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WP4.1, Study 1: Conveying the notion of early nutrition programming in policy documents

The feeding of infants and young children is an important area of public health policy. Extensive research into the physical, psychological and social implications of breast-feeding (or not breast-feeding) for baby, mother and other family members has resulted in widespread endorsement of breast-feeding as the gold standard. Many reasons are advanced in favour of breast-feeding, and the impact on the health, development and well-being of the baby is central. Infant feeding policies are made by various organizations including international agencies, national and regional governments, professional colleges and associations. Scientific expertise is used to ensure policies are reasonable, justifiable and effective, and to provide accountability and value for money. The WHO's global recommendation of exclusive breast-feeding for 6 months is an example of this. A systematic review of more than 2000 papers concluded there was no evidence that exclusive breast-feeding for 6 months (compared with exclusive breast-feeding for 4–6 months) had an adverse effect on growth and development, but that it did have a protective effect against gastrointestinal infections.

Policy documents provide guidance for health-care professionals, who are important intermediaries taking the messages of policy-making bodies to consumers. Women, and their partners, have contact with a range of professionals (including nurses, midwives and doctors) before, during and after the birth of their babies, each of whom has the potential to have a significant influence on how the parents choose to feed their baby. However, the extent to which available evidence and international recommendations are incorporated in individual policy documents has not been systematically analysed.

Since many mothers perceive comfort and convenience benefits from feeding infant formula, the health and development advantage for the infant is a major factor in making the case for breast-feeding. Breast milk is a complex natural food containing antibodies, enzymes and hormones. Formula milks have not been able to replicate the properties of breast milk perfectly and have been associated with a range of short-term health problems for babies, particularly increased risks for gastric and respiratory infections. The health consequences of not breast-feeding may also extend into late infancy, childhood, adolescence and beyond; for example, the longer-term effects are purported to include elevated risks of obesity, CVD, allergy, type 2 diabetes mellitus and gastrointestinal conditions. In addition, the growing evidence base around the concept of 'programming' suggests that the nutritional environment in the early months of life may 'set' a baby's metabolism with significant lifelong health implications.

Several recent studies have found low rates of breastfeeding, poor weaning practices and variability within and between nations, and as a result there have been calls for a consistent approach across Europe. Accordingly, public health policy in the European Union is currently seeking to increase the number of mothers who choose to breast-feed their babies. In this context, the policy and information environment facing healthcare professionals and the general public plays a strategic role, and thus the findings of the current study are timely.

The first of 3 studies carried out as part of WP4.1 investigated how the lifetime health implications for the baby of the choice between breast- and formula-feeding are represented in policy documents in a sample of European countries. The overall aim of the study was to compare the citing of health outcomes in policy documents within and between geographically dispersed European countries with diverse public health nutrition traditions, and to consider the findings in the context of the policy making in Europe. The objectives of the study were to:

(i) identify and describe the prevailing infant feeding policy documents in five diverse European countries;

(ii) analyse the types of health outcomes for the infant that are associated with feeding breast milk rather than formula milk in the documents of different countries; and

(i) assess the extent to which documents reflect the WHO global recommendation of exclusive breast-feeding for 6 months.

A search for current policy documents on infant feeding was conducted between July and October 2005 in five European countries: England, Finland, Germany, Hungary and Spain. The countries were selected to have diverse public health nutrition policy traditions and to represent geographical and cultural spread. We followed established principles of documentary analysis. A standard operating procedure and coding frame were agreed at the outset to ensure that the study was conducted in the same way in each country, and regular meetings were held and attended by all partners.

Documents were located in each country through an open search, including the Internet, and by targeting the websites of relevant organisations using the following keywords: 'nutrition', 'diet', 'breastfeeding', 'bottle feeding', 'formula feeding', 'weaning', 'complementary feeding', 'infant feeding' and 'baby' (in local languages). Policy documents were retrieved if they contained recommendations or guidelines for health-care professionals about the feeding of healthy infants in the first year of life, and originated from a government body or a professional association. Documents on websites that were not in PDF or HTML format were excluded. Titles of documents were translated into English if necessary, and bibliographic information and a brief description of content were stored in a central database.

The text of each selected document was independently screened by two people in each country and statements that related the choice between feeding breast milk and formula milk to lifetime health outcomes of the baby were extracted. Statements on non-metabolic outcomes, such as tastes or dental caries, and on the effects of malnutrition, nutrient deficiency (e.g. Fe), special maternal diets (e.g. vegan) or maternal micronutrient deficiencies were excluded. When a health outcome was repeated in consecutive sentences, only the first occurrence was included for analysis.

Statements were entered verbatim into a database, with an English translation, where necessary. Each statement was coded by the type of feeding behaviour to which it referred (exclusive breast-feeding for unspecified time/less than 6 months/6 months or more; breast-feeding in general of unspecified duration; formula-feeding) and by health outcome (twenty-two health benefits associated with breast (rather than formula) feeding, grouped into four main categories: health in general; infections; allergy; long-term conditions). Where coding disagreements occurred between the investigators, a third researcher was consulted and the issue was settled through discussion. The number of statements per health outcome, document and country were calculated to allow comparisons. Associations between each of the four main categories of health outcome and the authorship of documents and country were explored.

The team reviewed all documents, and a decision was taken to exclude seven from the analysis. Five documents from the English Department of Health were excluded because they were policy proposals or were judged to be about service delivery models and the implementation of policies, rather than recommendations. Two international documents which covered several Spanish-speaking Latin American countries were removed from the Spanish list because their content was replicated in the national documents. The Nordic recommendations were retained in the Finnish list because they were complementary to the internal publication.

Twenty-six policy documents were included in the analysis: four from England, two from Finland, nine from Germany, six from Hungary and five from Spain. There is variation within and between countries in the character of documents, which ranged from being substantial evidence-based reviews to concise summaries.

National governments dominated the policy arena in England and Finland. In these countries the search identified substantial expert reports providing the background and evidence-based recommendations for health-care professionals. In England, two summary documents in support of the WHO global recommendation of exclusive breast-feeding for 6 months were also available. In Germany, Hungary and Spain, most guidance for frontline health-care staff is provided by professional associations. Documents in Hungary tended to be shorter, and not to cite references in support of recommendations. All documents except two in Hungary and one in England had been published in the five years prior to the study. A main policy document was identifiable in four countries, but in Germany all documents exist in parallel.

A total of 203 statements about the health implications for the baby of the choice between breast- and formula feeding were extracted from the policy documents that were included in the study. Seven of the policy documents that were identified contained no such statements (two produced by professional associations; three by regional governments; two by national governments).

The representation of individual health outcomes varied between documents, both within and between countries. Most statements referred to protection afforded by breastfeeding against infections (32.5% of all statements) and longer-term conditions (31.5%). About a quarter of statements referred to the general health benefits of breastfeeding (compared with formula) and about an eighth to protection against allergy. Considering only those documents containing any health outcome statements, those from Germany and Finland had the highest number of statements per document and Hungary had the lowest.

Generic statements about the health benefits of breastfeeding compared with formula-feeding (n=49) were most common in Finnish documents (5.0 statements per document v. mean of 2.4 for the other four countries), and effects on neurological and mental development were the most frequently cited advantages in this group (n=19, 38.8% v. n=10, 20.4% for each of the other outcomes). Statements that referred to reduced risk of infection (n=66) mainly concerned the protection provided by breast-feeding against gastrointestinal (n=16, 24.2%) and respiratory/chest infections (n=15, 22.7 %). All documents in England and Finland mentioned gastric infections, but this was not the case in the other three countries. Infection was mentioned less in documents from Hungary (1.6 statements per document) than in those of other countries (mean of 4.0). The protection afforded by breast-feeding against allergy was mostly presented in general terms (fourteen (58.3%) of twenty four statements). Reduced allergy risk was often linked to exclusive breast-feeding (although required duration was not usually stated) and familial history of atopy. Protection against gastrointestinal conditions, such as Crohn's disease, irritable bowel syndrome and ulcerative colitis, were most frequently mentioned among the long-term conditions (21 (32.8%) of 64 statements). There were no statements in any documents about the effect of milk feeding choice on bone health. Outcomes were often simply expressed, without explanation or reference to the evidence base.

Taking all countries together and including all documents, there were no significant differences in the representation of the four main categories of health outcome between documents produced by government agencies and professional associations. Similarly, there were no significant differences in the representation of health outcome categories across countries (data not shown).

Most of the health outcome statements (n=152, 74.9%) did not specify whether the health effect was dependent on the duration of breast-feeding or exclusivity. Twenty one (10.3%) statements in eight documents attributed a health outcome to exclusive breast-feeding, of which twelve did not specify the necessary duration, one stated a period less than 4 months, one stated a period of 4–6 months, and seven (in line with the WHO recommendation) referred to exclusive breast-feeding for 6 months or more. The statements that advocated exclusive breast-feeding for less than 6 months, or for an unspecified period, cited a variety of health outcome reasons: generic benefits in health (n=1) and protection against asthma/wheeze (n=4), gastrointestinal infections (n=2), respiratory/chest infections (n=2), diabetes (n=2), obesity (n=1) and high blood pressure (n=2).

Eleven of the twenty-six policy documents that were included in the analysis were published after the release of the WHO global recommendation, but only the English infant feeding recommendations from the Department of Health referred in any detail to this evidence (in five statements). The other two statements that referred to exclusive breast-feeding for 6 months were in two earlier German documents. Both of these statements promoted exclusive breastfeeding for 6 months as a means to reduce the risk of allergy, for which the WHO review found no evidence in favour of breast-feeding. The Association for Midwives in England endorsed the WHO recommendations, but their brief position statement did not provide a summary of the evidence base for their members.

The study found that current documents on infant feeding policies in five European countries vary in authorship, date of publication, length and character. Analysis of the documents showed no consistency in the way in which health outcomes for the baby are cited as factors in the recommendations for breast- rather than formula-feeding. In more than a quarter of the policy documents, health effects of breast-feeding were not mentioned at all, and in the remaining documents they were often described only in general terms. This finding agrees with other recent research which concludes that health risks of feeding infant formula are poorly represented in journal articles. The health outcomes most consistently mentioned in policy documents in favour of breast-feeding were in the areas of mental/neurological development, protection of immune function, and reduced risk of gastrointestinal and respiratory/chest infections, allergy problems, long-term gastrointestinal conditions and diabetes. Most statements about the health implications of infant feeding choice were not precise about the duration of breast-feeding that is required for benefit, and whether or not the advantage is dependent on exclusive breast-feeding.

Differences between the portfolios of policy documents of individual countries may reflect variations in the structure of health services, resources, history and culture. More substantive policy documents on infant feeding are available in England and Finland, where health care is financed and delivered through public sector arrangements. The greater diversity of agencies producing policy documents on infant feeding in Hungary, Germany and Spain may reflect the more pluralistic nature of their health-care systems. Moreover, professional associations are more important in the policy arena in these countries because maternity and infant services are routinely provided by specialist obstetricians and paediatricians, rather than by general practitioners and primary care teams, as occurs in England and Finland. In all countries, publication of policy documents on important public health issues such as infant feeding is likely to be the product of some degree of dialogue between government agencies and professional associations.

The search for policy documents and extraction of health outcome statements were conducted carefully and in accordance with a procedure agreed in advance by partners in each country, and researchers met regularly to resolve any issues that arose. However, the study was limited because resource constraints meant the work could be conducted in only five countries. Cross-national comparisons are important because they offer scope for public policy learning. Although the sample of countries was chosen to provide diverse public health nutrition policy traditions, and a

geographical and cultural spread across Europe (West, Scandinavian/Nordic, Central, Eastern, Mediterranean), they may not be representative of all socio-political systems. It is also possible that documents could have been missed by the searches. The analysis of health outcomes is based on counts of statements, but frequencies are not necessarily a good indication of overall significance and should be interpreted with caution. In addition, the study focused on the representation of the health outcomes for the infant of breast (rather than formula) feeding, and statements about maternal outcomes were not covered.

Health-care professionals provide advice and information to consumers, and promote health-enhancing behaviours, within a framework provided by policy documents and guidelines. Although only one of several influences on practice, the format of policy documents has the potential to affect the extent to which professionals understand and transmit recommendations. Professionals may find it difficult to identify key messages in documents which are lengthy and detailed, but may be unable to make a convincing case to consumers if their reference materials do not provide a sufficient explanation and justification of the evidence base for recommendations. Among the countries in the present study, there was striking variation in the presentation and composition of policy documents in circulation. Seven of the documents identified by the search did not mention any health outcomes for the child in support of the feeding recommendation that they promoted. Documents from Hungary tended to be shorter, less likely to cite references in support of recommendations and to contain simpler statements, compared with those of other countries. Statements in the documents of the other countries, and Germany in particular, were more likely to use technical terminology and provide the scientific rationale for recommendations. Some policy documents took the form of detailed expert reviews of the evidence and others were succinct summaries, containing limited or no reference to the scientific basis. Little is known about the role of policy documents in providing a basis for the daily practice of health-care professionals. Research is needed to identify the most effective means of informing health-care professionals about the recommendations of their organisation or professional association and enabling them to communicate meaningful messages to the consumers they serve.

Lack of consistency between documents and countries in the representation of the health outcomes of breast-feeding will limit effective promotion by health professionals and should be a cause for concern among policy makers. It may reflect uncertainties in the scientific evidence on the health outcomes associated with infant feeding choices in the developed world. Systematic assessments of the available evidence base show differences in interpretation. While some reviewers endorse the evidence about the protective effect of breast-feeding for diseases like lymphoma, insulin-dependent diabetes mellitus and Crohn’s disease, others adopt a more cautious position. Although increased susceptibility of non-breast-fed infants to respiratory tract infection and otitis media has been shown to increase health-care costs in the USA, other evidence suggests that prolonged breast-feeding does not protect against these illnesses. Similar debates exist regarding allergy. Recent studies conclude that breastfeeding does not reduce the risk of allergy or asthma or that the evidence is equivocal, but others suggest an association between increased risk of atopic disease and feeding formula milk. Given the somewhat speculative status of evidence for some health outcomes, it is perhaps not surprising that there is variation in representation of health outcomes across documents.

The WHO global recommendation of exclusive breastfeeding for 6 months provides another example of how experts can disagree. This is a landmark in infant feeding policy, but only two of the policy documents (both from England) in the five countries in the current study referred Health outcomes and breast-feeding policy to it. One explanation for this is that a 4-year lapse of time between the publication of the global recommendation and the search for documents for our study may not have been sufficient for Europe-wide national agencies to consider and adopt the WHO position, and publish new guidelines. Another possible explanation is that some experts do not support the global recommendation unreservedly, and argue there is no evidence that introducing complementary

feeding before 6 months is harmful. Thus policy makers would be cautious. Overall, the spirit of the WHO global recommendation is poorly represented: 90% of statements do not associate health outcomes to exclusive breastfeeding, and many cite protection against varied diseases even though the WHO review found evidence that exclusive breast-feeding for 6 months gave protection only against gastrointestinal infections.

The desirable approach to producing guidelines is through robust synthesis of available evidence and consensus among stakeholders, including practitioners, commissioners and service user representatives, and such procedures have been put in place in Australia. However, problems exist in moving from research evidence to forming and agreeing policies and recommendations where the evidence not well established, as is the case for infant feeding. Moreover, methodological issues hinder the consolidation of evidence on the health implications of infant feeding choices. Controlled trials to test alternative feeding protocols create ethical dilemmas; problems surround the interpretation of available evidence because of imprecision in the definition of 'breast-feeding' (especially inadequate distinction between 'ever' and 'exclusive' breast-feeding, and failure to report for how long breast-feeding is maintained); studies to monitor long-term health outcomes are difficult to implement and may be affected by a multitude of confounding factors; and epidemiological associations may not be fully explained by a biological mechanism. When decisions are being made under conditions of uncertainty, current practice and contextual factors (such as the influence of local interest groups and the balance of committee membership) may affect final decisions about which health effects of infant feeding choices are represented in documents.

The findings of the present study suggest that there is a scope to synchronise evidence and approaches to policy formulation across Europe and to ensure that recommendations reflect new knowledge. The European Commission's White Paper on governance within the European Union has highlighted the need for greater coherence of policies. This includes a commitment to increasing the involvement of stakeholders and consumers in the policy-making process, and to greater openness and transparency in the collection and use of expert advice so it is clear what alternative views exist and from where they have come. Future developments in the area of infant feeding policy are likely to be influenced by output from ongoing research on metabolic programming and the effect of the early nutrition environment on lifelong health. As research findings are disseminated, it is important that policy makers are able to evaluate the scientific evidence and provide clear guidance for health-care professionals about what is known about the lifelong health implications and the associated areas of uncertainty. In this way, consumers will receive full and balanced information on which to make choices about feeding their infant, and public health considerations will be properly addressed.

WP4.1, Study 2: Awareness of the concept of early nutrition programming amongst stakeholders

In a small qualitative study carried out in four of the above five countries (England, Germany, Hungary, and Spain) we established the degree of reflection and the impact of the concept of early nutrition programming among key persons from government organisations and agencies with their remit in infant nutrition in England, Germany, Hungary and Spain. We established the degree of reflection and the impact of the concept of nutrition programming among the different stakeholders of infant nutrition in 17 standardised face-to-face or phone interviews. In summary, the concept of early nutrition programming was widely recognized among the interviewed key persons from government organisations and agencies responsible for the remit of infant nutrition in England, Germany, Hungary and Spain. However, the concept of early nutrition programming was rarely integrated in the produced documents.

WP4.1, Study 3: Conveying the notion of early nutrition programming to consumers

Formula milks have been associated with a range of short term health problems for babies, especially gastric and respiratory tract infections. The health consequences of not breast feeding may extend to childhood, adolescence and beyond. The concept of 'programming' suggests that the nutritional environment in early months of life may 'set' a child's metabolism and influence lifelong health. Poor infant nutrition has been linked to considerable disease burden, including obesity, allergies, diabetes and CVD. Hence, parents' decisions about feeding their infant, particularly the choice between breast and formula milk, and the age of introducing complementary foods, have significant health implications. Based on an extensive review of the evidence on health outcomes, the World Health Organisation issued a global recommendation in 2001 for six months exclusive breast feeding.

Consumer information provides an opportunity to educate parents about the immediate and longer term health effects of different behaviours. In particular, leaflets and magazines have been found to be relatively important influences on the feeding decisions of first time mothers in a sample of European countries. The third study carried out as part of Theme 4 paper explored what parents can learn from available leaflets and magazine articles in five European countries (England, Finland, Germany, Hungary and Spain) about the health implications of infant feeding choices in the first year of life. The objectives were to investigate the availability of leaflets and magazine articles on infant feeding in each country, and to examine the content of materials for statements that associated infant feeding behaviours (milk feeding and introduction of complementary foods) and health outcomes for the baby.

A search for leaflets (defined to include small booklets and information sheets) was conducted in each country between July and October 2005 through an open internet search and by targeting the websites of relevant organisations (national and regional government agencies, professional associations, interest groups, retail and manufacturing industries) using the key words: nutrition, diet, breast feeding, bottle feeding, formula feeding, weaning, complementary feeding, infant feeding and baby (in local languages). Leaflets were collected if they referred to the feeding or nutrition of healthy infants aged 0-12 months and were dated 2000 or later. Materials targeting pregnancy, older children, health professionals or focussing on legal or practical aspects were excluded. Titles, bibliographic information and a brief description of the content of leaflets were stored in a central database in English.

The text of each selected leaflet was independently screened by two people in each country and statements that related breastfeeding, formula feeding or a complementary feeding behaviour to a health outcome for the baby were extracted. Where a health outcome was repeated in consecutive sentences, only the first occurrence was included for analysis. Statements on non nutritive substances (e.g. alcohol) and toxicological substances (e.g. mercury), nutrient absorption and supplementation (e.g. vitamins, folic acid), and the effects of special diets (e.g. vegan) or malnutrition were excluded. Statements were entered verbatim into an SPSS version 15 database to facilitate manipulation of the data.

Coding frames for statements were guided by the content of the statement, and were agreed through discussion amongst partners. Statements referring to milk feeding were coded by type of feeding behaviour (exclusive breastfeeding for unspecified duration, less than 4 months, 4-6 months, greater than or equal to 6 months; breastfeeding in general of unspecified duration; formula feeding) and by health outcome. Twenty two health benefits associated with breast rather than formula feeding were identified and grouped into four main categories: health in general; infections; allergy; long term conditions. Statements referring to complementary feeding were coded according to 23 effects in five categories: foods to avoid for allergy; food poisoning; other health reasons; establishing good eating habits; and link between complementary feeding and long term health

conditions. Where coding disagreements occurred between investigators, the issue was settled through discussion. Following principles of documentary analysis, findings are reported in terms of how many times issues are mentioned, and statements per leaflets.

The most popular monthly parenting magazine for each country (defined on the basis of annual average circulation figures) was identified. All 12 issues from January to December 2005 were screened by two independent researchers in each country for articles (including notes or comments) on the feeding or nutrition of healthy infants aged 0 -12 months. Articles on nutrition in pregnancy or for toddlers, and advertisements or promotional text were excluded. Statements that related a feeding behaviour to a health outcome for the baby were identified in each article and processed in the same way as the statements from leaflets.

The search for leaflets revealed 127 separate publications. Almost half of the leaflets referred exclusively to milk feeding (range 12% Finland to 61% Spain). At least half of the leaflets in Finland and Hungary were produced by special interest groups (e.g. breast feeding support groups), and in Germany were produced by manufacturers or retailers of formula milk or infant foods. Government sources were important in England and Spain. Most publications were free of charge (or very inexpensive), relatively short and contained pictures or illustrations

A total of 395 statements about the implications for the baby of the choice between breast and formula feeding were extracted from 105 leaflets across the five countries. Some leaflets (n=24, 22.9%, and 12 of 35, 34.3% in Hungary) contained no statements. About one third of the statements referred to protection afforded by breastfeeding against infections, and a further one third to a range of general health benefits from breast feeding. The analysis of the content of the magazines revealed 56 articles on milk feeding (from a total of 60 issues across the five countries, 0.93 articles per issue), of which 44 mentioned health implications for the baby of the choice between breast and formula feeding (in a total of 121 statements). Protection against infection was the most frequently cited advantage of breastfeeding. A relatively low proportion of statements explicitly reflected the WHO exclusive breastfeeding recommendation (WHO 2001): 19/395 (4.8%) in leaflets, 21/121 (17.4%) in magazine articles.

A total of 117 statements on the health implications for the baby of complementary feeding behaviours were extracted from 69 leaflets across the five countries. Overall, only 25 (36%) of the leaflets had eligible statements, none in Finland or Hungary. Most statements (41.0%) related to possible allergy reactions from specific foods. The 60 magazines contained 26 articles on complementary feeding (0.43 per issue), of which 25 contained a total of 76 health statements, (none in Finland or Spain). As with leaflets, allergy was the main health issue raised (46.1% of statements).

The analysis of leaflets and magazines on infant feeding in the first year of life in each country revealed that the health implications of breast vs formula feeding and of complementary feeding practices were not widely or consistently portrayed, and this may weaken the impact of the messages. Nearly one quarter of leaflets related to milk feeding, and two thirds of those related to complementary feeding, did not include any statements about the health effects for the baby of food choices. Where statements were made, they mostly focussed on generic health benefits and immediate short term implications such as protection against infections (milk feeding) and protection against allergy (complementary feeding). There was less mention of possible long term effects of feeding choices. The main focus of most of the consumer materials was on the practicalities of breastfeeding and of introducing new foods and beverages, rather than the consequences for lifelong health. Whilst understanding feeding processes has been shown to be important to encourage low income mothers to breastfeed, further explanation of the health implications of their decisions may also be warranted to help with altering behaviours.

The search for leaflets and extraction of health outcomes statements were conducted rigorously and in accordance with procedures agreed in advance by partners in each country. Researchers met regularly to agree procedures and resolve any issues. However, the study is limited in several ways. It is possible that leaflets could have been missed by the searches, and the analysis is based on materials available in 2005, whereas referencing of health effects could have altered subsequently. Although the five countries in the study were selected to provide geographical spread across Europe, they may not be representative of all social, political and health care systems. The analysis of health effects is based on counts of statements. Frequencies have been used in other similar studies, but are not necessarily a good indication of overall significance.

Written materials for consumers about health issues may not always reflect contemporary science appropriately, and tools have been developed to evaluate nutrition information that is in the public domain. The evidence base of the statements in the leaflets and magazines in the study was not checked because each country had recognised international and national infant feeding guidelines, and it was assumed that written materials produced by reputable agencies would reflect these. Moreover, assessment of the quality of infant nutrition statements is complicated because the scientific evidence on health outcomes is not definitive. Differences exist in the extent to which the protective effect of breast feeding is endorsed with respect to allergy, and long term conditions. Reservations have been expressed about whether the WHO global recommendation of exclusive breast feeding for six months is optimal for all babies, and this may be one reason why it is featured in a minority of written materials.

Policy in Europe is focussed on improving breast feeding rates and weaning practices, and in this context, the information environment facing consumers is important. Written materials are a potentially important means of promoting public health messages. Leaflets have been shown effective in other health areas at improving knowledge. They are inexpensive to produce, easy to distribute, and provide convenient reference sources for parents. Advice from health care professionals can change behaviour, and leaflets may reinforce verbal information or counteract misinformation that parents may acquire from other sources such as relatives, friends, or non validated websites. The search for leaflets in the study countries showed variability in provision, and scope may exist to further exploit this means of conveying health promoting messages to parents. Similarly articles in parenting magazines have the potential to reach target groups. Readership exceeds published circulation figures through placement of magazines in locations such as doctors' waiting rooms. Although space given over to infant feeding is a small proportion of the total content, and longitudinal studies have found no relationship between the number of magazine articles on breastfeeding and breastfeeding rates, carefully designed and delivered messages could influence behaviours.

There is a need for further research to evaluate the impact on infant feeding practices of alternative means of providing information to parents in different socio-economic groups and cultural settings, including the effect of health professional endorsements, family and friends, and the growing importance of the internet and social networking sites. It is also important to ascertain the extent to which lifelong health considerations for the infant influence parents' decisions, and how the importance of such factors can be enhanced in their perceptions. Health effects of alternative feeding behaviours are not comprehensively or consistently portrayed in leaflets and magazine articles in the countries in this study, and scope exists to promote improved infant feeding practices by increasing the quantity and specificity of messages about health effects in consumer information.