their baby follow-on formula, was experience with previous children (27%).

Table 5.11

5.6 Liquid cow's milk

At Stages 2 and 3 of the survey, all mothers were asked whether they had ever given their baby liquid cow's milk either as a feed or to mix with food. If mothers said they had given their baby liquid cow's milk most often in the last seven days, this was assumed to be their baby's main milk drink (apart from breastmilk). If liquid cow's milk had not been given most often in the last seven days, it was assumed that it had only been given as an occasional milk drink. As mentioned at the start of the chapter, it is not recommended to give liquid cow's milk as a drink until babies are a year old but it is acceptable to introduce liquid cow's milk to mix with food from six months.

At Stage 2 of the survey, only four per cent of mothers said they had ever given their baby liquid cow's milk. Half of these mothers (2%) used it to mix with solid food.

At Stage 3 of the survey, 42% of all mothers said they had ever given their baby liquid cow's milk. About three in ten (29%) had used liquid cow's milk to mix with food, while 24% had given their baby liquid cow's milk as an occasional drink. Only four per cent of mothers at Stage 3 said they had given liquid cow's milk as their baby's main milk (apart from breastmilk) in the last seven days.

The proportion of mothers giving their baby liquid cow's milk by Stage 3 was slightly higher than in 2005 (up from 39% to 42%). Its use also appears to have widened – the proportion giving liquid cow's milk as an occasional drink has increased from 19% to 24% and usage for mixing food has increased from 23% to 29%. Mothers were a little less likely to give liquid cow's milk as a main drink in 2010 than in 2005 (4% compared with 6% in 2005).

Mothers who said they were giving their baby liquid cow's milk as a main feed at Stage 3 were asked what type of milk they were using. Most mothers who were giving their baby liquid cow's milk as his or her main milk were using whole milk (3% of all mothers) and less than 0.5% of all mothers were using skimmed or semi-skimmed milk.

Mothers in Scotland were less likely than mothers in other countries to have given their baby liquid cow's milk at Stage 3 of the survey (37% compared with 42% overall). This was primarily due to Scottish mothers being less likely to give liquid cow's milk as an occasional drink (21% compared to 24% of all mothers). This may reflect different public health policies and promotion activities in relation to infant feeding and nutrition information between countries.

Table 5.12

Mothers who had introduced liquid cow's milk as a drink at Stage 3 were asked at what age they had first given their baby such milk. Table 5.13 shows the age at which mothers first used liquid cow's milk and when they first used it as a main drink. It shows that usage of liquid cow's milk was very low before babies were six months old. By six months of age, 11% of mothers had given their baby liquid cow's milk, rising to 27% at nine months⁷. However, only three per cent of mothers had given their baby liquid cow's milk as his or her main milk feed by nine months.

Table 5.13

5.7 How mothers make up formula feeds

Powdered infant formula is not a sterile product and can be contaminated with micro-organisms such as *enterobacter sakazakii* and *salmonella*, which can cause serious illness. Younger babies and infants are likely to be more susceptible to these organisms than older infants, and it is recommended that premature and low birth weight babies should be given liquid ready-to-feed formula instead, as this is sterile. However, ready-to-feed formula is more expensive than powdered formula and is likely to be beyond the reach of most families as a main feed. It is also open to manufacturing or quality control problems as with any formula. It only avoids the problems of making up powdered formula.

Because of this concern, the correct preparation and handling of powdered formula is important and the Food Standards Agency and all the UK health departments have issued guidance about the safe preparation, storage and handling of powdered infant formula. The guidance was first issued in 2005, but it did not come out at the same time in all countries and some publications were still being updated at the time of Stage 1 fieldwork in 2005⁸.

Beyond points of basic hygiene the key recommendation for making and storing powdered infant formula are as follows:

- Feeds should be made up with boiled water that has been allowed to cool to no less than 70°C. In practice this means the feed should be made within 30 minutes after the water has boiled;
- When making the feed the boiled water should be added to the bottle first, followed by the correct amount of powdered formula;
- Once the feed is prepared it should be cooled as quickly as possible to feeding temperature; and
- Ideally, powdered formula should be made up fresh for each feed rather than being stored. Although not ideal, feeds can be made up and stored below 5°C for a maximum of 24 hours.

In addition to these guidelines for preparing feeds in the home, it is recommended that if mothers need to feed their baby when out of the home they should make up fresh feeds as needed following the steps outlined above. For example, it is suggested that mothers may consider carrying a flask of just boiled water with them when they are away from the home. Alternatively, mothers may wish to use a liquid ready-to-feed formula when outside the home since these are sterile products.

In order to assess the extent to which mothers follow the main recommendations on the preparation and storage of powdered formula, mothers at Stage 1 who had used formula in the last seven days were asked a series of questions about how they prepared formula, both in the home and away from the home.

5.7.1 Preparing formula in the home

Table 5.14 shows that over seven in ten mothers who had used infant formula in the last seven days reported that they followed the recommended practices of either making up one feed at a time as they needed it (65%) or only using ready-to-feed formula (7%). The proportion of mothers making up one feed at a time has increased substantially since 2005, when only 25% were doing so (5% were only using ready-to-feed formula). A quarter of mothers (26%) who used infant formula in the last seven days said they usually made up several feeds at a time and stored them (compared with 69% in 2005). The increase in the proportion of mothers following recommended practices since the 2005 survey may be linked to the fact that the guidance was relatively new in 2005, as mentioned earlier in this section.

Mothers in Northern Ireland were most likely to follow these guidelines (76%), while mothers in Scotland were least likely to do so (67%).

Table 5.14

Focusing on mothers who had used powdered formula in the previous seven days, just over seven in ten (71%) followed recommended practice of making up one feed at a time. Mothers who were most likely to only make up one feed at a time as they needed it included mothers who had never worked (80%), mothers in the most deprived quintile (75%) and mothers from Asian (97%), Chinese or other (94%) or Black (92%) ethnic groups.

Table 5.15

As mentioned earlier, it is recommended that feeds are made using boiled water that has been allowed to cool to no less than 70°C. Since it was not considered feasible to ask mothers about the temperature of the water they used, all mothers were asked about how much time they usually left between the water boiling and making up the feed.

Table 5.16 shows that across the UK, over two-thirds of mothers (71%) who had made up powdered formula in the last seven days were following the recommendations by using water that had been left to cool for 30 minutes or less. This is an increase since 2005, when 59% did so. Mothers in Northern Ireland were the most likely to follow this recommendation on water temperature (77%), but findings for all countries were broadly similar.

Table 5.16

Table 5.17 shows that the majority of mothers (95%) who had made up powdered formula in the last seven days followed the guidelines by usually putting the water in the bottle first and then adding the powder, whilst five per cent put the powder in first. This was very similar to 2005 when 94% of mothers followed the guidelines and put water in the bottle first.

There was little difference in how mothers in different countries made up powdered formula in terms of adding the water or powder to the bottle first, although mothers in Northern Ireland were again the most likely to have followed the guidelines (97%).

Table 5.17

Combining all the information collected about how mothers usually make up powdered feeds, it is possible to calculate the proportion of mothers who were correctly following the guidelines. Table 5.18 shows that almost half (49%) of all mothers who had made up powdered formula in the last seven days followed all three recommendations of only making one feed at a time, making feeds within 30 minutes of the water boiling, and adding the water to the bottle before the powder. This is a substantial increase on the proportion of mothers following all three guidelines in 2005 (13%), and is likely to be primarily due to the increase in the proportion of mothers only making up one feed at a time (as discussed earlier in this section). Mothers in Northern Ireland were the most likely to have followed all three recommendations (58%), while mothers in Scotland were the least likely to have done so (45%).

Since making only one feed at a time is considered to be the ideal and it is acceptable to store formula for 24 hours under the correct conditions it is also useful to examine the proportion of mothers who at least followed the two key recommendations of making feeds within 30 minutes of the water boiling and adding the water to the bottle before the powder.

Table 5.18 shows that across the UK, 66% of mothers who had made up powdered formula in the last seven days had followed both of these recommendations. This is also an increase since 2005, when 54% followed both recommendations, although not as marked as for the proportion following all three. Again, mothers in Northern Ireland were the most likely to have followed both recommendations (73%); mothers in England were the least likely to have done so (65%).

Table 5.18 also shows that mothers who were the most likely to follow all three recommendations or both key recommendations on preparing powdered formula included mothers aged under 20 (63% and 81% respectively), mothers who had never worked (64% and 75% respectively), mothers in the

most deprived quintile (57% and 72% respectively) and mothers from a Black (72% and 74% respectively) ethnic background.

Table 5.18

5.7.2 Preparing formula away from the home

As mentioned earlier, when mothers need to feed their baby away from the home, the recommended options are either to use ready-to-feed formula or to make up feeds using previously boiled water, for example, carrying boiled water in a flask. However, it is recognised that in some circumstances mothers may have no alternative to making up feeds before they leave home. In these circumstances it is recommended that the feeds are chilled before transportation and kept chilled when out. When the feeds are required they should be heated to the required temperature and used immediately.

Table 5.19 shows how mothers who had made up powdered formula in the last seven days usually prepared feeds when they had to feed their baby away from the home (recommended practices are indicated in bold in the table). This shows that across the UK, 31% of mothers said they never used powdered feeds away from the home, either because they breastfed, because they used ready-to-feed formula, or because they never fed their baby outside the home. This is an increase of 11 percentage points since 2005⁹.

Over a third of mothers who had made up powdered formula in the last seven days (37%) usually made up feeds while they were out, while just under a third (32%) made up feeds before leaving the house. Mothers who made up feeds while they were out were fairly evenly split between those who used cold or chilled water (19%) and those who used hot water (18%). Mothers who made up feeds before leaving the home were also fairly evenly split between those who kept the feed chilled while they were out (15%) and those who did not (17%).

Overall, this means that almost two thirds of mothers (65%) who had made up powdered formula in the last seven days were following the recommendations for feeding away from the home (either not using powdered formula – or doing so correctly, making up feeds with hot water or keeping pre-prepared feeds chilled), whilst the remainder (35%) were not doing so.

Relative to 2005, a greater proportion of mothers made up feeds while they were out (37% compared with 12% in 2005) and conversely, many fewer made up feeds before leaving the home (32% compared with 65% in 2005). This is in line with the earlier findings shown in Table 5.14. The proportion following recommendations for preparing powdered formula feeds or not using powdered feeds away from home was similar (63% in 2005 compared with 65% in 2010).

The way in which mothers made up powdered formula feeds away from the home was broadly similar across countries, except for Wales, where the proportion not following the guidelines was slightly higher (39% compared with 35% overall).

Table 5.19

5.8 Methods used to sterilise bottles

For the first time in 2010, all mothers¹⁰ were asked at Stage 1 if they had ever used a bottle to feed their baby and what methods they usually used to sterilise bottles. Across the UK, four in five mothers (80%) said that they had used a bottle to feed their baby. Usage was highest in Northern Ireland (87%), which is likely to be linked with the lower incidence of breastfeeding in that country (as discussed in Chapter 2), and lowest in England (79%).

Table 5.20

Steam sterilisers were most commonly used for sterilising bottles (67%), followed by sterilising in a microwave (16%) and soaking in sterilising solution (9%). Sterilising in a microwave is not a recommended method but some steam sterilisers are designed for use in a microwave which may account for some of the mothers who stated that this was the method they used.

Table 5.21

Notes and references

¹ Also see the Department of Health website:

http://www.dh.gov.uk/en/Publichealth/Nutrition/Nutritionpregnancyearlyyears/DH_127640

² See p50 of "Infant Milks in the UK", a report published in 2011 by the Caroline Walker Trust

http://www.cwt.org.uk/pdfs/infantsmilk_web.pdf

³ See NHS Choices 'Types of infant formula' webpage <http://www.nhs.uk/Conditions/pregnancy-and-baby/Pages/types-of-infant-formula.aspx>

⁴ See Chapter 2, Table 2.1.

⁵ The questionnaire did not seek to verify whether or not mothers correctly knew the difference.

⁶ The question asked in 2005 is not directly comparable. Sixty-two per cent said they had seen advertising of infant formula, but the wording was changed in 2010 since advertising is only permitted for formula for babies aged 6 months or older.

⁷ At Stage 3, mothers who said they had ever given cow's milk as a drink were asked when they had first given it. It is possible that some mothers may have been referring to giving cow's milk to mix with food.

⁸ Food Standards Agency and Department of Health: Guidance for health professionals on safe preparation, storage and handling of powdered infant formula, November 2005.

<http://www.food.gov.uk/multimedia/pdfs/formulaguidance.pdf>

The Department of Health updated the 'Birth to Five' publication in May 2005 and the Bottle Feeding leaflet in November 2005. In 2005, Stage 1 fieldwork took place between October and December.

⁹ See the 2005 Infant Feeding Survey Report, Chapter 5, Table 5.24 <http://www.ic.nhs.uk/pubs/ifs2005>

¹⁰ All mothers were asked about their usage of bottles since those who were exclusively breastfeeding could be using a bottle to feed their baby expressed breastmilk.