

National Breastfeeding Advisory Committee
protecting, promoting and supporting breastfeeding
in Aotearoa New Zealand

Background report

Protecting, Promoting and Supporting Breastfeeding in New Zealand

A review of the context of breastfeeding in New Zealand, and of the evidence for successful interventions supporting breastfeeding.

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Executive Summary

Breast milk is the natural food for infants. The World Health Organization recommends that infants be exclusively breastfed until aged six months and receive nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond. In New Zealand, only 12 percent of six month old children were exclusively breastfed in 2006.

Social change has had a significant impact on breastfeeding practices in New Zealand, and continues to shape the way infants are fed today. Fertility rates, migration, and women's participation in the labour force are all influencing factors. There are also differences in breastfeeding beliefs and practices between different ethnic groups. These factors demonstrate the complexity of influences on breastfeeding in this country.

There are a number of interventions in use around breastfeeding, ranging from international conventions to working with individual mothers and families, and which use a wide range of tools. The following summarises the findings in the literature reviewed.

Legislative mechanisms

Countries with high statutory involvement in protecting breastfeeding (e.g. the Scandinavian nations in particular) have higher rates of breastfeeding and duration than those with more limited protection.

Legislative mechanisms that protect breastfeeding focus on three areas:

- Having the right to breastfeed in a venue
- Supporting employment during breastfeeding through the protection of employment, the provision of universal paid maternity leave, and supporting the woman on her return to the workforce through the provision of paid breastfeeding breaks
- Legislating for the International Code of Marketing of Breast-milk Substitutes rather than relying on voluntary compliance.

There are also a number of more innovative legislative measures that can be taken, such as considering breastfeeding in custody decisions and tax credits related to breastfeeding goods and facilities. There is limited literature evaluating the effects that statutory provisions have on the duration of any form of breastfeeding.

Policy and national strategic initiatives

Breastfeeding is promoted in national and public health policy in many nations, including New Zealand. In many cases these policies are linked with other related initiatives, such as paid parental leave, nutrition and child health initiatives, and strategies to address inequalities in health. This is similar to the policy context found in New Zealand.

There is very little qualitative material available about the impact of national strategies on breastfeeding duration (e.g. no such evaluation was returned through this literature review). However, there are similarities in the structures and content of many breastfeeding strategies internationally. Common components found in the strategies include:

- A commitment to and/or acknowledgement of international strategies and policies;
- Ensuring that exclusive breastfeeding is recognised as the normal and preferred method of infant feeding to six months of age, and continuing breastfeeding beyond the introduction of solid foods;

- Establishing a national structure including responsible agencies, national advisory bodies, and multi-lateral commitment across government and non-government sectors;
- Taking a comprehensive approach to protecting, promoting and supporting breastfeeding including: reviewing policy and regulatory frameworks, undertaking appropriate education and information for mothers, families and communities, collaborating between healthcare providers and support groups, providing training, education and support for health professionals and policy-makers, and emphasising the provision of information and support for working mothers and employers to protect breastfeeding in the workforce;
- Commitment to reducing inequalities concerning breastfeeding and health benefits, with a particular focus on indigenous peoples;
- Research on barriers and enabling factors;
- Prioritising of key areas for action and related recommendations, often at local, regional and national levels;
- Requiring maternity facilities to adhere to the steps required under the Baby Friendly Hospital Initiative;
- Target setting against stated goals and objectives; and
- Evaluation and monitoring frameworks including regular data collection.

Interventions that impact on the initiation and duration of breastfeeding

The following intervention areas are discussed in this literature review:

- Ante-natal education and support;
- Health professional training;
- Birth and postpartum hospital or clinical practices;
- Postpartum education and support;
- Community support; and
- Workplace support.

Breastfeeding is a learned experience requiring knowledge and education in order to be successful and it may or may not come naturally to the mother and infant. Information on how to breastfeed may be needed to help mothers learn breastfeeding skills. Education is therefore a critical component of any strategy to support, promote and protect breastfeeding. Educational initiatives underpinned all of the categories discussed above and it appears to be important to provide initial information to support a decision to breastfeed, and supplement this with practical support once the infant is born.

Health professionals' attitudes to and knowledge of breastfeeding is a critical component in ensuring that mothers and families receive accurate and consistent advice about breastfeeding management. Health professionals need to have access to accurate information and counselling and communication skills to ensure that they can provide information about breastfeeding to mothers and families in a clear manner. In order to deliver this information, health providers such as midwives, nurses, and general practitioners need to be provided with sufficient training.

While the need for good ongoing training of all health professionals who work with mothers and babies is clear, evidence about what is effective is inconclusive given the limited evidence base currently available. For training to be effective it needs to link to clinical practice, and to include an understanding of both psycho-social and physiological factors. The studies available also suggest that training for health professionals needs to be done in conjunction with increased resources in terms of time and other support provided.

Certain practices in clinical settings, for example rooming-in and initiating feeding as soon as possible following birth, can support the successful initiation of breastfeeding. This helps to form a bond and establish the unique methods that each mother and infant uses to feed, and may also improve duration. Supportive practices in clinical settings are also critical given the very influential role that health professionals play in helping a woman to determine her feeding preferences and practices, and assisting her to achieve these. This is also likely to be relevant to the role of a health professional attending home births.

Peer counselling has been shown to effectively increase breastfeeding duration, especially when skilled and well-trained peer counsellors are used. The effectiveness of peer counselling is enhanced when the services are delivered at multiple points in time, including ante-natal and during the intra- and postpartum periods. The importance of delivery across different time frames is likely to be due to the fact that support and advice can be provided to help women make decisions about feeding intentions and then practical support can be delivered following birth.

In terms of building wider community support, although there is limited robust evidence about the influence of social marketing in New Zealand on rates of breastfeeding, there is sufficient knowledge to support a campaign that is well designed to address local barriers and social/cultural contexts. The effectiveness of a campaign is likely to be enhanced by using television and local support campaigns, rather than newspaper advertising to reach the wider community, and being implemented in conjunction with other programmes. An effective longitudinal assessment of such a programme would also be a useful contribution to the international knowledge base.

With increasing numbers of women in the workforce and skilled labour shortages, breastfeeding in the workplace may have growing importance for both health and labour force outcomes. Generally, workplace interventions are supported by statutory measures related to unpaid or paid maternity leave, and the provision of breaks during the working day so that the mother can breastfeed or express. While there is a general paucity of information regarding the effectiveness of initiatives to support breastfeeding in the workplace, there are a number of practices which can support a breastfeeding woman on her return to work. These practices focus on:

- Workplace policy, employment conditions, and timing of work;
- Communication between the employer, the breastfeeding woman, and other employees;
- The provision of adequate facilities in which to express or breastfeed; and
- Infant-focused child care that supports and promotes breastfeeding.

Gaps in the body of evidence

The literature review identified a number of significant gaps in the body of research currently available. This included a lack of:

- Up-to-date prevalence and intensity data for initiation and duration data for the New Zealand context;
- Evidence relating to infants that are not healthy, full-term singletons;
- Local intervention research that seeks to apply some of the findings of this literature to the New Zealand situation; and
- Evidence on effective public policy and statutory initiatives.

Additional areas for research include:

1. Strategies that encourage exclusive breastfeeding up to six months, or any breastfeeding for 12 months or more.
2. The effectiveness of interventions such as mass media strategies designed to influence public attitudes towards breastfeeding, including wanting to breastfeed and acceptance of breastfeeding in public places
3. Evaluations of interventions targeted to women breastfeeding in disadvantaged circumstances or who undertake unhealthy activities such as licit (tobacco, alcohol, and prescription medicines), or illicit substance use
4. Interventions involving partners and fathers
5. Research into the clinical and physiological problems that lead to the discontinuation of breastfeeding (e.g. sore nipples, perception of insufficient milk, engorgement, mastitis, etc.)
6. Qualitative studies that describe people's experiences of breastfeeding (e.g. mothers, fathers, family/whānau, friends, and communities)
7. Theory-based research where the underlying assumptions are clearly defined.

Section 1: Design and methodology

1.1 Introduction

The National Breastfeeding Advisory Committee has commissioned a literature review to identify initiatives and interventions that protect, promote, and support breastfeeding. The scope of this literature review includes the following:

1. General context and background on breastfeeding in New Zealand;
2. New Zealand-specific information about the cultural and attitudinal landscape with regard to breastfeeding among mothers, families/whānau, health professionals, and the wider community;
3. Evidence on the effectiveness of breastfeeding programmes and initiatives, and the environmental factors that support or limit the effectiveness of such initiatives; and
4. Good practice in the design and delivery of programmes supporting breastfeeding.

This document provides a context for the National Plan of Action for Breastfeeding. It includes both a précis of social and scientific research to support the focal areas of the Plan and the work of the National Breastfeeding Advisory Committee.

The first section of the report covers the broad context of breastfeeding in New Zealand society. This includes assessing the influence of policy, legislation, society, culture and the social and clinical barriers to breastfeeding.

The second section looks at the scientific literature around interventions to improve breastfeeding initiation and duration.

This document is based on the literature reviewed to support the development of the 2002 Ministry of Health document *Breastfeeding: a guide to action*, and draws heavily on the information contained in that paper. Where this review expands beyond the scope of the *Guide to Action*, literature that predates the Guide has been included in this review.

1.2 Methodology

The Ministry of Health conducted searches of national and international databases and relevant websites using the terms of reference outlined in *Appendix 1*. The Ministry of Health then provided a full list of all returned items from the search to *Allen and Clarke* to undertake the selection of material. Most of the materials were sourced by the Ministry of Health's library or from the internet. *Allen and Clarke* then reviewed the returned articles using a critical appraisal checklist to determine the material's fitness for inclusion and rigour. In addition a bibliographic check of all included articles was undertaken to ensure that all relevant material was included.

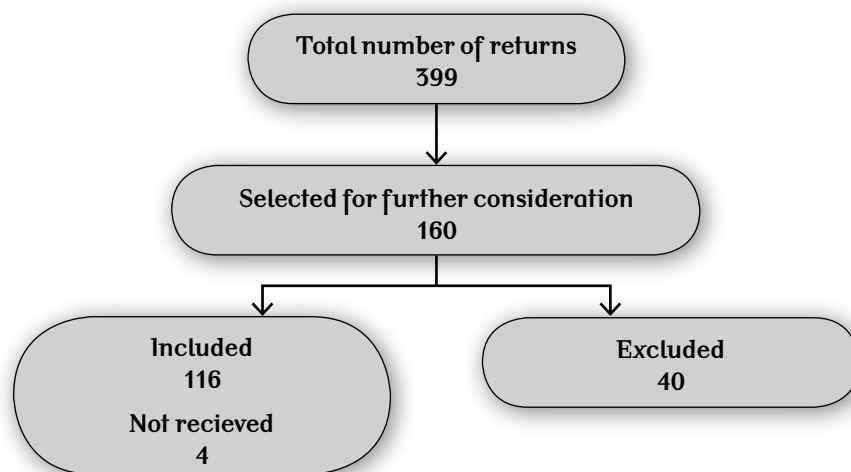
In total, the literature search returned approximately 400 items. Of these, approximately 160 articles and reports were selected for further review and consideration for inclusion. Those that were not included in the first cut did not directly apply to breastfeeding initiation or duration or were published earlier than 2002.

Selected items were reviewed using the critical appraisal checklist included in *Appendix 3* of this report. Research was also subject to further methodological analysis where required. This resulted in a further number of studies being excluded on the grounds of relevance or weak internal validity or, in a small number of cases because, while drawing on good-practice, the articles did not add more value to information identified in other literature.

A total of 116 items¹ were included. Most of the included literature is in the form of meta-analyses, research articles, or normative documents published by internationally reputable organisations. Four articles selected for consideration were not received by the Project Team; however, we consider that, in reviewing the available abstracts, the information contained in these articles is likely to be repeated in literature that has been included.

Specific breakdown figures for inclusion are provided in *Figure 1*. Results from websites and bibliographic search results are not included in *Figure 1* due to differential sourcing.

Figure 1: Articles returned in the literature search and their inclusion or exclusion from further consideration



There were a small number of exceptions made to the decision to exclude material published prior to 2000:

- International normative documents relating to breastfeeding initiation and duration, as many of the documents published by the World Health Organization retain relevance despite being published some years ago;
- Evidence outlining the benefits of, and factors influencing, breastfeeding initiation and duration: there is a very strong body of research on the medical and nutritional benefits of breastfeeding although much of this research was conducted before the timeframe parameters for this literature; and
- Meta-analyses discussed in the paper which were published in or since 2002: such meta-analyses rely on studies published earlier than 2002.

Fifty one further items were included in this review as part of updating the information. The selection of these items followed the same process as was used in the original literature review.

¹. Twenty-three items were not sourced directly but are included in the NICE (2005) systematic review. NICE (2005) also drew heavily on Sikorski and Renfrew's 2001 Cochrane Review.

1.3 Limitations

This section outlines some of the limitations found in the literature, an assessment of the overall coverage provided by the literature search, and comment on the overall quality of studies presented in this review. Gaps in the research are discussed in *section 4.2* of this report.

The limitations discussed in this section have implications for the models that can be effectively used to monitor and evaluate breastfeeding interventions and initiatives. While a number of studies use a randomised controlled trial methodology, this can be limited by the mechanisms used to collect outcome data (e.g. self-reporting is often the only way to collect breastfeeding data). In addition the randomised controlled format does not adequately control for the variability of inherent characteristics and social factors that can confound associations between interventions and outcomes. Descriptive research, while recording greater contextual complexity, is often limited by a lack of adequate statistical analysis on possible associations. It is unlikely that one research model would provide for a perfect evaluation or monitoring mechanism and it is necessary to consider the model applied to each piece of research to determine whether the study design is adequate for the hypothesis proposed.

1.3.1 Quality of research

A range of studies were identified from pure programme descriptions through to meta-analyses based on multiple robust studies. All papers were critically appraised using the critical appraisal checklist developed by *Allen and Clarke* (see *Appendix 3*).

The quality of the research found by the literature search was good, with some excellent meta-analyses and systematic reviews included. Overall, the body of evidence for the interventions discussed is very strong. A small number of promising approaches where the evidence base was less clear were also identified and discussed throughout *sections 3* and *4*. Limitations of specific papers have been identified in the discussion where these papers have been included although concerns about their validity remain. A general discussion on limitations in the research is discussed in *section 1.2.2*.

1.3.2 Internal validity and generalisability

Some studies are limited in their descriptions of whether the breastfeeding duration outcome applies to exclusive breastfeeding or partial breastfeeding: some studies, for example, do not distinguish between these at all. Another common issue was that studies report on any breastfeeding (without specifying the proportion of breast milk to other liquid or solid foods). This definitional issue makes it difficult to compare studies or to assess exactly what the results of the study relate to, and therefore limits its applicability to the purpose of this literature review.

The literature does not provide for consistent reporting of breastfeeding duration. Reported duration ranged from breastfeeding at six weeks postpartum (Butler et al 2004) to breastfeeding at one year postpartum (Vogel et al 1999). Few outlier studies collected data at more than six months postpartum. No study followed duration beyond this time. Generally, this lack of clarity is not problematic given the strong evidence base for most of the factors discussed; however, it does limit the ability to clearly determine effectiveness during the early postpartum phase and what is effective in later months. This is discussed where it creates an interpretive issue in *part 4*.

Most of the studies described in this literature review rely on self-reporting of breastfeeding status. Self-reporting is a notoriously inaccurate way to collect outcome data (although for breastfeeding outcomes it may be one of the few pragmatic mechanisms with which to collect this information).

This can lead to significant uncontrolled recall bias issues that are often not resolved in the study designs applied.

Self-selection is a common tool used to identify and enrol study participants used in the literature reviewed. This can create a significant level of bias as the study population is unlikely to represent the total population from which the group was drawn. This limits the confidence that can be placed in the study's results, and particularly, the generalisability of these results to populations not included in the study (e.g. at-risk mother-infant pairs).

New Zealand's initiation rate is considerably higher than many of the countries in which the studies described in this literature review are set. As such, some of the studies described in the literature review which focus on initiation may be of limited relevance to New Zealand.

In some studies reviewed, there was inadequate description of the intervention used, making it difficult to understand how the intervention was implemented, and difficult to assess whether the intervention would be appropriate in New Zealand.

1.3.3 Research gaps

There are four significant gaps in the body of research identified for this review:

- Up-to-date prevalence and intensity data for the initiation and duration data for the New Zealand context: data are not collected in comparable ways from the total maternity population. This is a particular issue for initiation and duration data and for the subsets of duration prevalence data, specifically ethnicity and socio-economic status. Another critical gap found in prevalence and intensity data is the unavailability of population level data for breastfeeding at one year postpartum and later.
- Research discussed in this literature review is based on research conducted on mother-infant pairs where the infant was a healthy singleton birth with a gestational age of greater than 37 weeks and a birth weight of more than 2500 grams. This creates a significant bias in the pool of available literature and limits the generalisability of the research to mother-infant pairs that do not meet these criteria. This is a particular concern given that what works for these mother-infant pairs may not be applicable to other mother-infant pairs (e.g. low birth-weight infants).
- Local intervention research that seeks to apply some of the findings of this literature to the New Zealand situation, particularly given the importance of culture in influencing breastfeeding patterns and the Baby Friendly Hospital Initiative.
- Effective public policy and statutory initiatives.

Hector et al (2004) and the NICE systematic review (2005) identified further areas where additional research is required to provide for more conclusive evidence about the effectiveness of breastfeeding. Additional areas for research proposed by Hector et al (2004) include:

1. Strategies that encourage exclusive breastfeeding up to six months, or any breastfeeding for 12 months or more;
2. The effectiveness of interventions designed to influence public attitudes towards breastfeeding such as mass media strategies;
3. Evaluations of interventions targeted to women breastfeeding in disadvantaged circumstances or who undertake unhealthy activities such as licit (tobacco, alcohol, and prescription medicines), or illicit substance use;
4. Interventions involving partners and fathers;

5. Research into the clinical and physiological problems that lead to the discontinuation of breastfeeding (e.g. sore nipples, perception of insufficient milk, engorgement, mastitis, etc.);
6. Qualitative studies that describe people's experiences of breastfeeding (e.g. mothers, fathers, family/whānau, friends, and communities); and
7. Theory-based research where the underlying assumptions are clearly defined.

Several of these areas were also identified as a priority for further research by Renfrew et al (2007) in a systematic review which highlighted a number of gaps in the international evidence base relating to breastfeeding. In addition they considered further research was needed into the impacts of health and welfare policies, the education and training of health professionals, and ways of changing practice. They noted that breastfeeding needs to become a priority for a range of research funding bodies and that a steep change is needed in both the quantity and the quality of the work funded. They suggest a problem-based approach, in which new research is funded based on assessment of the issues and on the problems faced by women and practitioners.

Section 2: Context and History

2.1 Definitions

2.1.1 Breastfeeding: a comprehensive definition

Breastfeeding is generally thought of in the most literal terms: a woman providing an infant or child with breast milk. Breastfeeding is, however, more than the physiological process of lactation and infant nutrition: it is a learned activity that involves a complex set of social, cultural and experiential factors. Breastfeeding can have an important influence on the mothers' and infants' mental, emotional and physical health. There does not, however, appear to be a generally accepted definition of breastfeeding that fully encompasses the social, emotional and physical aspects of breastfeeding.

A definition that highlights the complexity of the process is:

Lactation refers to the physiological process of producing milk and its 'removal' by the infant for nourishment. In contrast, the term breastfeeding acknowledges the physiological process of producing milk and suckling a baby, in addition to the complexity of social, cultural and experiential factors which influence this practice.²

2.1.2 Defining the intensity of breastfeeding

The following definitions of the extent of breastfeeding, adopted by the Ministry of Health (2002), are used in this report:

- Exclusive breastfeeding: the infant has never had any water, infant formula, or other liquid or solid food: only breast milk and prescribed medicines have been given from birth;
- Full breastfeeding: within the past 48 hours, the infant has taken breast milk only and no other liquids or solids, except a minimal amount of water or prescribed medicines;
- Partial breastfeeding: the infant has taken some breast milk and some infant formula or other solid food in the past 48 hours; and
- Artificial feeding: the infant has had no breast milk but has had alternative liquid such as infant formula, with or without solid food, in the past 48 hours.

2.2 Importance of breastfeeding

The World Health Organization (WHO) recommends that infants be exclusively breastfed for the first six months of life (Kramer and Kakuma 2002). Breast milk is the normal, natural food for infants. It meets the full nutritional requirements for infants up to the first six months of life and, in conjunction with complementary foods, an essential part of child nutrition into the second year and beyond (WHO 2003a).

The WHO's hierarchy of preferred methods of infant feeding is:

1. Breastfeeding

². Personal communication from Annette Beasley, 21 March 2007, acknowledging a communication from Professor Duncan McKenzie, Massey University. The definition has been published in Beasley A. 1996. *Breastfeeding for the first time. A critical-interpretative perspective on experience and the body politic.* Monolith 1, Social Anthropology Series, Massey University, Palmerston North.

2. Mother's own milk expressed and given to her child some other way
3. Milk of another human mother
4. Artificial milk feeds (WHO 2003a).

When compared to breastfed babies, formula fed infants³ have:

- Decreased resistance against illnesses including bacterial meningitis, necrotising enterocolitis, otitis media, diarrhoea, respiratory tract and inner-ear infection, and urinary tract infection;
- Reduced cognitive development and visual acuity;
- Increased risk of types 1 and 2 diabetes, childhood obesity, and coeliac disease;
- Increased mortality during the first year of life; and
- Long term negative impacts for cardiovascular health (American Academy of Paediatrics 2005).

Breastfeeding presents clear benefits for child health, mainly protection against morbidity and mortality from infectious diseases (WHO 2007). The American Academy of Paediatrics (2005) also identifies a number of other possible protective factors for infants requiring further study including the possible reduction in sudden infant death syndrome, asthma, and some malignancies. In addition, there is evidence indicating that the composition of pre-term breast milk is particularly beneficial for pre-term infants as outlined by UNICEF (2005).

Systematic reviews and meta-analyses by the WHO suggest that there are long-term benefits for individuals who are breastfed including:

- Lower blood pressure;
- Lower total cholesterol;
- Less likelihood of being considered as overweight and/or obese;
- Less likely to present with type-2 diabetes; and
- Better school performance in late adolescence or young adulthood (WHO 2007).

Breastfeeding benefits mothers by helping prevent postpartum haemorrhaging, breast and ovarian cancer, and potentially helping to prevent post-menopausal hip fracture (American Academy of Paediatrics 2005). Findings from a collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries suggest that the longer women breastfeed the more they are protected against breast cancer. The authors suggest their findings indicate that the lack of or short lifetime duration of breastfeeding typical of women in developed countries makes a major contribution to the high incidence of breast cancer in these countries (Collaborative Group on Hormonal Factors in Breast Cancer 2002 cited in La Leche League New Zealand 2005).

The psychosocial benefits of breastfeeding are also significant, and are important to health in a broader sense. Breastfeeding can help establish and maintain a bond between mother and baby, and promote mental and emotional health for the whole family, and the wider community. Data from a study by Britton et al (2006) suggest that mothers who choose breastfeeding over bottle feeding may be more likely to be sensitive to responding to the cues of their infants in dyadic interactions in early infancy. Ellison-Loschmann's 1997 study on the experience of Māori women in breastfeeding found that the women received emotional comfort from breastfeeding, and the feeling that they were providing something special for their infants.

³. Throughout this document, the term 'artificially fed' is used to describe infant feeding using substitutes for breast milk, including formula, cows' or other mammals' milk, and/or earlier than recommended introduction of complementary foods. Bottle feeding of expressed breast milk is described specifically where necessary.

The economic benefits of breastfeeding include decreased costs to both the hospital and primary care system and lower use of health services (Cattaneo et al 2006; León-Cava et al, 2002). In addition, women who breastfeed demonstrate to families, friends, communities and society at large that breastfeeding is the normal and healthy way to feed infants and young children.

2.3 Breastfeeding prevalence in New Zealand

2.3.1 Prevalence rates

New Zealand has a high rate of exclusive breastfeeding initiation with 94 percent of mothers breastfeeding at discharge from hospital (Ministry of Health 1995); however there is a significant decline in the prevalence of exclusive breastfeeding through the first six months of infants' lives.

Prevalence rates for 2000-2005 for a range of infant feeding outcomes at six weeks postpartum, three months postpartum, and six months postpartum are provided for in *Table 1*. Generally, there has been an average increase of six percent in the number of infants exclusively breastfed at each outcome timeframe. This correlates to similar declines in the number of fully or partially breastfed infants at each outcome timeframe. The percentage of infants who were not breastfed at all remained constant between 2000 and 2005, indicating that 60 percent of all infants up to age six months had received at least some breast milk.

Table 1: New Zealand breastfeeding prevalence at six weeks, three months and six months postpartum

Six weeks	Exclusive (%)	Full (%)	Partial (%)	Artificial (%)	Total (%)
2000	45	20	16	19	100
2001	46	18	16	20	100
2002	46	19	15	19	100
2003	49	18	15	19	100
2004	50	18	14	19	100
2005	51	16	15	19	100
2006	51	15	16	18	100
Three months	Exclusive (%)	Full (%)	Partial (%)	Artificial (%)	Total (%)
2000	30	20	19	30	100
2001	32	19	19	31	100
2002	33	19	18	30	100
2003	36	19	15	30	100
2004	37	18	15	30	100
2005	38	17	15	29	100
2006	39	16	16	29	100
Six months	Exclusive (%)	Full (%)	Partial (%)	Artificial (%)	Total (%)
2000	7	11	41	40	100
2001	8	11	40	41	100
2002	9	12	38	41	100
2003	10	14	35	41	100
2004	10	14	35	41	100
2005	11	14	35	40	100
2006	13	12	35	40	100

Source: New Zealand Breastfeeding Authority (2006) Data sourced from Plunket.

Exclusive breastfeeding prevalence drops sharply in the first six weeks postpartum and then continues to decline as partial and artificial feeding becomes more common. This review found no information on the prevalence of breastfeeding past one year of age.

Moore (unpublished)⁴ reviewed the prevalence rates of exclusive breastfeeding by New Zealand Deprivation Index (NZDep Index) using data from 1997.⁵ The study found statistically significant rates indicating that mothers in lower socio-economic areas generally had lower prevalence rates of exclusive breastfeeding:

- At 5-6 weeks: 42 percent of NZDep Index 1-7 exclusively breastfed, compared to 36 percent of NZDep Index 8-10.
- At 11-15 weeks: 30 percent NZDep 1-7 exclusively breastfed, compared to 23 percent of NZDep Index 8-10.

By four to six months postpartum, the prevalence of exclusive breastfeeding is similar for both groups: approximately five to six percent of mothers are still exclusively breastfeeding. Moore also demonstrated small differences in the 'any breastfeeding' rates at each of the three time points. This difference amounts to approximately three percent at 5-6 weeks and five percent at 6 months.

Moore also noted differences between ethnicity and exclusive breastfeeding rates using 1997 data, as described in *Table 2*. The data presented in *Table 2* indicates that Māori women have lower rates of exclusive breastfeeding than all other ethnic groups. Pacific women have similar rates to Māori women but are slightly higher; however exclusive breastfeeding among Māori and Pacific peoples are lower than the rates seen for the other ethnic groups including New Zealand European.

The latest figures from Plunket indicate that the overall rates of exclusive and full breastfeeding at six weeks (66 percent in 2006), and three months (55 percent in 2006) have shown little change in recent years, and lower rates in Māori and Pacific populations have persisted. Plunket figures also indicate that Asian peoples have similar breastfeeding rates to Māori and Pacific at six weeks, and lower rates than European/Other at every stage. The breastfeeding rates at three and six months have decreased slightly for Māori and Pacific populations over the last three years while the rates for "Other" have remained relatively stable.

4. Moore (unpublished) is a thesis that has not yet been submitted to the University of Otago for consideration. Therefore, this material should be treated as unmarked.

5. The data used by Moore is sourced from 1997. This is different to the data discussed in *Table 1*, which is sourced from 2000-2005.

Table 2: Breastfeeding rates (%) by ethnicity at six weeks, three months and six months 2002-2006

	Year	Māori	Pacific	Asian	NZ European and other	All
Exclusive and full breastfeeding at six weeks Target for 2007-08 74%	2002	59	61	-	68	66
	2003	62	62	49	71	67
	2004	60	59	55	71	67
	2005	58	58	58	71	66
	2006	59	57	55	70	66
Exclusive and full breastfeeding at three months. Target for 2007-08 57%	2002	47	50	-	58	55
	2003	46	49	49	59	55
	2004	47	49	51	60	56
	2005	45	48	52	60	56
	2006	45	48	53	60	55
Exclusive and full breastfeeding at six months. Target for 2007-08 27%	2002	16	20	-	25	23
	2003	16	19	20	26	23
	2004	18	20	22	27	24
	2005	18	19	23	28	25
	2006	17	19	25	29	25

Source: Unpublished Ministry of Health data (2007a) based on Plunket figures.⁶

Table 3 describes regional data by ethnic group and shows variations between geographic areas, although these data are limited to prevalence at six weeks and eleven to fifteen weeks. The data support Moore's data on the differences between socioeconomic status and breastfeeding prevalence: the district health board regions with high deprivation using the NZDep Index also tend to be over-represented by lower than average breastfeeding prevalence at both time points considered in Table 3, although this correlation has not been statistically tested.

⁶. Note these figures are based on Plunket clients only, and are not nationally representative.

Table 3: Full breastfeeding by District Health Board: July to December 2001

	Total (%)		Māori (%)		Pacific (%)		European and other (%)	
	6 wks	11-15 wks	6 wks	11-15 wks	6 wks	11-15 wks	6 wks	11-15 wks
Northland	70.22	56.42	63.82	50.48	62.5	-	76.38	61.06
Waitemata	64.99	49.40	58.31	42.01	56.80	41.4	67.9	52.01
Auckland	65.44	51.35	57.60	35.90	54.76	40.78	69.79	56.09
Counties-Manukau	58.78	43.77	53.14	34.91	61.32	44.16	59.93	47.53
Waikato	68.50	52.45	54.25	42.14	45.00	48.15	75.78	57.11
Lakes	72.98	58.69	70.24	48.22	100	57.14	73.33	66.19
Bay of Plenty	68.06	57.14	63.82	54.09	65.00	56.45	70.16	58.98
Tairāwhiti	55.84	44.00	43.75	42.86	-	-	81.48	49.09
Taranaki	74.07	59.27	68.83	47.83	-	-	75.43	63.72
Hawkes Bay	60.49	47.45	52.02	32.73	64.52	63.41	64.19	53.66
Whanganui	66.12	46.18	69.23	42.06	-	63.64	64.63	47.30
MidCentral	63.59	57.97	58.87	42.26	47.83	46.15	65.75	54.74
Capital and Coast	76.57	56.85	70.06	40.00	67.74	43.10	79.03	61.92
Hutt Valley	62.44	46.67	59.79	37.44	53.76	41.30	64.62	50.48
Wairarapa	58.87	36.45	55.77	31.25	75.00	-	59.06	39.73
Nelson	69.88	61.32	66.367	52.70	100	85.71	69.92	62.27
Marlborough/ West Coast	53.85	47.83	46.43	56.00	-	-	56.76	45.54
Canterbury	67.54	53.76	66.14	45.00	69.15	58.18	67.64	54.53
South Canterbury	68.67	57.09	70.00	45.00	-	-	68.58	58.16
Otago	60.40	52.88	56.25	43.33	69.23	61.29	60.45	53.32
Southland	62.11	43.10	58.91	31.82	41.18	-	63.33	46.01
New Zealand	65.63	50.98	59.50	41.57	59.52	44.29	68.26	54.72

Source: Ministry of Health (2002)

These data are a snapshot of breastfeeding prevalence in 2001. Rates in bold are district health board areas where the rate is significantly lower than the average (using a 99 percent confidence interval). A dash indicates where the number of breastfed infants in that category is less than five percent. The data are aggregated by provider region.

2.3.2 Breastfeeding targets

The Ministry of Health (2002) has set the following breastfeeding targets for New Zealand:

- To increase the exclusive and full breastfeeding prevalence rate at six weeks to 74 percent by 2005 and 90 percent by 2010;
- To increase the exclusive and full breastfeeding prevalence rate at three months to 57 percent by 2005 and 70 percent by 2010; and
- To increase the exclusive and full breastfeeding prevalence rate at six months to 21 percent by 2005 and 27 percent by 2010.

Currently, New Zealand is not meeting the targets set for prevalence. In 2005, 67 percent of infants were exclusively or partially breastfed at six weeks, with 45 percent at three months. At six months 25 percent of children were being exclusively or partially breastfed.

2.4 Maternity and Well Child Services in New Zealand

Under section 88 of the New Zealand Health and Disability Act 2000, the government funds maternity care for all women, to be delivered by a Lead Maternity Carer, who can be a midwife, general practitioner, or a specialist obstetrician. The lead maternity carer is responsible for caring for the woman from the time she registers with them, until six weeks after the birth of the baby. Midwives are trained in providing advice and support concerning breastfeeding.

Lead maternity carers provide clinical care (including referrals where necessary), and are also required to provide information to their clients on antenatal education courses, and to provide one-on-one ante-natal education. This includes information on breastfeeding. The section 88 notice requires that all lead maternity carers must support maternity facilities in implementing and adhering to the Baby Friendly Hospitals Initiative.

Once infants are born, lead maternity carers are expected to provide breastfeeding support. After discharge, lead maternity carers are funded to provide between five and ten home visits, including breastfeeding advice and support.

At around six weeks, care is handed over from lead maternity carer to Well Child/Tamariki Ora providers (most commonly Plunket). Breastfeeding and nutritional support for mother and baby are a key focus of Well Child Services. Well Child services are provided by nurses with additional training that includes assisting with common breastfeeding problems.

Specialist services are available to provide support to families in more difficult circumstances. Both lead maternity carer and specialist services are responsible for supporting breastfeeding for infants who are or have been in a neo-natal unit. This can involve visits from neo-natal home care services.

Complex breastfeeding problems either in hospital or in the community can be dealt with by the lead maternity carer in conjunction with specialist support from a lactation consultant or a midwife with additional training and expertise.

Whānau Ora

Whānau Ora Maternity support services provide for a targeted group of women with high needs and who need assistance to access those services. Whānau Ora is delivered by community workers with specific skills (including parenting skills), and aims to link services and support the woman and family during pregnancy and during the first six weeks after birth.

Nga Maia New Zealand/Nga Maia o Aotearoa me Te Wai Pounamu

Nga Maia is a national organisation providing support to wahine, pepi and whānau, and promoting matauranga Māori in pregnancy and birth. The Nga Maia kaupapa emphasises dignity, recognition of whakapapa, tikanga Māori, the use of te Reo, whānau involvement, and the importance of spiritual, emotional, physical and mental health for wahine, pepi and whānau. The kaupapa also recognises the importance of traditional support networks to protect and support wahine and whānau. The Nga Maia kaupapa provides guidelines for midwives and service users, and to guide professional development.

Members of Nga Maia include midwives, midwifery educators and whānau as service users. Nga Maia provides links to help find a midwife, and provides a range of other services including a research programme to support increasing knowledge around kaupapa Māori approaches to pregnancy and birth. Nga Maia has submitted on key pieces of policy and planning work, for example the section 88 notice and *He Oranga Korowai Oranga*, the Ministry of Health's Māori Health Strategy.

B4Baby

Some DHBs provide specialist programmes. One example is Counties-Manukau DHB's B4Baby programme. This initiative is designed to increase breastfeeding rates, and improve health outcomes, including reducing hospital admissions for infants with gastroenteritis and respiratory tract infections. B4Baby is specifically geared for Māori and Pacific women, with an emphasis on first time mothers. Midwives, lactation consultants and Māori and Pacific community health workers trained in breastfeeding support provide advice and information to women, including breastfeeding clinics and an 0800 phone service.

The programme was piloted with two providers in 2001/02. Evaluation of the pilot showed a significant increase in breastfeeding rates. While one of the original providers did not continue past the pilot period, the second has continued to provide the programme, including a self-funded extension of the area in which the programme operates. Well over 500 women access the service every year.

2.4.1 Other providers of breastfeeding care and support

There are other organisations that provide support for breastfeeding women in New Zealand.

La Leche League

La Leche League is a non-government, voluntary organisation that provide support and information to women throughout the country. There are over 50 active Le Leche League support groups, supported by accredited leaders. Support and advice on breastfeeding is also available over the telephone. La Leche League has recently expanded into delivering support through a peer counselling programme.

Plunket Family Centres

Plunket runs Family Centres in a number of cities. Among the services they provide is breastfeeding support and information. Women can call in to Family Centres to have breastfeeding observed and direct advice given.

Private lactation consultants

There are a number of private lactation consultants providing advice and information to women on a fee for service basis. Coverage tends to be concentrated in main centres. The New Zealand Lactation Consultants Association provides oversight for consultants qualified under the International Board of Lactation Consultant Examiners.

Local support groups and activities

There are a number of local activities designed to provide support and information for breastfeeding mothers. Some are initiated by women seeking a place to gather and provide mutual peer support - the Baby Café in Hawkes Bay is one example.

Coffee groups and other meetings of mothers act as informal peer support networks; however the way they impact on breastfeeding is not clear and probably depends on the group experience and dynamics. The literature suggests that peer support can be important in promoting and supporting breastfeeding, so it may be plausible that artificial feeding could be supported among a group of women partly or wholly using infant formula.

Section 3:

The local and global legislative and policy context for breastfeeding

Section three of this literature review describes the international context, national strategies, and the environmental conditions that support, promote, or protect breastfeeding. Relevant evaluative material is included where available (although there is a paucity of material available on this). Specific areas covered in *section three* are:

- 3.1 International documents that support, promote, and protect breastfeeding;
- 3.2 Legislative frameworks and initiatives intended to protect breastfeeding both in New Zealand and in comparable jurisdictions;
- 3.3 National strategies focused on the protection and promotion of breastfeeding;
- 3.4 The New Zealand policy environment, including service delivery.

3.1 The international context: conventions and strategies

International instruments and guidance documents that lead work on protecting, promoting and supporting breastfeeding, and the content of these, include:

The International Code of Marketing of Breast-milk Substitutes (WHO 1981)

This Code aims to contribute to the provision of safe and adequate nutrition for infants by protecting breastfeeding and ensuring the proper use of breast milk substitutes. The Code envisions that this could be achieved through:

- The provision of appropriate and objective information to those involved in infant and child nutrition, including mothers and health care workers;
- Disallowing advertising or any form of promotion of breast milk substitutes to the general public or in health care facilities;
- Encouraging health workers to promote and protect breastfeeding;
- Reducing sales incentives for manufacturers' and distributors' staff;
- Appropriate labelling of breast milk substitutes; and
- Adequate monitoring of compliance with the Code by governments.

There is only one version of the Code; however, there have been a number of World Health Assembly (WHA) resolutions adopted since 1981 that refer to the marketing and distribution of breast-milk substitutes. The Code and subsequent WHA resolutions must be considered together in the interpretation and translation into national measures (WHO 2006a).

New Zealand's approach

The International Code is implemented in New Zealand through the Ministry of Health's *Implementing and Monitoring the International Code of Breast-milk Substitutes in New Zealand: The Code in New Zealand*. (Ministry of Health 2007b).

Section 3.4.1 contains further information on the interpretation and implementation of the Code in New Zealand.

Maternity Protection Convention (ILO Convention No 183) (ILO 2000)

This international convention provides for:

- The adoption of measures to ensure that pregnant or breastfeeding women are not obliged to perform work prejudicial to the mother's or child's health;

- A minimum of 14 weeks maternity leave for all working women;
- The provision of cash benefits during maternity leave;
- Protection from termination of employment during pregnancy, maternity leave, or on grounds related to pregnancy or motherhood, with a guarantee of return to a similar or the same position and working conditions; and
- The right to one or more paid breastfeeding breaks during each working day, or a daily reduction of hours of work to breastfeed her child (to be determined by national law and practice).

New Zealand's approach

New Zealand has not ratified the Maternity Protection Convention. Work-related maternity protection is, however, given effect through the Parental Leave Act and the Employment Protection Act, as discussed in section 3.2.1.

Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding (UNICEF 1990; revised 2005)

This international declaration aims to enhance breastfeeding and create environments appropriate to support breastfeeding through advocacy, improving women's confidence in breastfeeding, maternal nutrition and the development of breastfeeding policies. The Declaration includes the following targets:

- The appointment of a national breastfeeding coordinator and multi-sectoral advisory groups on breastfeeding;
- Ensuring the Baby Friendly Hospital Initiative is used in all maternity units;
- Giving effect to all of the articles in the International Code of Marketing of Breast-milk Substitutes; and
- Developing legislation to protect breastfeeding rights of working women.

New Zealand's approach

New Zealand has at least partially met three of the four Innocenti Declaration targets. Implementation of the Baby Friendly Hospital Initiative is not yet complete in all maternity facilities, although maternity providers are required to have a timeframe for implementation.

United Nations Convention on the Elimination of All Forms of Discrimination against Women

This international convention establishes the need for maternity protection as part of eliminating discrimination, including the need for signatories to ensure that reproduction and maternity is protected (although breastfeeding is not specifically mentioned) (United Nations 1981).

New Zealand's approach

The Convention was ratified by New Zealand in 1985 with no reservations relevant to breastfeeding.

The Global Strategy for Infant and Young Child Feeding (WHO and UNICEF 2003)

The Global Strategy focuses on improving the nutritional status, growth, health, and development of infants and young children through optimal feeding.

United Nations Convention on the Rights of the Child

This convention aims to protect the rights of children, including the right to the highest attainable state of health (UNHCR 1990). Article 24(e) of the Convention requires that state parties shall take

appropriate measures to “ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, and advantages of breastfeeding...”

New Zealand’s approach

The convention was ratified by New Zealand in 1993, with a reservation remaining on the health-related clauses in terms of access to services based on a person’s authority (or right) to be in New Zealand.

The Global Strategy for Infant and Young Child Feeding (WHO and UNICEF 2003)

This global strategy focuses on improving the nutritional status, growth, health, and development of infants and young children through optimal feeding.

World Health Organization Child Growth Standards 2006

In 2006, the WHO released revised child growth charts, intended to indicate normal ranges of growth and development for infants and young children. The standards cover height, weight, and major developmental milestones, all of which can be affected by nutrition. The revised standards are based on a multi-centre study of infant and child growth, and are based on the assumption, consistent with WHO recommendations, that infants are exclusively breastfed for six months and continue to be breastfed after the introduction of complementary foods.

Gribble and Berry (2006) note that the WHO’s revision of the Code supports the fact that breastfeeding is the normal way to feed children, and that breastfed children should be ‘the norm-reference group for growth and development.’

The Ottawa Charter for Health Promotion (WHO 1986)

This Charter provided the first international framework for health promotion based on five components: building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and re-orienting health services. These five components, together with monitoring and evaluation, form a set of guiding principles for health promotion strategy, policy and programme development and delivery.

Applied to breastfeeding, these five components can be used to:

- Tackle breastfeeding prevalence, duration, and intensity from many angles;
- Set out evidence-based expectations relating to a government’s performance in relation to promoting, supporting, and protecting breastfeeding;
- Provide frameworks for addressing breastfeeding prevalence-related issues; and
- Contribute to an environment that supports or, in some cases, requires involved nations to commit to develop and maintain policies, structures and services that support, promote, and protect breastfeeding.

New Zealand’s approach

The Ottawa Charter is widely used by government and non-government health promotion providers (and agencies delivering other services), to inform programme development and delivery. The Charter is extensively quoted in Ministry of Health documentation.

While there is limited evidence available about the effectiveness of each of these international instruments, these have been conceived, developed, and updated in an evidence-based spirit. As such, following the normative procedures set out in these documents is likely to have a positive influence of breastfeeding initiation and duration.

3.2 Legislation and breastfeeding

Legislation regulates activities for a common public objective. Internationally, the right to breastfeed is well-documented in normative, good practice recommendations and conventions. As stated in the Innocenti Declaration, nations should develop imaginative legislation to promote, protect, and support breastfeeding.

Internationally, breastfeeding-related legislation tends to focus on two key legal issues:

- The ability of women to breastfeed while in paid employment; and
- The right to breastfeed and to be breastfed in a public place.

These issues are most often addressed through the provision of paid or unpaid maternity leave and specific provisions, for example breastfeeding breaks as required by the Maternity Protection Convention; and anti-discrimination or rights-based provisions designed to protect breastfeeding women and their infants or children.

3.2.1 New Zealand legislation

A mother's right to breastfeed, and a child's right to be breastfed, are supported by international law; however, this right has no legal effect in New Zealand where there is currently no domestic legislation specifically protecting a right to breastfeed, apart from general anti-discrimination measures provided by the Human Rights Act 1993.

New Zealand's legislative framework for protecting, supporting, and promoting breastfeeding is explicitly covered in three key pieces of legislation:

- The Human Rights Act 1993;
- The Parental Leave and Employment Protection Act 1987 (and its 2002 amendment introducing paid parental leave); and
- Corrections Regulations 2005.

Breastfeeding is also covered in contracting processes, and could potentially be a factor in family law decisions.

The literature search returned no evidence on the effectiveness of New Zealand's legislative framework in relation to supporting, protecting, and promoting breastfeeding. Comments are therefore largely descriptive rather than analytical.

Human Rights Act 1993

The right to breastfeed is not explicitly protected under the Human Rights Act 1993 (Galtry 2005); however, recent interpretation guidelines are clear that the Act *does* protect right to breastfeed (Human Rights Commission 2005). The Human Rights Commission interprets denying women the opportunity to breastfeed as a form of sex discrimination under the Act, which is one of the prohibited grounds of discrimination under the Act [section 21(1)(a) refers].

It is likely to be possible for a mother to assert her right to breastfeed under the Human Rights Act, although it must be noted that a mother's legal right to breastfeed has never been explicitly affirmed by any New Zealand court.

The right to breastfeed

In 2004 Elizabeth Weatherly laid a complaint with the Human Rights Commission after she was told she could not breastfeed her child at an early childhood centre. Ms Weatherly claimed that the denial of her right to breastfeed was sex discrimination.

When the Commission decided that her complaint did not fall within its jurisdiction, Ms Weatherly began a petition, presented to Parliament with almost 9000 signatures. She received many reports from other women who had met with a negative reaction and/or been asked to leave public places when breastfeeding. Subsequent examination of the issue by the Human Rights Commission indicates that the Human Rights Act, as it currently stands, does not explicitly protect the right of women to breastfeed. The Commission drafted a discussion document on the right to breastfeed, including a set of principles to guide future discussion on the issue. The principals are:

- A woman has the right to breastfeed and is protected from discrimination for breastfeeding under the Human Rights Act and international law.
- The Commission should support and promote the right to breastfeed.
- When considering breastfeeding complaints, a broad analysis should be used for comparisons across groups.
- A woman should be permitted to breastfeed where she and her child or children would otherwise be permitted to be.
- The right to breastfeed should not be limited by any individual, group, or party unless the intervention is based on evidence of significant detriment to either mother or child.
- Breastfeeding should, generally, be considered to be in the best interest of the child but in normal circumstances parents should be allowed to determine what is in the best interests of their child with respect to infant feeding.
- The approach to breastfeeding discrimination should encompass the view that breastfeeding mothers and their babies form an inseparable biological and social unit.

In its final report, the Commission recommended amending human rights legislation to explicitly include breastfeeding discrimination, and a higher level of commitment for non-regulatory means of promoting and supporting breastfeeding. The Government noted that it will consider these approaches.

In mid 2005 the Health Select Committee, following consideration of Elizabeth Weatherly's petition, noted that it believes that every woman has the right to breastfeed anywhere she is legally entitled to be, if she feels comfortable doing so.

The Committee also recommended that Government strengthen implementation of the WHO's International Code of Marketing of Breast-milk Substitutes on the basis that the Committee considers voluntary self-regulation by industry is insufficient to ensure compliance. The Committee also recommended the establishment of the NBAC as a matter of urgency.

On 1 August 2007 a private member's bill developed by Labour MP for Rotorua, Steve Chadwick (a former nurse and midwife) entitled the Infant Feeding Bill was launched and has been put in the ballot box for members' bills. This Bill aims to end discrimination against breastfeeding by changing the Human Rights Act and also proposes a workplace code in relation to breastfeeding (Kai tiaki Nursing 2007).

Parental Leave and Employment Protection Act 1987

While New Zealand is not a signatory to the Maternity Protection Convention, many of the clauses of the Convention are given effect in New Zealand through the Parental Leave and Employment Protection Act 1987 and its subsequent amendments. While the Act does not state the promotion of breastfeeding as one of its explicit objectives, the health benefits of paid parental leave, particularly the potential for increased breastfeeding rates, were a key motivation for re-introducing paid parental leave legislation in New Zealand (Callister and Galtry 2006).

When New Zealand introduced paid parental leave under a 2002 amendment to the Act it was one of the last OECD countries to do so. The 2002 amendment introduced 12 weeks paid parental leave to eligible employees. Since then further amendments have increased the duration of paid parental leave and extended eligibility criteria. Under current legislation,⁷ where eligibility criteria are met, parents in New Zealand are entitled to:

- *Paid parental leave:* A mother is entitled to 14 weeks of paid parental leave to be taken over a consecutive period. The mother may choose to transfer all or some of this leave to her partner⁸ if they are eligible. This leave is available to either parent in the case of a joint adoption.
- *Extended leave:* After the birth or adoption of a child, parents have a right to take up to 52 weeks extended leave. Where both parents have at least 12 months eligible employment the mother can decide to share the extended leave with her partner (up to a total of 52 weeks, including the period of paid parental leave). Where only one parent is eligible, the extended leave can only be taken by the eligible parent (mother or partner).
- *Protection of Employment:* An employee is protected from being dismissed from her position for being pregnant or for any health difficulties associated with her pregnancy. An employee is not allowed to be dismissed for taking parental leave.
- *Partner / Paternity Leave:* The partner or spouse of someone who has recently had a child is entitled to one to two weeks unpaid partner / paternity leave. This may be taken consecutively or concurrently with paid parental leave.
- *Maternity Leave:* Pregnant women are entitled to 14 weeks unpaid maternity leave which may be started six weeks before the expected due date. However, paid parental leave has to be taken at the same time as any unpaid leave so in practice, maternity leave and paid parental leave are usually the same.
- *Special Leave:* A female employee who is pregnant is entitled, before taking maternity leave to take a total of up to 10 days special leave without pay for reasons connected with her pregnancy.

The 14 weeks paid parental leave is funded via general taxation and administered by the Inland Revenue Department (IRD). An employee has to have worked continuously with the same employer for at least six months to receive paid parental leave. Eligibility is also subject to a minimum hours test. Self-employed people are eligible for parental leave if they have worked on average at least 10 hours a week over the six or twelve months immediately prior to the expected date of delivery or adoption of a child.

Under current legislation the eligible parent is entitled to 100 percent of their average weekly earnings up to a maximum payment cap which is adjusted in July each year in relation to changes to average weekly earnings. In 2006-07 it was set at \$372.12 per week (before tax) and this increased to \$391.28 per week on 1 July 2007. This represents around 83 percent of the adult weekly minimum wage for full time work and 46 percent of average adult weekly full-time earnings. (Families Commission 2007)

Over 2005/06 the Department of Labour completed an evaluation of parental leave in New Zealand. Surveys indicated there is widespread support amongst mothers, fathers and employers for parental leave. Consideration of the eligibility criteria at that time (which did not include those who were self-employed) indicated that better educated, higher earning women in the

⁷. Legislation as at 3 September 2007.

⁸. Partners include a person in a married, civil union or de facto relationship (including same sex partners) with the mother, or primary carer who assumes the care of the child they intended to jointly adopt. They do not need to be the natural parent of the child (Families Commission 2007).

core labour market, and who tend to work in main urban areas, are those most likely to be fully eligible for parental leave. More disadvantaged mothers in terms of household incomes and number of children to support are over-represented amongst those missing out on eligibility for parental leave and its associated payment. This disadvantage was reinforced in that mothers not eligible for government paid parental leave were also less likely to take employer provided paid leave. Outside self-employed mothers (of whom 80 percent are now likely to be eligible); others who were ineligible were likely to be casual and contract workers. The authors also noted that a range of labour research shows that Māori and Pacific mothers are over-represented in the types of jobs and employment arrangements that tend to exclude mothers from being eligible for parental leave.

Eight out of ten New Zealand mothers who are eligible for paid parental leave (two thirds of women in the workforce) take up a period of leave. Data indicates that for those parents able to access paid parental leave, the payment does improve income stability for many. However, the qualitative research suggests that the actual dollar amount for mothers who benefit from paid parental leave is a 'token' covering day to day costs associated with having a baby.

Eighty four percent of mothers surveyed who took some sort of leave talked about the importance of establishing breastfeeding. However, 14 percent of mothers rated initiation of breastfeeding as being unimportant. There is a considerable gap between the optimal exclusive breastfeeding duration recommended by the WHO of six months and the 14 week paid parental leave. Data also indicates that most mothers would ideally like to take just over one year to be with their babies. Yet, the average time at which mothers return to work is when their babies are six months old. Evidence from this evaluation suggests that the short duration of paid parental leave in New Zealand, combined with a low maximum payment cap are factors that contribute to many mothers returning to paid work much earlier than they would prefer.

During 2007 the New Zealand Families Commission made a number of recommendations in relation to parental leave in New Zealand. These included an increase in the total duration of job-protected leave to 56 weeks (14 weeks maternity, four weeks paternity/partner, 38 weeks family leave). They recommend that any individual employee should have access to a maximum of 52 weeks' job protection except in exceptional circumstances. They also recommended a progressive increase in the total proportion of the leave that is paid, occurring over three phases to a final duration of 12 months' paid parental leave (or 13 months if paternity/partner leave is taken consecutively). Further recommendations related to an increase in the level of parental leave payments; a substantial increase in the maximum payment cap; less restrictive eligibility criteria, and further flexibility in the way leave can be taken (Families Commission 2007).

Other employment-related considerations

There is no obligation on New Zealand employers to support breastfeeding mothers when they return to work either immediately after birth or from paid parental leave; however, workplace policy and practice is critical to ensure that mothers continue to breastfeed when they re-enter the workforce (as discussed in *section 4.7*). The Equal Employment Opportunities Commission recognises that support for breastfeeding in the workplace is an equal employment opportunity concern and an important anti-discrimination consideration for employers.

The Department of Labour has published supporting information on how flexible working hours can be successfully implemented, noting that there is a strong demand for flexible hours in the workforce, and that using flexible working hours can help retain key staff in the current skill shortage. The detailed information is available at: <http://www.dol.govt.nz/consultation/qualityflexiblework/supporting.asp>

In November 2007 the Employment Relations (Flexible Working Arrangements) Act was passed. This Act contains specific legislative provisions concerning employees' rights to request flexible working hours. One of the key points behind this bill which was sponsored by Green Party MP Sue Kedgely, is the assertion that flexible working hours will make it easier for parents to participate in the workforce, particularly concerning childcare arrangements⁹.

Corrections Regulations 2005

The only explicit protection of breastfeeding in New Zealand legislation is found in the Corrections Regulations 2005. The Regulations protect the right of imprisoned women to breastfeed their infants for six months. Under regulation 170, a woman who is imprisoned can elect to have her newborn infant live with her in prison until the child is aged six months. Alternatively, if a mother decides to place her infant in the custody of a caregiver, she is entitled to daily visits to feed and bond with the infant until he or she is aged six months. The regulations further require that the prison must provide suitable facilities for the infant to feed and bond with his or her mother.

The Law and Order Select Committee have recently recommended the passing of the Corrections (Mothers with Babies) Amendment Bill. Under this Bill the length of time an imprisoned mother is able to feed and bond with her infant will be extended so that mother can continue to breastfeed until her infant is aged two years (in line with the WHO's recommendations). The Bill also involves amending the Corrections Act 2004 to provide that the Chief Executive of a prison must ensure that imprisoned mothers who are breastfeeding are given sufficient opportunity to continue breastfeeding. The commencement date is to be set by the Governor-General by Order in Council once new facilities in the three New Zealand women's prisons have been constructed.

Section 88 Maternity notice under the New Zealand Public Health and Disability Act 2000

The section 88 maternity notice places contractual obligations on health providers to support and promote breastfeeding and report breastfeeding rates under the Well Child Tamaki Ora Programme. See *section 2.4* for more information on the requirements under section 88, and the obligations on Well Child/Tamariki Ora providers.

Family law

New Zealand family court decisions on custody issues and visitation rights have implications for the continuance of breastfeeding. It is important that courts take into account breastfeeding when making custody and visitation decisions to avoid lengthy separation between a breastfeeding mother and infant/child and to ensure that breastfeeding can be continued; however, there have been no court decisions directly on this point.

3.2.2 Legislative initiatives enacted in other jurisdictions

This section outlines the legislative frameworks applied in other jurisdictions that are broadly comparable to New Zealand with regard to socio-economic, political and some cultural aspects of society: a number of western European nations, Australia, Canada, and the United States. This section is largely descriptive due to limited evidence of the effectiveness of legislative frameworks in relation to supporting, protecting, and promoting breastfeeding. However, a number of studies have considered aspects of parental leave in relation to breastfeeding rates.

⁹. This information came from the Green Party website: www.greens.org.nz

Like New Zealand, legislation regarding breastfeeding in other jurisdictions tends to focus on paid maternity leave and protection of employment, and the right to breastfeed. A number of nations have also attempted to protect breastfeeding by introducing legislation that formalises the International Code of Marketing of Breast-milk Substitutes; however the levels of statutory protection vary considerably across nations.

Legislative protection of a woman's right to breastfeed

In the United States, 40 states have enacted legislation that permits mothers to breastfeed in public places, thus taking a civil right approach that removes concerns about prosecution or criminality under public indecency statutes (Porter 2005). Other US states focus on the rights-based approach slightly differently, stating that breastfeeding in a public place, or a mother's right to breastfeed, cannot be prohibited, limited, or restricted in any way, including discrimination in employment opportunities or discrimination in private facilities such as childcare centres.

The right to breastfeed is also included in legislation from other nations including in Scotland's Breastfeeding Act 2005, which makes it an offence to prevent breastfeeding¹⁰.

It is interesting to note that legislation protecting the right to breastfeed can be interpreted as progressive, or as reflecting negative social attitudes to breastfeeding that need to be dealt with through statutory measures. As discussed below, countries like Sweden and Norway, with very high breastfeeding rates, do not have legislation protecting the right to breastfeed.

Legislation related to maternity leave and employment protection

Maternity or parental leave

The Maternity Protection Convention (ILO 2000) recommends a minimum of 14 weeks' maternity leave be available to mothers. While none of the nations discussed in this section have ratified this Convention, it is a useful standard by which to review maternity or parental leave.

Literature indicates that paid parental leave is of particular importance to low-income women because this group tends to be under economic pressure to return to paid employment soon after childbirth, often to workplaces and employment conditions that preclude breastfeeding.

In the United States, employment protection and maternity leave is legislated for federally under the Family and Medical Leave Act 1993. The Family and Medical Leave Act provides for 12 weeks of unpaid leave for a wide variety of family and medical reasons, including maternity. However, the United States' legislation's eligibility criteria for family and medical leave are strict and many women, including those who work part-time or for small companies, are not entitled to leave around childbirth (Galtry 1997; McInerney 2002). This has resulted in approximately half of women not being eligible for maternity leave during a time that is crucial for the establishment of breastfeeding.

Some European nations are much more generous with leave provisions and align more closely to the provisions set out in the Maternity Protection Convention (ILO 2000). They also have significantly higher rates of breastfeeding compared to the United States. It is interesting to note that Sweden and Norway, with breastfeeding rates among the highest in the world, have not ratified the Maternity Protection Convention because their domestic provisions are more extensive than those required by the MPC.

¹⁰ The legislation applies to breastfeeding of children under the age of two years, ensuring that they may be breastfed or fed milk in any place in which they are legally entitled to be.

European leave provisions are often universal and are accompanied by payment funded by the state. Sweden provides for up to 18 months paid parental leave, during which a mother can receive up to 90 percent of her salary for 15 months of that leave, and paid paternity leave (Galtry 1997, 1998, 2000; McInerney 2002). A study by Galtry (2003) noted that the Swedish model demonstrates that, if an extensive period of well-paid leave is available and, just as importantly most workers are eligible for such leave, then a high level of attachment to the workforce can be achieved while simultaneously supporting extensive breastfeeding practice. This study points out that Sweden upholds an at-home ideal for infants with childcare subsidies coming into effect only around the time that leave payments for parental leave terminate. This policy package is noted to be an important factor in Sweden's high breastfeeding rates and admirable child health statistics. Women in Sweden also have high rates of labour participation. However, the type of paid leave offered in Sweden is very costly to the taxpayer.

Women in the United Kingdom have access to paid ante-natal care, and 52 weeks maternity leave from day one of starting a job. This may comprise both paid and unpaid leave. On 1 April 2007 the amount of paid leave entitlement in the UK increased from 26 weeks to 39 weeks if employed by the same employer for a specific time. If a mother does not fulfil the eligibility criteria, she may be entitled to receive a Maternity Allowance. Statutory maternity pay (SMP) is paid for the first 6 weeks at the rate of 90 percent of the mother's average pay. After that and for the next 33 weeks this is paid at a flat rate or 90 percent of the mother's average earnings if those are less than the flat rate.¹¹

In Ireland under the Maternity Protection Act 1994 (amended in 2001) women are provided with an 18 week period of maternity leave paid at 70 percent of gross earnings subject to previous social insurance contributions, as well as a further 8 weeks of unpaid leave (Galtry 2003). International comparisons show that take-up of parental leave is highest in countries that provide higher levels of income replacement - and much lower in countries such as the United Kingdom and Ireland, which provide long periods of unpaid leave (European Foundation for the Improvement of Living and Working Conditions 2007 cited in Families Commission 2007).

The law in the UK requires that employers provide suitable facilities for working breastfeeding mothers to feed or express for their babies, and suitable places for mothers to rest. If working conditions prevent mothers from breastfeeding, health and safety regulations consider that those conditions put the baby's health at risk; therefore the employer is obliged to make alterations as part of health and safety requirements. Ireland also has regulations in place regarding risks to the health and safety of pregnant and breastfeeding employees and requirements for dealing with these.

In Canada mothers giving birth before 31 December 2000 were entitled to approximately six months of job-protected, compensated maternity leave. For children born after that date, both benefit entitlement and job protection have been extended to about one year in most provinces. A study of the effects of these increased maternity leave mandates or entitlements confirmed previous evidence that extended maternity leave mandates increase the period of time before mothers return to work post-birth and this in turn led to a significant increase in the duration of breastfeeding over the first year (Baker and Milligan 2007). There was also an increase in the proportion of women attaining six months of exclusive breastfeeding. However, this study did not find robust evidence that this increase in breastfeeding had a beneficial effect in relation to a range of self-reported health outcomes.

Australia's Workplace Relations Act 1996 provides for a minimum entitlement of up to 52 weeks of unpaid parental leave following the birth of a child for permanent employees who have 12

¹¹ Source: WorkSmart: (<http://www.worksmart.org.uk/rights/viewssubsection.php?sun=52>) accessed 31 January 2007

months continuous service with their employer. Paid maternity leave is available in Australia by industrial agreement only (e.g. employer funded not state funded). In 2002 only 23 percent of Australian workplaces offered paid maternity leave to working mothers and the average period of leave was eight weeks (Organisation for Economic Co-operation and Development 2002, cited in Zareai et al 2007). As of 1 July 2004, all Australian families with a new baby receive a one-off \$4,000 payment per child (i.e. \$8,000 for twins). In July 2008 it will increase to \$5,000. Mothers under 18 years receive the Baby Bonus in 13 instalments over a six month period.

A study based on national data for 16 European countries gathered between 1969 and 1994 suggested that paid parental leave of more than 20 weeks is associated with improved infant health and reduced infant mortality (Ruhm 2000 cited in Families Commission 2007). A later study which examined data for 18 OECD countries between 1969 and 2000 also found that longer periods of paid leave were associated with reductions in infant mortality (Tanaka 2005 cited in Families Commission 2007). Both these studies suggest that child benefits are maximised when the leave is paid and provided in a job-secure context. Although not entirely clear, it is likely that much of the effect of parental leave on child mortality is due to the role such policies play in supporting new mothers to establish and maintain breastfeeding.

Some evidence suggests that lengthy and/or repeated periods of parental leave may have adverse effects on the future labour participation, income and career path of the mother and consequently the economic well-being of the family (OECD 2001; Gornick and Meyers 2003; Kamerman 2000; all cited in Families Commission 2007). However, the nature and degree of any effect of leave duration on family outcomes appears to differ by country and policy setting. Policy issues related to combining breastfeeding and paid employment are complex, involving an often difficult relationship between goals of gender equity and legislation which has the potential to protect maternal and child health (Galtry).

The Families Commission (2007) used data from studies to compare parental leave provisions in a number of developed countries. They found that many countries provide only paid parental leave and other countries, including New Zealand provide a relatively short period of paid parental leave followed by a much longer unpaid leave entitlement. Only two OECD nations, Australia and the United States, provide no paid parental leave. Further findings indicated that both the level and the duration of parental leave payment available to families would need to be substantially enhanced for New Zealand's provisions to be comparable with most developed countries. When compared to other developed nations New Zealand is also among the most restrictive countries in terms of the employment criteria for accessing parental leave and lack of flexibility in the way that leave may be used (Deven and Moss 2005; Moss and O'Brien 2006; both cited in Families Commission 2007).

In 2003 the average level of spending on maternity and family leave payments per birth as a proportion of GDP per capita was around 30 percent across 27 OECD countries. New Zealand spent around five percent, just above Australia¹² and Korea (OECD 2007 cited in Families Commission 2007).

¹² The lump sum payment provided to Australian parents on the birth of a child discussed previously was included in the OECD analysis but was not included in the Families Commission other international comparisons as the other source documents did not consider this to be related to parental leave.

Employment protection

The Maternity Protection Convention (ILO 2000) provides that a woman's job be protected during pregnancy and during any associated postpartum leave, unless the grounds for redundancy do not relate to maternity or breastfeeding. Mothers must not experience maternity-related discrimination in employment. The Convention also guarantees a woman's right to return to the same or a substantively similar position following her return to work, including regarding the conditions of employment. These rights are provided for in Canadian, American and European legislation.

Breastfeeding breaks

The right to breastfeeding breaks is provided through the Maternity Protection Convention, requiring one or more breaks per work day with the hours to be made up as required (ILO 2000).

Some state-level legislation in the United States provides for mandatory (though unpaid) breaks for breastfeeding or expressing, and for the provision of adequate private facilities for breastfeeding or expressing in the workplace. Such breaks are also provided for in most European and most African nations, where they are usually publicly funded.¹³

Legislating for the International Code of Marketing of Breast-milk Substitutes

Approximately 60 nations have implemented legislation to enact various provisions of the International Code, including most European nations.

The EU Project on Promotion of Breastfeeding in Europe (2004a) recommends that nations develop domestic legislation covering the provisions of the International Code with a specific focus on compliance, enforcement and monitoring functions. Many European nations have enacted at least some of the provisions of the International Code (IBFAN 2006). Other countries, including Canada, have adopted some of the Code provisions in federal or state law. For example, Canada's Food and Drug Regulations place restrictions on the introduction, content, and labelling of human milk substitutes (IBFAN 2006).

Australia relies on a voluntary Code structure similar to that provided for in New Zealand through the *Marketing in Australia of Infant Formulas* and the *Manufacturers and Importers Agreement* (Ministry of Health 2004). The Codes outline the obligations of manufacturers and importers of infant formula with the aim of ensuring that infant formula is marketed appropriately.

By comparison, other nations have taken little or no action to legislate for Code provisions, preferring to rely on voluntary codes or measures or, in the case of the United States, preferring to take no action at the federal level (IBFAN 2006).

Other legislative provisions

A range of innovative and imaginative legislative initiatives have been trialled or considered in the United States. These include:

- exemption from compulsory public functions (such as jury duty) that may require an extended amount of time;
- the requirement to operate public awareness and education campaigns;

¹³ Source: World Alliance for Breastfeeding Action: (www.waba.org). Accessed 9 September 2006.

- that consideration must be given to breastfeeding in custody cases involving determinations on future parental responsibilities;
- exemptions from sales taxes on goods manufactured for the purpose of initiating, supporting, or sustaining breastfeeding
- tax credits for employers that provide adequate breastfeeding facilities in the workplace (considered at the federal level but not enacted); and
- the proposed establishment of performance standards for breast pumps (considered at the federal level but not enacted).

3.3 Strategies and action plans

At an international level, the Global Strategy for Infant and Young Child Feeding provides a starting point for nations to consider when developing national policies designed to support, promote, and protect breastfeeding (WHO and UNICEF 2003). The Global Strategy has three specific objectives:

- Raise awareness of the main problems affecting infant and young child feeding, develop solutions to these issues, and provide a framework of essential interventions;
- Increase the commitment of governments, international organisations, and other parties to the optimal feeding practices for infants and young children; and
- Create environments that enable mothers, families, and caregivers to make and implement informed choices about infant and child feeding practices.

The Global Strategy calls for an integrated and comprehensive approach to young child feeding and supports the use of existing health and inter-sectoral structures. It contends that successful implementation rests on political commitment, definition of suitable goals and objectives, and the evaluation and monitoring of action taken. The Global Strategy provides guidance to government agencies about developing national strategies and some of the critical components required in the success of such strategies, such as awareness, commitment, and support.

Rather than focusing on repeating the content of each of the strategies or action plans, this section describes the various components of the strategies, including a discussion of the kinds of visions and missions, and then the range of areas that sit beneath these designed to result in the achievement of the vision or mission.

3.3.1 Visions and mission statements

The visions and goals set down in various national breastfeeding policies are relatively consistent and reflect the key areas outlined by the WHO and UNICEF (2003). Examples of mission statements include:

- To improve the nation's health by working collaboratively to protect, promote and support breastfeeding. In order to achieve optimal health, enhance child development, promote knowledgeable and effective parenting, support women in breastfeeding and make optimal use of resources (United States Breastfeeding Committee 2001).
- To promote and support breastfeeding amongst mothers in Northern Ireland (Department of Health and Social Services 1999).

3.3.2 Goals and strategies

An overview of national breastfeeding strategies reviewed by the project team identified the following common components:

- A commitment to and/or acknowledgement of international strategies and policies;
- Ensuring that exclusive breastfeeding is recognised as the normal and preferred method of infant feeding to six months of age, and there is support for continued breastfeeding for two years and beyond;
- Establishing a national structure to support breastfeeding including responsible agencies, national advisory bodies, and multi-lateral commitment across government and non-government agencies;
- Developing a comprehensive approach, including:
 - Policy and regulatory frameworks being inclusive and supportive of breastfeeding;
 - Education and information on breastfeeding for mothers, families and communities;
 - Collaboration between healthcare providers and breastfeeding support groups;
 - Training, education and support regarding breastfeeding for health professionals and policy makers; and
 - Providing information and support for working mothers and employers to protect and support breastfeeding in the workplace and workforce.
- Commitment to reducing inequalities concerning breastfeeding and health benefits, with a particular focus on indigenous populations;
- Research on barriers and enabling factors;
- Prioritisation of key areas for action and related recommendations, often at local, regional and national levels;
- Requiring maternity facilities to adhere to the steps required under the Baby Friendly Hospitals Initiative;
- Target setting against stated goals and objectives; and
- Evaluation and monitoring frameworks including regular data collection.

In 2004, the European Commission released the *Blueprint for action for the protection, promotion and support of breastfeeding in Europe*. The Blueprint outlines the recommended actions that a national or regional strategy should contain. It incorporates specific interventions and sets of interventions for which the evidence base is clear regarding effectiveness. The Blueprint outlines six key areas at which governments can target interventions to promote and support breastfeeding:

- Policy and planning;
- Information, education and communication;
- Training;
- Protection, promotion and support;
- Monitoring; and
- Research and surveillance.

The six intervention areas provide a good way of categorising and making international comparisons of interventions. The following section looks at the work being undertaken in a number of jurisdictions under each category of intervention.

Policy and planning

The Blueprint states that a comprehensive national policy on pregnancy, childbirth and infant and young child feeding is essential to underpin the effective protection, promotion and support of breastfeeding. Jurisdictions that have developed comprehensive national strategies designed

to address breastfeeding issues include the United States, Australia, and Northern Ireland. In Scotland, a draft strategic framework has been developed and is currently undergoing public consultation.

The Breastfeeding Manifesto Coalition in the UK which is made up of more than forty organisations including the Royal Colleges of Paediatrics and Child Health, Obstetricians and Gynaecologists, General Practitioners, and Midwives has called on the UK government to support its manifesto, published in 2006. This manifesto includes seven objectives which incorporate many of the goals and strategies outlined in the overview of breastfeeding national strategies. One of these objectives also involves the inclusion of breastfeeding education in the curriculum at nursery, primary and secondary levels to enable young people to grow up with an understanding of the benefits of breastfeeding.

Northern Ireland's strategy for breastfeeding proposes a number of legislative changes, including the facilitation of flexible working arrangements for breastfeeding mothers and the introduction of the International Code for Marketing of Breast-milk Substitutes.

The American national agenda supports the recognition of the importance of breastfeeding in all local, federal and state laws, including the provision of education to lawmakers, and establishment of a database of legislation impacting on breastfeeding practices. In Scotland, the draft strategic plan on breastfeeding proposes national and local breastfeeding targets and the development of a tool for monitoring progress, particularly among vulnerable groups - including those experiencing social deprivation, minority ethnic mothers and older mothers.

NICE (2005) cited a study by Britten and Proudfoot, which found that national policies that encouraged or required maternity facilities to adhere to the Baby Friendly Hospital Initiative accreditation increased national breastfeeding duration by 2.5 percent. This indicates the potential impact of incorporating clinical practice into policy development and implementation.

Information, education and communication

The provision of adequate information, education and communication can support people to make informed decisions about breastfeeding. The Blueprint states that expectant parents have the right to full and correct information about optimal infant feeding. Messages are especially important in countries where artificial feeding has been considered normal practice for several years or generations.

The importance of information, education and communication is recognised and reflected in the strategies of the United States and Northern Ireland. Both strategies provide for the dissemination of informative materials for the general population and for those working in the health care systems. In particular, Northern Ireland focuses on the raising of public awareness about breastfeeding. This includes the delivering information campaigns, support materials and community support mechanisms.

Training

Training health professionals on breastfeeding has been identified as a key action area in the strategies of Northern Ireland and the United States. The Northern Ireland strategy focuses on training doctors, midwives, health visitors, paediatric nurses, and dieticians. The United States National Agenda also proposes minimum competency-based standards of breastfeeding knowledge and skills for all maternal-child health care providers. Scotland's draft strategic plan on breastfeeding recommends ensuring core curricula for health professionals that include infant feeding information, particularly for frontline health staff, general medical doctors, and pharmacists.

Protection, promotion and support

The Blueprint identifies the promotion of breastfeeding as a priority. A number of jurisdictions have focused on protecting the right of women to breastfeed both in the legislative context (as discussed in section 3.2.2) and in a strategic policy context.

A key goal of the United States national agenda on breastfeeding is ensuring that breastfeeding is recognised as the normal and preferred method of feeding infants and young children. The Agenda focuses on supporting the seamless integration of breastfeeding women into the workplace, and the introduction of legislative and regulatory change to support its facilitation. It also identifies the development of a positive and desirable image of breastfeeding amongst the American people as a key priority, including the use of an age-appropriate national curriculum for the promotion of breastfeeding in public schools.

Other jurisdictions, including Scotland, have focused on supporting and promoting breastfeeding in public, with particular reference to the licensing and planning of public spaces. Scotland's approach also recommends promoting the use of breastfeeding in the national curricula in subjects such as English, modern studies, and general and domestic/environmental science.

Monitoring

The collection and monitoring of infant feeding statistics is an important part of strategies to protect, promote, and support breastfeeding. In the United States, for example, the routine collection and coordination of breastfeeding data by federal, local and state governments has been identified as an important objective in assuring access to lactation care and service for all women children and families. The Northern Ireland breastfeeding strategy also prioritises the introduction of standardised regional information on breastfeeding incidence and prevalence. In the United Kingdom, a five-yearly Infant Feeding Survey is conducted to identify feeding rates throughout the United Kingdom. This survey provides data on incidence, prevalence and duration of breastfeeding and examines emerging trends.

Indicators from the survey include:

- Breastfeeding rates (based on initiation, duration, and intensity/exclusivity);
- Practices within health and clinical sectors and the community; and
- Implementation of codes, legislation, and regulations (EU 2004b).

It should be noted that definitions of breastfeeding prevalence are not standardised and do not enable accurate comparisons across time periods and jurisdictions.

Research

A number of jurisdictions have developed a research agenda to inform breastfeeding practices. The Northern Ireland breastfeeding strategy proposes focusing further research into effective means of supporting and promoting breastfeeding with a particular focus on low uptake areas and social groups. The strategy also proposes research on reasons for early cessation and the reasons for provincial variation in breastfeeding uptake rates. The United States agenda on breastfeeding does not propose any research agenda to support breastfeeding. The use of targets determined by adequate surveillance of prevalence is recommended as a promising approach by NICE (2005).

Collaboration and co-ordination

The Innocenti Declaration states that governments should integrate breastfeeding into wider health and development policies (UNICEF 1990). In a policy context, breastfeeding should not be separated from other policy considerations relating to child and maternal health, social and economic disparity, and culture. Collaboration and coordination enable activities and

resources to be used with maximum effectiveness, minimal duplication, provision of multi-level channels of communication, and consistency of messages and activities to promote and support breastfeeding.

Collaboration and coordination includes the establishment of inter-sectoral partnerships. Inter-sectoral partnerships are a common and very valuable part of public health practice; however they can be a challenge to establish and administer. Fear and Barnett (2003) identified three key themes that are required for effective collaborative practice: motivation and leadership, management systems for strategic partnership and a commitment to implementing collaborative efforts. The authors noted that effective collaboration requires a high level of trust, and the need to balance commitments to the collaborative cause with the demands of their own organisations.

Collaboration and co-ordination can occur across a range of levels, including:

- Political and national-level collaboration: through the establishment of inter-sectoral bodies like the United States Breastfeeding Committee or the Northern Ireland Breastfeeding Strategy Group;
- Formal and informal relationships between key state agencies (including those not traditionally engaged in breastfeeding promotion, protection, and support): as provided by the United States' National Agenda which aims to ensure that law and policy-makers are aware of the importance of breastfeeding through the establishment of liaisons with legal associations and schools and the establishment of technical advisory groups;
- Government and industry partnerships to protect breastfeeding, as provided in Australia's interpretation of the International Code of Marketing of Breast-milk Substitutes;
- Community, employer, and non-government organisations that undertake actions to promote, protect, and support breastfeeding (e.g. La Leche League); and
- Health providers and other service providers such as the HPSS Boards and Trusts taking a leadership role in co-ordinating breastfeeding activities within geographic areas of Northern Ireland.

New Zealand gives effect to collaboration and coordination activities through the National Breastfeeding Advisory Committee.

3.4 New Zealand's policy environment

New Zealand's policy environment is guided by a number of strategic documents, including both national-level strategic documents, and technical, nutrition-focused resources.

The key strategic policy documents include:

Breastfeeding: A Guide to Action

This is a seven-point action plan for improving the initiation and maintenance of breastfeeding in New Zealand through:

- Establishing a national inter-sectoral breastfeeding committee;
- Implementing Baby Friendly Hospitals throughout New Zealand;
- Gaining active participation of Māori and Pacific whānau/family to improve breastfeeding promotion, advocacy and support;
- Establishing consistent breastfeeding reporting and statistics;
- Increasing breastfeeding promotion, advocacy and co-ordination;
- Ensuring that pregnant women can access pre-natal education; and
- Ensuring high quality and ongoing postpartum care (Ministry of Health 2002a).

Healthy Eating Healthy Action

This strategy focuses on the promotion of good nutrition and active lifestyles, and supports breastfeeding for infants up to six months of age. The plan also has the objective of promoting breastfeeding to New Zealand women and their families (Ministry of Health 2003).

The New Zealand Health Strategy

One of the 13 population health objectives of this national strategy is to improve nutrition, including infant nutrition. Breastfeeding is also likely to contribute to other objectives including reducing the incidence and impact of cancer, reducing obesity, and reducing the impact and incidence of diabetes (Ministry of Health 2000).

Māori Health Strategy - He Korowai Oranga

This strategy aims to support whānau to achieve the highest possible mental, physical, emotional, and spiritual health (King and Turia 2002).

Food and Nutrition Guidelines for Healthy Pregnant and Breastfeeding Women

This informational publication outlines the evidence related to the nutritional and activity requirements of breastfeeding and pregnant women (Ministry of Health 2006).

Breastfeeding can be influenced by other policy decisions, for example health service prioritisation and development for specific groups. Outside the health sector, breastfeeding may be influenced by policy development in wide range of areas, including employment, justice and corrections, social welfare and income support, immigration, housing, and education and training.

3.4.1 New Zealand and the International Code of Marketing of Breast Milk Substitutes

One explicit policy position concerning breastfeeding in New Zealand is this country's approach to the International Code of Marketing of Breast-milk Substitutes. In the past partial effect to the Code was given through two documents:

- Infant Feeding Guidelines for New Zealand Health Workers (Ministry of Health 1997) (effectively New Zealand's interpretation of the Code); and
- The voluntary industry code on the marketing of breast-milk substitutes: Code of Practice for the Marketing of Infant Formula (NZIFMA 1997).

New Zealand's interpretation of the Code and self regulation via the voluntary industry code was reviewed in 2004 (Ministry of Health). The review recommended 11 actions that could be undertaken to strengthen New Zealand's ability to increase breastfeeding. Key recommendations focus on the Ministry of Health's role in developing, reviewing, and promoting the Code:

- Progress the development of a single standard reference document to be used by all parties rather than the two codes;
- Revise the Food and Nutrition Guidelines and the complaints process to ensure effectiveness and appropriate representation;
- Increase awareness or publicise guidelines on best practice infant feeding, New Zealand's interpretation of the Code, and the complaints process for possible breaches of the Code;
- Investigate how health practitioners can better access information about infant formula; and
- Define some key terms more clearly (e.g. health practitioner, etc.).

A small number of cross-sector initiatives were identified as well, including working with the industry to develop guidelines on the marketing and distribution of follow-on formula for

inclusion in the Code interpretation, and a code of practice for the marketing of bottles, teats, and other associated products.

In response to the 2004 review the Ministry of Health has completed a single, standard reference document which includes the Code of Practice for Health Workers in New Zealand and the Code of Practice for the Marketing of Infant Formula (NZIFMA 2007). The Health Workers' code and NZIFMA Code of Practice are based on the International Code and subsequent relevant World Health Assembly resolutions. The Food Standards Code draws on the International Code to cover labelling, composition and quality matters. The Code for Advertising of Food endorses the NZIFMA Code of Practice as the appropriate industry code of ethics. The Health Workers' Code, NZIFMA Code of Practice and Code for Advertising of Food are voluntary and self-regulatory. The Food Standards Code is not voluntary, which means the people and organisations subject to this code are legally required to comply. The Ministry of Health is responsible for monitoring the implementation of the Health Workers' Code and the NZIFM Code of Practice through a complaints process. Compliance with the Code of Advertising of Food is monitored by the Advertising Standards Complaints Board and the New Zealand Food Safety Authority is responsible for administering and monitoring compliance with the Food Standards Code (Ministry of Health 2007b).

Discussion

In New Zealand and internationally, legislative and policy mechanisms are employed as tools to promote, protect and support breastfeeding; however it is important to note that the mechanisms and the relative success of their employment vary considerably. Variations depend on the legislative and policy frameworks and approaches used, on the needs of the population, and the place that breastfeeding has in society.

New Zealand occupies something of a middle ground among comparable countries. Although paid maternity leave is available, New Zealand is near the bottom in relation to the level of payments and the duration of paid parental leave when compared to most other developed nations. Protective legislative mechanisms are present in some areas (e.g. Corrections law); however breastfeeding is not explicitly protected under human rights legislation. The 2002 Guide to Action is the primary strategic document; however implementation has been variable and it has not been subject to evaluation and monitoring. The Guide is linked to other strategic initiatives, including *Healthy Eating Healthy Action*, which includes promotion and support of breastfeeding, albeit from a nutrition perspective.

The establishment of the NBAC and planned development of a National Plan of Action for Breastfeeding indicates a commitment to moving forward on breastfeeding in this country. There is a basis of international experience that may provide a useful guide. While there is little qualitative evidence of the effect of national strategies on breastfeeding duration, there are indications that where a national strategy or plan is evidence based, it is likely to be successful (EU 2004b; Hector et al 2004).

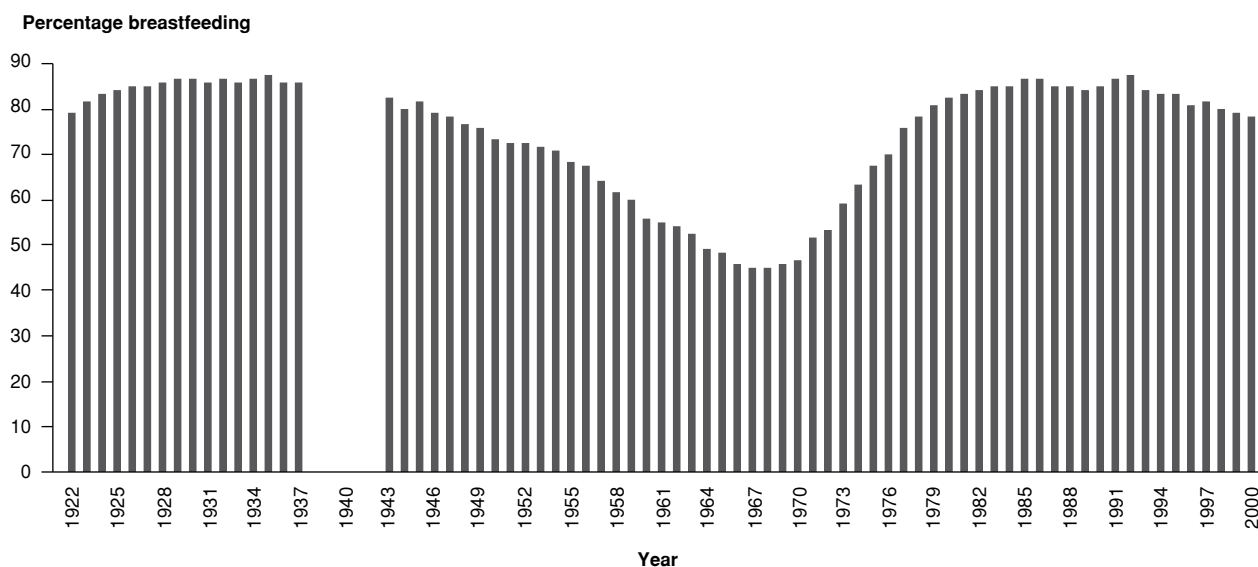
4.1 Breastfeeding and social change: patterns over time

Over the course of the twentieth century, breastfeeding moved from being a necessity, to an optional way of infant feeding. The variations in breastfeeding prevalence often mirror significant social changes in this country.

Before the turn of the 20th century, breastfeeding (including wet nursing) was effectively the only viable option for infant feeding. Early in last century, medicalisation moved the focus of childbirth from home to hospital, and signalled the start of a much more specialised, and institutionalised, approach to infants and mothers, including feeding practices. Care became much more regulated, as did advice to women about feeding. Plunket's early insistence on four-hourly feeding is one example (Ryan 1999).

Formula became more readily available over time, as did the advice (and advertising) to mothers that formula feeding was an easy, reliable and safe way to feed infants. Breastfeeding rates declined dramatically until the early 1970s, when a societal change saw a general challenge to establishment control, and in particular, the rise of a strong feminist movement that valued natural approaches and experience as opposed to medical professional control (McBride-Henry 2004). Rates of homebirth, though still very low, also rose significantly during this period (Ryan 1999).

Figure 2: Babies with 'any' breastfeeding when first seen by Plunket 1922-2001



Source: *Breastfeeding: A Guide to Action* (Ministry of Health 2002).

The rise in breastfeeding prevalence continued into the 1980s but declined slightly but significantly throughout the 1990s and has remained largely static since 2000. Figure one describes *any* breastfeeding at first Plunket visit (usually around six weeks of age). Other Plunket information indicates that the duration of breastfeeding has followed similar trends.

4.1.1 Employment patterns

Over the last fifty years, the proportion of women in the paid workforce has increased significantly, particularly between the early 1970s and the mid to late 1980s, a trend that has continued in recent times, though less dramatically. Women's career choices and/or economic pressure to continue or go back to work after having children may both have a significant influence on breastfeeding patterns. Studies in other jurisdictions suggest that maternal employment is negatively associated with both breastfeeding initiation and breastfeeding duration (Rondó and Souza 2005; Chatterji and Frick 2003).

Statistics New Zealand information shows that in 2001, approximately 60 percent of women were in paid work, compared with 77 percent of men. There is a marked decrease of women in paid work between the ages of 25 and 34, due primarily to childbirth and child care. Among women with children, 36.5 percent were in paid employment (part or full time) when their youngest child was under one. This increased markedly to 78.1 percent once the youngest child reached 13 to 17 years. Solo mothers with dependent children are much less likely to be in paid employment than women with partners.

Women with children are also more likely to be working in part time employment, although the majority of working women are in paid work between 35 and 45 hours a week. There has been a corresponding increase in the number of children attending pre-school child care.

4.1.2 Migration

Information from the census shows that migration is increasing ethnic diversity among women. In the 1996 census the majority of women identified themselves as European (83 percent down from 88 percent in 1971). The fastest growing group in this census was Asian women, making five percent of the female population in 1996 compared to one percent in 1971. Pacifica women made up approximately 2.8 percent of New Zealand's population in this study.

Other significant changes have occurred in other ethnic groups. South Korean and Taiwanese women are now an increasing part of women migrants to New Zealand. People identifying as Asian have the highest proportion of women in their population, at 54 percent, compared with Māori and Pacific communities (53 percent) and European (52 percent) (Sragg and Maitra 2005, cited in DeSouza 2006).

A recent study (DeSouza 2006) shows migration trends pose new challenges for providers of maternity services as the diversity of languages, cultural practices and the requirement for appropriate and accessible care increases (see *section 3.2.3*).

4.1.3 Fertility patterns: age and ethnicity

The number of children borne by women, and the age at which women have their children has changed significantly over time. In general terms, New Zealand women are tending to have their first children at an older age than previously, and are having fewer children.

Table 4: Births per 1,000 Women, by Age, 1966-1996

Age	1966	1976	1986	1996
15-19	64.6	49.8	30.2	33.3
20-24	219.9	152.1	105.1	81.2
25-29	208.5	151.9	143.7	119.4
30-34	112.0	68.9	85.7	105.3
35-39	56.5	22.9	24.1	44.7
40-44	17.3	6.1	4.0	8.0
45-49	1.4	0.5	0.3	0.4

Source: Statistics New Zealand, *Demographic Trends*

Figure 4 shows the average number of children born by ethnicity, demonstrating the differences in fertility patterns across different communities. Māori women have traditionally had a higher fertility rate than other population groups; however when fertility rates declined generally in the 1970s, the decline was sharper among Māori women than in other ethnic groups.

Table 5: Average Number of Children Born per Woman by Age Group and Ethnicity

Age Group (Years)	Ethnicity*				
	European	Māori	Pacific	Asian	Other
15-19	0.03	0.13	0.08	0.02	0.03
20-24	0.27	0.76	0.53	0.15	0.30
25-29	0.79	1.61	1.42	0.65	0.89
30-34	1.56	2.32	2.20	1.25	1.76
35-39	2.10	2.75	2.88	1.79	2.18
40-44	2.29	2.98	3.25	2.09	2.50
45-49	2.38	3.22	3.55	2.28	2.43
50-54	2.60	3.74	3.82	2.61	2.71
55-59	2.88	4.34	4.31	3.08	3.24
60-64	3.11	4.73	4.76	3.48	3.32
65 and over	2.79	4.62	4.89	3.62	3.33
Total	1.89	2.12	2.08	1.37	1.63

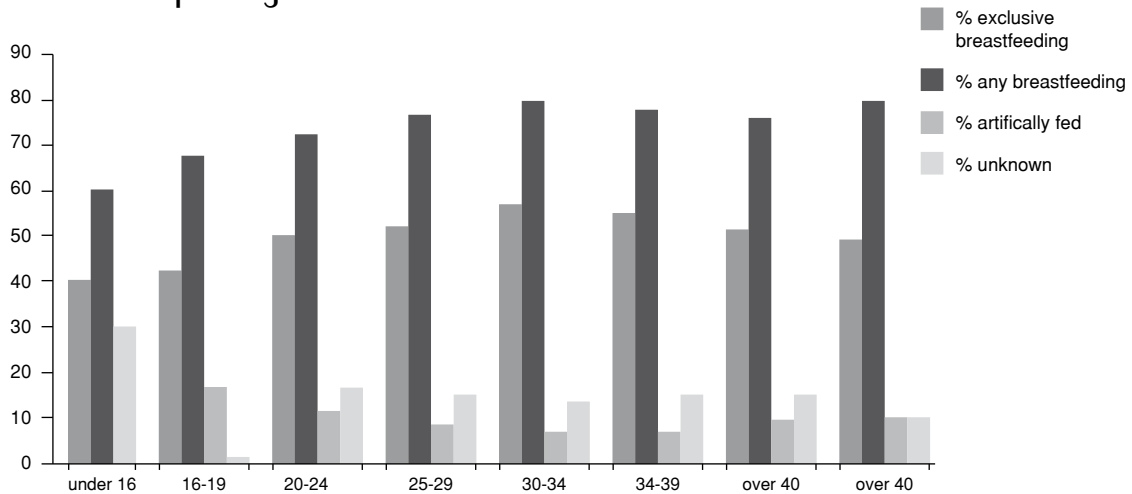
* People may have more than one ethnicity and may be counted in more than one category

Source: 1996 Census of Population and Dwellings

Evidence from other jurisdictions suggests that older women are more likely to breastfeed than younger women (Vogel et al 1999). Health Pac data from 2003 suggests this trend is also present in New Zealand, although these data should be viewed with caution¹⁴.

¹⁴ The Ministry of Health's *Report on Maternity 2006* (NZHIS) notes that: "these data should be interpreted with caution due to variations in the total number of breastfed babies. Some of these inaccuracies are caused by duplicate records and baby numbers." Readers should also note that these data represent one year and not trend information.

Figure 3: Percentage of babies breastfed at two weeks of age, by mother's age and feeding status: NZHIS data 2003



There are a number of factors that may contribute to this trend. Women with higher education achievement are more likely to breastfeed, as are women of higher socio-economic groups. These groups are also likely to represent a higher proportion of older mothers (McLeod et al 2002; Ministry of Health 2002a; Hörnell et al 2000). Studies in other developed countries have also found increases in maternal age and level of maternal education to be among factors that are associated with increases in breastfeeding (Jacknowititz 2007).

4.1.4 Other socio-economic and life-style factors

Information covered in *section 2.3* indicates that New Zealand mothers in low socio-economic areas have lower prevalence rates of exclusive breastfeeding. Various studies in other jurisdictions also indicate that breastfeeding initiation, exclusivity rates and duration are related to socio-economic factors (Ryan et al 2006, Yngve and Sjoström 2001, Ryan et al 2002, Al-frayh 1989, Anderson et al 2004, all cited in Anderson et al 2007; Hamlyn 2002 cited in Dyson 2005; Flacking et al 2007). As discussed in *1.3.3* a number of reviews have indicated that breastfeeding interventions targeted towards subgroups of disadvantaged women need to be further researched (Hector et al 2004, Renfrew et al 2007).

Evidence indicates that maternal smoking and obesity also have an effect on the initiation and duration of breastfeeding. A number of studies in other countries have found a consistent negative association between maternal smoking and breastfeeding initiation. Studies also indicate that mothers who smoke cigarettes are found to be more likely to wean prematurely than non-smokers (Jakobson et al 1996, Janke 1993, Scott & Binns 1999, all cited in Zareai 2007; Forster et al 2006; Amir and Donath 2002, Hogan 2001, both cited in Callander 2007). The relationship between smoking and breastfeeding is complicated by contextual factors as Forster et al point out that smoking itself is strongly associated with having no partner, having a lower income, being less educated, being depressed and being more likely to be exposed to violence. Hector et al (2004) have noted the need for further research in this area. Forster et al (2006) also found a negative association between breastfeeding duration outcomes and a high maternal body mass index.

4.2 Attitudes and perceptions to breastfeeding in New Zealand

An individual's attitude to and perception of breastfeeding are significantly influenced by cultural beliefs contexts. Understanding these contexts helps in the development of effective, relevant messages to promote and support breastfeeding exclusively for the first six months of life.

4.2.1 Positive attitudes toward breastfeeding

In general terms, attitudes to breastfeeding in New Zealand are positive. The Ministry of Health's 2003 maternity services consumer satisfaction survey found that 89 percent of women intend to breastfeed, and that 94 percent exclusively, fully or partially breastfed their babies in the four weeks after birth. Knowledge of the benefits of breastfeeding is high (McLeod et al 2002). Several studies cited in Basire et al (1997) indicate that maternal attitudes toward breastfeeding are a key predictor of breastfeeding behaviour. Cooke et al (2007) found that mothers with a strong belief about the importance of breastfeeding to their maternal role are more likely to breastfeed longer despite breastfeeding problems. This Australian study also found that women who do not associate maternal identity with breastfeeding are more likely to stop breastfeeding earlier and to stop for reasons other than breastfeeding problems.

Despite a positive general attitude toward breastfeeding, New Zealand women also report concerns with a lack of support to establish and continue breastfeeding and guilt about 'failing' to breastfeed, against a relatively high level of knowledge of the benefits of breastfeeding. Cultural and economic issues make for a complex set of attitudes, perceptions and behaviours concerning breastfeeding in this country.

4.2.2 Ambiguity about the female breast

There are reports that breastfeeding mothers can be made to feel uncomfortable or unwelcome when they breastfeed in a public place. This indicates that there are some attitudes that can restrict the ability of mothers to breastfeed comfortably in public.

One reason put forward for this perceived restrictive attitude is that breastfeeding in public is influenced by the perception of the female breast first and foremost as a sexual organ. Consequently women may be reluctant to breastfeed in public places for the fear of others' reactions, or attracting unwanted sexual or other negative attention (Dignam 1998). Bartlett (2005) explored this perception further and noted the ambiguities in viewing breasts as sexual (a cultural construct) and in their maternal role (a physiological mechanism for nurturing the infant). These ambiguities can create discomfort for the mother and other people. Cultural research also presents similar ambiguities. Ellison-Loschmann (1997) noted, for example, that first-time Māori mothers placed less emphasis on offending onlookers and more on the physical needs of their infants to feed and their personal right to breastfeed in a public place.

The sexual links to breasts can also reduce a woman's desire to breastfeed, as she may feel that the effects of breastfeeding will reduce her future attractiveness (McBride-Henry 2004; Ellison-Loschmann 1997). It is worth noting that in some instances women breastfeed partially to obtain better body image, such as temporarily having larger breasts or to help lose weight after pregnancy - often cited as a key benefit of breastfeeding (Ellison-Loschmann 1997).

4.2.3 Attitudes to breastfeeding for longer periods postpartum

While the WHO recommends breastfeeding into the second year of life and beyond, the age to which a child 'should' continue to breastfeed is culturally variable. Many New Zealand mothers indicate reluctance to breastfeed older children in public because of reactions they have had or heard about (Farquhar and Galtry 2003). McBride-Henry (2004) recorded that midwives asked about a woman breastfeeding for two years considered this practice to be deviant. McLeod et al (1998) found similar concerns, with people noting that once the infant is over twelve months old or is walking the mother is often pressured to cease breastfeeding.

In a small study concerning childcare centres and breastfeeding, Galtry and Farquhar (2003) found that while centres were supportive of breastfeeding younger children, attitudes appeared

to change when children were two years and over. One mother felt that while she would prefer to breastfeed her child (over two years of age) she felt that the teachers would not approve. A teacher also reported asking a mother to move after she began feeding her 4 year old in a room with other children, citing distraction and questions from other children. In addition the teacher stated that:

We felt this was the mother needing it and not the child. To me this was her comfort and it was not allowing the child to grow up. If a parent wanted to breastfeed a child of this age I would prefer that she does this at home I don't think it's appropriate to do it in front of other children, to have a great big kid latching on.

There are clearly mixed messages contained in people's attitudes to breastfeeding. On the one hand women report pressure to start breastfeeding, but on the other experience pressure to stop before the baby is too old (Basire et al 1997).

4.2.4 Attitudes towards women who do not breastfeed

Feelings of guilt and/or a sense of failure are reported on and discussed extensively in the literature (Barber 2004; Basire et al 1997, Newman 1995). There is discussion around the fact that those who make an informed choice to bottle feed do not feel guilty, rather it is those who try to breastfeed and don't succeed who feel guilty. Newman (1995) notes that formula companies' marketing strategies, and a lack of support and knowledge among health professionals, leads many to believe that formula feeding is a reasonable substitute for breast milk. He asserts that breastfeeding promotion needs to be coupled with "...good, knowledgeable and skilful support", to give mothers the best possible chance at successfully breastfeeding their children.

The issue of guilt in relation to breastfeeding is put into a wider social context by Galtry (2005), who notes that avoiding the topic of breastfeeding promotion, for fear of making mothers feel guilty or pressured, does not apply to promotion of other health promotion measures aimed at children (for example use of child restraints). Galtry emphasises the need to remove social, economic and political barriers to breastfeeding, and notes that the focus should always be on improving healthcare and social and economic conditions to make breastfeeding possible for all women.¹⁵

The literature indicates that guilt may occur when women are subject to social, economic and political barriers to breastfeeding, including difficulty accessing appropriate help. Guilt, and/or fear of being judged may also result in masking the real reasons why women discontinue breastfeeding, as the mother may be more likely to report experiencing circumstances or effects leading to reducing or stopping breastfeeding that are acceptable in their social and cultural context (McLeod et al 1998).

An Australian study (Cooke et al 2007) found that women with strong beliefs about the importance of breastfeeding as part of their maternal role, and who stop breastfeeding in the first three months after birth, are almost four times more likely to experience psychological distress. This suggests that some women who stop breastfeeding earlier may be in need of support.

Knowledgeable, accessible and relevant support is a critical factor in successfully establishing and maintaining breastfeeding. However, it appears that New Zealand mothers report concerns and difficulties with conflicting and inconsistent advice, and difficulties accessing help when they need it (DeSouza 2006; Barber 2004; Ministry of Health 2002c). The literature strongly suggests that a decision to continue to breastfeed is strongly influenced by the support a mother receives (Canadian Child Care Federation 2002, cited in Galtry and Farquhar 2003).

¹⁵ Judith Galtry, personal communication, January 2007.

4.2.5 Breastfeeding and feminism

There is a tension between feminism and breastfeeding. Crowley and Himmelweit (1992, cited in Galtry 1997) notes that feminism rejects roles determined by sex, while at the same time affirming a woman's right to choose her role(s), and to recognise and celebrate the differences between the sexes, including a woman's ability to breastfeed. In the labour market, Galtry notes that women do not necessarily have a choice around infant feeding, as legislation and workplace practices (particularly around paid leave) do not always support equality in the home or the workplace. Galtry notes that, in reality, only a small, privileged group of women in employment have the opportunity to breastfeed and maintain their working lives.

Shaw (2004) notes that there are mixed attitudes about whether feminism promotes or opposes breastfeeding, and the effect of economics on working mothers. This can lead to confusion for people about whether breastfeeding is a right or a confining role. Although there are differences within feminist schools of thought, typically feminism supports the opportunity to breastfeed, in the context of women having the freedom to make an informed choice.

4.3 Attitudes and perceptions of mothers

The primary attitudinal factors of women who breastfeed that positively encourage breastfeeding are:

- A decision to breastfeed prior to giving birth;
- A partner that supports breastfeeding;
- Self-confidence of the mother with regard to breastfeeding; and
- Feeling informed on issues that may arise and how to deal with them.

Enjoyment and continuation of breastfeeding is linked to positive self-esteem, accompanied by culturally sensitive positive reinforcement, especially within the first 12 months postpartum (McLeod et al 1998). Self-confidence is important both in terms of a woman's ability to breastfeed and to confidently address any lactation management issues. It is also a critical component in being comfortable to continue breastfeeding for longer than twelve months postpartum, currently an unusual practice in New Zealand (McBride-Henry 2004).

First-time mothers can lack the social and group networks of grandmothers and mothers of more than one child. Mothers of more than one child overall have more positive experiences of health services, better community links and connections to marae and iwi, and are more able to articulate their needs and wants (Ellison-Loschmann 1997). These social supports all contribute to the development of the self-confidence to breastfeed successfully.

It appears that younger women, especially teenage mothers, require additional support. Ellison-Loschmann (1998) noted that some young mothers were reluctant to attend pre-natal classes where they may be seen as 'just another teenage pregnancy', or fear the others will all be from different ages and backgrounds. This led to difficulties in getting or asking for help from health professionals to support breastfeeding.

Women's attitudes and practices around breastfeeding are also affected by external perceptions of their ability to breastfeed. Ryan (1999) notes that attitudes to women's bodies, often depicted as 'inadequate and unreliable,' have had a negative effect on breastfeeding. Women who 'fail' to breastfeed are blamed, rather than the focus being on the social changes needed to allow and support her to breastfeed successfully. Rondō and Souza (2005) found a negative association between mother's distress in relation to breastfeeding ("worried to breastfeed", "concerned about body's change") and intended breastfeeding duration.

Expectations of motherhood, breastfeeding and continuing participation in other aspects of life influence attitudes to breastfeeding. Ellison-Loschmann (1998) commented that the first time mothers they studied who breastfed were keen to explore other means of feeding in future, from expressing milk through to the use of formula, to increase their ability to do other things, such as going out and playing sport. An all or nothing approach to breastfeeding may reduce access to good quality information on how to bottle-feed and clean equipment, potentially increasing health risks for infants, including those being fed expressed breast milk in a bottle (Basire et al 1997). Women need good information on all types of feeding in order to make their own decisions, non-judgemental attitudes to infant feeding and consistent information on both how to breastfeed and how to bottle-feed.

4.3.1 Mothers' and families' perceptions and experiences of care and support for breastfeeding in New Zealand

As noted previously, the literature strongly suggests that access to appropriate professional support is important to encourage and support breastfeeding, particularly continuation of breastfeeding. A number of commentators (Newman 1997; Galtry 2005) link the often-reported feelings of guilt about not breastfeeding to the need for the best possible information and support to be available to aid informed choices about feeding, and to assist breastfeeding.

There is limited literature concerning women's experiences of support services in this country; however there are indications that some women feel that the support they received was a factor in the continuation and discontinuation of breastfeeding. McBride-Henry (2004) contends that unless attention is paid to women's experiences of breastfeeding as part of the policy-making process, breastfeeding rates will not change. Service development processes could also be included in this assertion.

The literature also reports that women are aware of the benefits of breastfeeding, and the majority intend to breastfeed; however, they are much less aware of the potential difficulties of breastfeeding and how to address them. McBride-Henry, for example, describes a 'silencing' of breastfeeding difficulties (Basire et al 1997; McBride-Henry 2004; DeSouza 2006; Callander 2007). Prior knowledge of potential problems may help mothers cope better and to continue breastfeeding (McLeod et al 1998, Gerrard 2000).

The Maternity Services Satisfaction Survey (Ministry of Health 2002) provides some information on mothers' perceptions of care and information received. (The survey covered 2909 women. Breastfeeding advice in hospital, including the consistency of this advice, was the area that received the lowest satisfaction rating. Although 77 percent of respondents were satisfied with their care, women connected low satisfaction with inadequate staffing levels in hospitals, and leaving hospital before breastfeeding was established. It should be noted that this study predates the 2003 requirement that maternity facilities have a timeline for the implementation of the Baby Friendly Hospital Initiative.

There are various support services available to help breastfeeding mothers in New Zealand, particularly La Leche League, which operates over fifty support groups throughout the country. Plunket also provides support through nurses and, where they operate, family centres. Access to specialist breastfeeding support services varies throughout New Zealand and different socioeconomic groups, with private lactation consultants being less available to low-income women and families.

This literature review did not find any information specifically related to how women identify and/or access breastfeeding support services in this country, the characteristics of the women who do and do not seek additional support, or the reasons for and impact of those decisions.

4.3.2 Attitudes and perceptions of health professionals

The role of health professionals in providing support, information on what to expect of breastfeeding and their body, and giving confidence in the mother's ability to breastfeed appears to be one of the important factors influencing breastfeeding. The literature reviewed indicates that where people do have the support of health professionals to breastfeed, and are provided with ongoing information and support to overcome issues such as sore nipples and milk production, they are more likely to begin and continue breastfeeding (see *section 4.5* for further information on this topic).

McLeod et al (1998) noted that many mothers who sought information on using bottles, expressing milk, making up infant formula, and supplementary feeding reported finding health professionals unhelpful. Negative experiences may influence the willingness of some mothers to seek help to re-establish breastfeeding or identify other feeding options. Attitudes of health professionals may also negatively impact on a mother's confidence in seeking discussion about other issues related to the care of her infant (Ellison-Loschmann 1997).

Ellison-Loschmann (1997) looked at the impact of culture on attitudes. She noted that the:

dominant power relations of the midwifery culture [acted] as an effective barrier to users of... health services when they have differed... from those providing the services.

In a small sample of young Māori mothers who had each been supported by the same Māori midwife, Ellison-Loschmann found that the midwife had been a positive role model whose support and personal experience based on similar background, trust and respect had been particularly useful for those mothers. For one of the mothers, some of the other health professionals had been hard to approach or unhelpful, which had made her less likely to talk to them when she was facing difficulties. Further analysis could be given to this power relationship and to existing mainstream services need to addressing cultural safety as well as seeking to meet information and support needs.

Where support is not culturally appropriate or people feel ignored or rejected by their health professionals, they appear to be less likely to seek information and assistance and to continue breastfeeding. The way information is delivered can also be important, as sometimes a concern expressed may create doubt, stress or fears, particularly for first-time mothers, which may make them more likely to give up breastfeeding (Beasley 1998).

4.3.3 The language of breastfeeding

The way breastfeeding is described, defined and discussed is the subject of an emerging debate on the effect of language (including key health promotion messages) on the way breastfeeding is perceived by women, families/whānau, communities and society as a whole.

Wiessinger (1996) and Berry and Gribble (2006) have both noted the importance of using breastfeeding as the norm, rather than using artificially-fed infants as the baseline. Examples given include the tendency to report that breastfed babies are healthier than artificially fed babies.¹⁶ The authors argue that this approach confirms that artificial feeding is normal and acceptable, even though breastfeeding is better. They contend that the 'breast is best' message does not make clear the fact that artificial feeding is worse for the health of mothers and babies.

The issue of language often involves discussions of guilt, particularly the perceived need to use language that does not engender guilt among mothers who artificially feed their babies.

¹⁶ The term 'artificially fed' is used to differentiate between babies who are bottle fed with expressed breast milk, and those who are bottle fed using formula.

Both Wiessinger and Newman (1998) contend that guilt arises not from informed decisions to artificially feed babies, but from mothers who tried and could not breastfeed, most often through a lack of support and expert help, and adequate information on the risks of artificial feeding.

4.4 Cultural diversity in New Zealand

4.4.1 Māori and breastfeeding

Māori women tend to have lower rates of breastfeeding than New Zealand Europeans (as discussed in *section 2.3*). The challenges faced by whānau are significant when looking at the barriers to breastfeeding, particularly when considering society of today compared to the historical context of the respect given to Māori women - *mana wahine* - accorded to those who give life to and nourish the next generation (McBride-Henry 2004).

Historical accounts suggest that before colonisation Māori infants were always breastfed (Papakura cited in Ellison Loschmann 1997, cited in Glover et al 2007). There is a widely held belief among Māori that a law was passed forbidding Māori to breastfeed, at least in public (Glover 2001 cited in Glover et al 2007). Although no such law exists the myth conveys the depth of censure Māori women used to experience when breastfeeding (Ellison Loschmann 1997, cited in Glover et al 2007). Breastfeeding as the norm for Māori has been modified because of long exposure to Western models of care (Abel et al 2001 cited in Glover et al 2007) to the extent that Māori women at three and six months after birth now have the lowest rates of exclusive breastfeeding in New Zealand (Ministry of Health 2007).

McBride-Henry (2004) identified a number of challenges experienced by Māori women in continuing breastfeeding, including:

- Ongoing effects of colonisation;
- Current socio-demographic trends; and
- Urbanisation of Māori which reduces access to traditional support structures.

The author noted that dramatic social and economic change, including urbanisation and a loss of cultural identity, have changed Māori women's roles in their communities, and have changed the way breastfeeding is perceived and carried out.

Much of the institutional support provided in New Zealand for breastfeeding mothers has been in a European context. While these services are open to Māori and other cultures they may not actively draw these women in (Ellison-Loschmann 1997). The recognition of different cultural norms, such as bed sharing (and its influence on breastfeeding), can help create mutual trust and understanding between service providers and mothers (Farquhar and Galtry 2003).

It is also notable that historically the provision of services may not have reached lower socio-economic neighbourhoods, which generally have had a high concentration of Māori (Ellison-Loschmann 1997). As a woman's own likelihood of breastfeeding can be influenced by the experiences and support of her family, this historical lack of services could result in inter-generational effects on the rate of breastfeeding. A number of new Māori providers have been established since 1999, and it will be interesting to track whether this increases the incidence of breastfeeding in these groups (Ministry of Health 2002a).

McBride-Henry (2004) noted that breast milk is seen as a gift to the infant in some Māori and Pacific traditions, and for some women of European descent, indicating an avenue of cultural support for breastfeeding that could be further explored.

Research on influences that affect Māori women breastfeeding by Dr Maria Glover, John Waldon and Harangi Manaena-Biddle (2007a) found the intent to breastfeed was strong among Māori women in the study. Some mothers said that breastfeeding is the norm and they and their whānau assumed that they would breastfeed. The study proposed that for Māori women breastfeeding is the tika (right) way to feed baby. However, artificial feeding or switching baby to artificial baby milk and solids early occurred as a result of the following diversionary influences:

1. Breakdown in the breastfeeding norm within the whānau;
2. Early interruptions to or difficulties establishing breastfeeding;
3. Negative or insufficient maternity support for breastfeeding;
4. Lack of knowledge about how breastfeeding changes over time leading to a perception of inadequate milk supply at three to four months; and
5. Having to return to work.

The researchers suggest that these findings represent potential points of intervention. The authors conclude that promotion of breastfeeding to Māori should focus on re-establishing breastfeeding as a tikanga (right cultural practice) rather than a perceived lifestyle choice.

A diverse range of women were interviewed in relation to this research, however, women who did not want to breastfeed and women who weaned their babies early were underrepresented and the authors suggest these women may need to be more directly recruited in future research.

A further article using information from this study (Glover et al 2007b) considered Māori women's decision making around breastfeeding within the context of whānau attitudes towards breastfeeding. The authors conclude that their research supports the assertion that whānau are central to this decision-making and that whānau could be mobilised to support healthy choices. They consider that further research is needed to investigate the fathers' experience of maternity services particularly in relation to identifying healthcare policies that negatively impact on the relationship between Māori women and their partners and undermine and minimise the father's role in pregnancy, birthing and infant care.

Glover et al (2007a, 2007b) note that their research reinforces the need for the Ministry of Health to implement their Breastfeeding: A Guide to Action goals, particularly goal three aimed at supporting the active participation of Māori whānau in the promotion, protection and support of breastfeeding.

4.4.2 Breastfeeding in Pacific communities in New Zealand

The Pacific population in New Zealand comprises people from Tonga, Samoa, Niue, Vanuatu, Fiji, Tokelau, Tuvalu, and the Cook Islands. While data mostly reflects Pacific people as a group, rather than by individual ethnicities, readers should note that the experiences, languages, traditions and structures of each of these communities are distinct. With regard to literature on breastfeeding, there is very limited information about each individual Pacific nation represented in New Zealand.

The prevalence of breastfeeding in Pacific communities in New Zealand is slightly higher than among Māori at three and six months after birth, but remains lower than that amongst the European New Zealand population.

The most wide-ranging study of the breastfeeding experiences of Pacific women in New Zealand was undertaken by Abel et al (cited in McBride-Henry 2004). The key findings from this study were drawn from 37 focus groups comprising women from Samoa, the Cook Islands, Niue and Tonga (as well as Māori and European women). The findings indicated that:

- Pacific women value breastfeeding and see it as the ideal for infants as it is healthy, cheap and convenient;
- Breastfeeding provides for the infant’s emotional needs;
- Pacific parents with good family support rely on mothers and mothers-in-law for advice and support on breastfeeding, rather than professional organisations;
- Participants reported that breastfeeding was difficult to establish due to pain, engorgement and cracked nipples;
- Complementary feeding (solid foods, formula) tends to be introduced early as there is a common perception that mothers do not have enough milk;
- There is tension between traditional beliefs and practices, and the westernised biomedical approach to breastfeeding.

Breastfeeding has been the cultural norm in Pacific cultures, although patterns of breastfeeding are changing in the Pacific Islands, and among Pacific communities in New Zealand (New Zealand and island-born). Increasing urbanisation and changes to societal and family structures have had a significant effect, particularly the critical role that mothers have traditionally played in supporting their daughters with knowledge and skills around breastfeeding. The traditional economic pressures of life in New Zealand can also mean that breastfeeding, with support from family members, needs to be juggled with employment (McBride-Henry 2004).

Some commentators (James 2003) have noted that Pacific women tend to prefer to breastfeed very discretely as many see exposure of the breast as unacceptable. Breastfeeding in public places may therefore be an uncomfortable experience for some Pacific women. Evidence suggests that in the South Pacific, particularly in rural areas it was natural for a mother to breastfeed her baby either in public or private places and it is considered that the reluctance to feed in public places in New Zealand is an adaptation of Pacific culture to the new environment (Fa’alau, 1997).

A further study of exclusive and any breastfeeding rates of Pacific infants in Auckland was undertaken by Schluter et al (2005). They used data collected as part of the Pacific Islands Families First Two Years of Life (PIF) study which followed a cohort of Pacific infants born at Middlemore Hospital between 15 March and 17 December 2000. Table 5 displays findings from this study which indicate that exclusive breastfeeding rates for Pacific infants resident in New Zealand have declined since the 1990s and fall short of the World Health Organization recommendations.

Table 6: Prevalence of exclusive and any breastfeeding by mothers participating in PIF study at hospital discharge, six weeks, three months and six months postpartum ¹⁷

	Hospital discharge (%)	Six weeks (%)	Three months (%)	Six months (%)
Exclusive	84 (CI 80-88)	49 (CI 43-55)	37 (CI 32-42)	9 (CI 7-11)
Any	96 (CI 94-97)	95 (CI 94-96)	31 (CI 28-34)	15 (CI 13-17)

Source: Schluter et al (2006) Data sourced from Pacific Islands Families First Two Years of Life study.

The authors found that there were significant ethnic differences with Samoan mothers having higher exclusive breastfeeding rates than Tongan mothers. There were also ethnic differences in the rate of any breastfeeding within the cohort. This information highlights the point that programmes need to take account of cultural differences within the Pacific community.

¹⁷ Confidence intervals presented in Table 5 are for 95 percent confidence.

The four most common reasons cited by mothers in this study for introducing complementary liquid foods into infants' diets were:

- Unsure about adequate milk supply from breast-feeding;
- Problems with breasts (cracked nipples, infections, etc.);
- Difficulties with breastfeeding due to return to work or study; and
- Baby refused to feed or had sucking difficulties with breast.

The authors point out that 50 percent of Pacific Island mothers in the study did not seek advice about breastfeeding concerns within the first six weeks of life. They also note that the barriers or perceived barriers to breastfeeding cited were largely unaltered from those cited in studies a decade ago.

4.4.3 Breastfeeding among new migrant communities

Ruth DeSouza (2006) conducted a study of forty new migrant women who had recently had babies in New Zealand from five ethnic groups: Chinese, Indian, Korean, European and Arab Muslim.

The key findings with regard to breastfeeding related to the women's experience of losing linkages to specific cultural practices and beliefs that are not supported or encouraged in New Zealand's system. Examples included the tension between the practice of rooming in (partly to encourage breastfeeding), and beliefs in some cultures that women need postpartum rest for emotional and physical wellbeing. The study participants identified pressure to breastfeed but a lack of consistent and/or culturally appropriate information was a significant problem. A lack of information about formula feeding was also highlighted by the participants, particularly those who were returning to work.

DeSouza cites one study (Groleau et al) that suggests that breastfeeding rates among migrant women are low because women lose the structures and rituals that support breastfeeding in their cultures. The same is true for traditional practices around the introduction of solid foods, many of which are not available in New Zealand, and the women may not themselves have the knowledge of traditional practices, knowledge that would normally be passed on by other family members.

Access to knowledgeable, culturally appropriate information and support appears to be critical to supporting migrant women in breastfeeding. It is interesting to note that many of the same issues (perceived milk insufficiency, inconsistent advice, and insufficient support) are cited by migrant women and New Zealand European women, although cultural context is very different.

In her paper DeSouza recommends:

- Development of support services for new migrants that are 'father friendly';
- Consideration of migrant mothers' information needs as part of service delivery planning;
- Support and information for migrant mothers in their own languages;
- Development of antenatal services to consider the needs of migrant women, i.e. cultural and linguistic needs;
- Workforce development to expand existing cultural safety and incorporate cultural competence;
- Improve staff knowledge of resources and services that can help them provide more effective support to migrant mothers.

DeSouza also recommends more research on the experiences of migrant women in New Zealand, including a specific recommendation for research to identify the factors that support breastfeeding in the absence of social support.

4.5 Clinical issues affecting breastfeeding

There are a number of clinical issues that can affect breastfeeding. These can include factors affecting the mother and/or the infant(s), and are varied in origin. More than one of these factors can affect a mother and her infant(s), for example, multiples who are premature, requiring consideration of both sets of issues for the one family.

4.5.1 Multiple births

In 2005, 914 sets of live twins and 10 sets of live triplets were born in New Zealand, making up approximately two percent of live births (Statistics New Zealand 2006). Multiple births are becoming slightly more common due primarily to women tending to be older when having children. Approximately 5 percent of multiple births are the result of fertility treatment.

A number of studies have shown that rates of exclusive breastfeeding and duration of any breastfeeding is significantly lower for multiples. A Japanese study of twins and higher order multiples found that the duration of any breastfeeding was significantly lower for multiples. Yokoyama et al (2004) found that the decision to bottle feed was significantly associated with a husband who did not cooperate in child-rearing, and higher levels of anxiety when informed of a multiple pregnancy.

Most reasons for stopping breastfeeding were the same for mothers of multiples as for singletons: concerns about milk supply; engorgement and/or sore nipples; and time constraints (Flidel-Rimon et al 2006). This author also noted that the intensity of breastfeeding twins was a major challenge for mothers, as was continual tiredness when feeding twins or higher order multiples can take up to two hours, every three to four hours.

The literature indicates that mothers normally have sufficient milk for at least twins (Geraghty et al 2004, Yokoyama et al 2004; Flidel-Rimon and Shinwell 2006).

While there is limited data regarding breastfeeding rates for multiple births in New Zealand, Butler et al (2004) found that, among Pacific women, twin infants were more than 11 times less likely to be breastfed exclusively at hospital discharge than single infants. This was the strongest predictor of non-exclusive breastfeeding.

Many multiples are also premature, introducing issues around establishing breastfeeding with low birth weight infants in a hospital environment (see below). New-born multiples often have health problems that result in physical separation from their mothers or that cause difficult sucking, both of which affect breastfeeding adversely. In addition there are technique problems with attempting to nurse multiples and the manoeuvres involved can be physically demanding on an already stressed and tired mother (Moore, 2007). Commentators suggest that having multiples exacerbates perceptions of insufficient milk, maternal discomfort following caesarean section (more common among multiple births), and the need for informed, consistent health professional information and support from families and the community, a need that could be intensified for mothers of multiples (Vohr et al 2006; Flidel-Rimon and Shinwell 2006 and 2002; Geraghty et al 2004; Damato et al 2005).

Families with twins or higher order multiples have some different information and support needs than those with single infants. Key advisors, including family and peers, and health professionals, may not have specific experience to support breastfeeding of multiples (Flidel-Rimon and Shinwell 2006).

While it is recognised that mothers of twins or multiples need continuing assistance for months after delivery this assistance may decline as infants get older and people return to routine activities. As lack of the necessary time and other responsibilities such as caring for siblings have been

identified as among the reasons for cessation of breastfeeding, health professionals should be proactive in working with parents of multiples in stressing the need for ongoing reliable support (Damato et al 2005).

4.5.2 Low or very low birth weight and/or premature infants

There is evidence that breast milk has a beneficial effect on the health outcomes of low birth weight infants (below 2500 grams), and very low birth weight infants (below 1500 grams), however rates of breastfeeding (or receipt of breast milk by infants that cannot be fed at the breast) is low (Vohr et al 2006; Spatz D 2006; Pridham et al 2004; Sisk et al 2006).

There is evidence that mothers of premature infants are more likely to not establish an adequate milk supply, compared to mothers of term single infants fed at the breast (Hill et al 2005; Cregan et al 2002). Further information on interventions or practices relating to the breastfeeding of low birth weight and/or premature infants is provided in 5.4.4.

4.5.3 Breastfeeding infants with specific needs

Cleft lip and/or palate can significantly impact a baby's ability to latch and feed effectively without breast milk being lost through the cleft. Breastfeeding is important for babies with cleft defects as it can help encourage normal development of facial muscles, and protect against upper respiratory tract infections to which these babies are particularly prone (Danner 1992). Plates and other devices are available to aid breastfeeding, as are specifically-designed bottles and teats to allow babies to receive breast milk if they are unable to breastfeed.

Babies with Down Syndrome may be difficult to breastfeed due to low muscle tone and a weak suck. They are generally sleepier, making it more difficult to maintain active feeding. They are also significantly less likely to be breastfed (Pisacane et al, 2003). Mothers may need support and education on positioning the baby effectively, keeping the baby alert, and avoiding choking and gulping. Breast milk is particularly beneficial to babies with Down Syndrome as they are more prone to respiratory infections and bowel problems¹⁸. Infants with Down Syndrome are also more likely to be unwell due to cardiac or other problems related to their congenital condition. Breastfeeding a sick and/or premature baby in a neonatal unit requires support similar to those for other vulnerable infants: expert advice and support; information and education specific to the needs of the baby and family.

Cerebral palsy and other neurological conditions can also affect breastfeeding due to problems with sucking and swallowing; infants with cerebral palsy are significantly more likely to have these problems (Motion et al 2002). Cerebral palsy can be a result of prematurity, meaning that for some parents it is an additional consideration when providing breast milk to a premature infant.

The common theme in the literature concerning infants with conditions like those listed above, is that mothers need advice and help specific to the infant's needs, and that the provision of breast milk should be emphasised, as well as breastfeeding. The role of skin to skin contact ("kangaroo care") is highly recommended, providing close physical contact to both stimulate milk production, but also to promote the infant's and mother's emotional wellbeing and to encourage bonding.

¹⁸ Information sourced from <http://www.lalecheleague.org/FAQ/down.html>

4.5.4 Breast surgery, breast injury and breastfeeding

The literature suggests that breast injury or surgery can affect a woman's ability to breastfeed. West (2005) notes that the type of surgery and the surgical method used can result in different outcomes: breast augmentation, reduction and reconstruction are the most commonly discussed surgeries in the literature. Most women can breastfeed to some extent (if not exclusively) after surgery. The degree to which this is possible depends on:

- The degree of damage to nerves (nipple numbness can hinder let-down)
- The degree of damage to ducts
- Length of time between surgery and pregnancy - a longer time is associated with better results
- The method of breast reduction, particularly whether the nipples and areolas are completely severed or not
- Whether implants are placed above or below the muscle (below is preferable).
- Whether one or both breasts were operated on: women who have had one breast operated on are usually able to breastfeed on the other breast.

West notes that over time, the nerves and ducts can reinnervate and recanalise. Breastfeeding is often more successful with each subsequent baby due to these factors, and the experience a mother gains. West also notes the importance of ongoing support for the mother who is breastfeeding after breast surgery, as she may believe she cannot breastfeed, and/or need to have realistic and well-supported expectations of breastfeeding, depending on the surgery she had.

There is very limited literature concerning breast injury and breastfeeding; however it appears reasonable to assume that many of the issues surrounding breast surgery and breastfeeding also apply to breast injury.

4.5.5 Postpartum depression

Postpartum depression is common in New Zealand, affecting between 20 and 30 percent of women in the first three months after birth¹⁹. Postpartum depression has been associated with lower breastfeeding rates, though the literature is limited. Pippins et al (2006) found that depressive symptoms before or during pregnancy had no effect on breastfeeding initiation; however women with persistent depressive symptoms were significantly more likely to breastfeed for a month or less. This finding agrees with other studies cited in the paper.

The authors suggest that women with persistent depressive symptoms might lack the resources to initiate and continue breastfeeding, but give no further indication of the reasons for lower breastfeeding rates. It should be noted that the study's findings are limited by the fact it took place in an area with high overall initiation and duration, and used a broad definition of initiation and breastfeeding.

There is anecdotal evidence that some mental health services advise mothers with depression not to breastfeed, based on an assumption that breastfeeding increases stress to the mother, and does not allow her enough time away from her baby.

Some studies indicate that breastfeeding may be associated with lower perceived stress and negative mood reports (Mezzacappa and Katlin 2002; Groer 2005). Previous studies cited in Jones (2005) have indicated that mother's depression can have a negative impact on social and

¹⁹ Three studies cited by the Mental Health Foundation of New Zealand, accessed at www.mentalhealth.org.nz/page.php?185

psychological development, while others cited in the same paper indicated that the breastfeeding relationship supports emotional wellbeing in mothers and babies through increased touch and general interaction, illustrating how the benefits of breastfeeding may extend beyond actual feeding. Jones' work concluded that breastfeeding can protect infants from the effects of a mother's depression, and importantly noted that proactive support should be available for all breastfeeding mothers, particularly those with depressive symptoms.

Forster et al (2006) found an association between self-reported depression or anxiety in the six months after the baby is born and shorter duration of breastfeeding. A further study in 2006 (Breese McCoy et al) evaluated women at four weeks post natal and found that women who breastfed had a significantly lower occurrence of postpartum depression than those who formula fed. These findings support the findings of a number of earlier studies cited by the authors. The relationship between postpartum depression and breastfeeding is complex. Some studies suggest that breastfeeding may provide some protection against postpartum depression. Others indicate that postpartum depression may contribute to the early cessation of breastfeeding. In one retrospective study 83 percent of patients claimed that the symptoms of PPD began before the cessation of breastfeeding (Misri et al 1997 cited in Breese McCoy et al 2006.) Hatton et al (2007) consider that one explanation for women with depressive symptoms terminating breastfeeding early may be that postpartum depression interferes with milk production or let down. Links between maternal stress and impaired lactogenesis are supported by a large body of evidence and the presence of stressful life events in addition to predisposing to postpartum depression could have a negative effect on lactation. Postnatal depression is clearly a barrier to breastfeeding for many women suffering from it.

4.5.6 Maternal HIV Infection

The WHO has published a review of available evidence on HIV transmission through breastfeeding (WHO 2004). The evidence shows that wherever possible, HIV-positive mothers should not breastfeed their babies, as the risk of infection ranges from 20 to 45 percent, an increase of between 5 and 20 percent over babies who are not breastfed. In 2006 a range of researchers and experts including representatives from the interagency task team on the prevention of HIV infections in pregnant women, mothers and their infants, and representatives from United Nations agencies and the WHO gathered to review the substantial body of new evidence and experience regarding HIV and infant feeding that had been accumulating since 2000. New evidence on HIV transmission through breastfeeding included:

- Exclusive breastfeeding for up to six months was associated with a three to four fold decreased risk of transmission of HIV compared to non-exclusive breastfeeding.
- Low maternal CD4+ count high viral load in breast milk and plasma, maternal seroconversion during breastfeeding and breastfeeding duration were confirmed as important risk factors for postnatal HIV transmission and child mortality.
- There are indications that maternal HAART for treatment-eligible women may reduce postnatal HIV transmission; follow-up trial data on the safety and efficacy of this approach, and on infant prophylaxis trials, are awaited (WHO 2006b).

The WHO acknowledges the benefits of breastfeeding, and recognises that women need to seek a balance between those benefits and the risks of transmitting HIV. Where breastfeeding is the option chosen (or the only one available), the recommendations include wet nursing by an HIV-negative woman; expressing and then heat treating breast milk, or using breast milk banks where available. Exclusive breastfeeding for up to six months and continued breastfeeding with additional complementary foods is recommended until a nutritionally adequate diet without breast milk can be provided where replacement feeding is not acceptable, feasible, affordable, sustainable and safe.

When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected women is recommended. In Western nations, where safer options exist (i.e. clean water for formula), the WHO's advice in relation to HIV-infected women is not to breastfeed.

4.5.7 Other clinical barriers

There are a number of other clinical conditions and practices that may potentially impact on breastfeeding initiation and duration. This section considers information on a range of factors associated with labour and birth and the use of fertility treatments in relation to breastfeeding. Further information on other contraindications to breastfeeding is also provided.

- *Factors associated with labour and birth*

A review on breastfeeding initiation and birth setting practices in 2007 (Della et al) found evidence that indicated that practices that occur during labour and birth care may affect breastfeeding initiation. Studies suggest that it is important that providers ensure that as far as possible, intrapartum care is provided in a manner that minimises stress for the woman as a stressful birth experience has been associated with poorer breastfeeding outcomes (Dewey et al 2003 cited in Della et al 2007) and delayed onset of lactation (Sievers et al 2003; Grajeda et al 2002; both cited in Della 2007).

There is evidence that the use of some analgesics during labour may affect breastfeeding initiation, however, Della et al found there had been few adequately-powered prospective studies exploring the effect of intrapartum analgesia on breastfeeding. Some analgesics such as opiates cross the placenta and are also found in colostrum, and so may potentially affect breastfeeding initiation (Jordan et al 2005 cited in Della 2007). Della et al suggest that clinicians could consider avoiding the use of intramuscular opiate analgesia if they believe that the end of first-stage labour is approaching and that women should be informed of the possible effects of an intramuscular opiate on their infants' breastfeeding responses. However, these suggestions have come from their review of smaller studies conducted in the 1990s.

In regard to the effects of epidural analgesia on breastfeeding initiation the evidence is inconclusive. Leiberman and O'Donoghue (2002 cited in Della 2007) completed a systematic review on the unintended effects of epidural analgesia and concluded there was insufficient good quality data to make any sound conclusions regarding the effect of epidural analgesia on breastfeeding initiation. This review found some evidence that women who have a general anaesthetic for caesarean section have lower rates of breastfeeding initiation. There is a need for further research and for intrapartum care providers to be aware of current and further research in this area.

The review by Della et al (2007) also found some evidence that caesarean section has been associated with decreased duration of breastfeeding, suboptimal breastfeeding behaviour on the day of birth, delayed onset of lactation and lower exclusive breastfeeding rates at discharge. However they also found other studies that found no association between birth type and breastfeeding outcome. Some evidence also suggested the possibility that postpartum haemorrhage may result in a delay in lactogenesis. Other factors associated with poorer breastfeeding outcomes include a prolonged or very short second stage of labour and instrumental vaginal delivery.

Some procedures during labour or birth that are required to optimise the health of the mother or baby, such as a clinically indicated caesarean section, may not be able to be changed. It is important to identify women that have increased risk factors to breastfeeding through events or procedures during their labour and birth so that they can receive extra breastfeeding support.

- *Fertility treatment and breastfeeding*

Anecdotal evidence suggests a link between fertility treatment and lower breastfeeding rates. Literature exists to show that women undergoing fertility treatment may be advised to wean an older child to reduce exposure to the drugs involved in treatment, but we could find no information relating to lower breastfeeding rates among women who have undergone IVF or other assisted fertility techniques.

- *Other contraindications to breastfeeding*

The Centers for Disease Control (CDC)²⁰ advise that women should avoid breastfeeding if they:

- Have an infant diagnosed with galactosemia, a rare genetic metabolic disorder;
- Have been infected with the human immunodeficiency virus (HIV);
- Are taking antiretroviral medications;
- Have untreated, active tuberculosis;
- Are infected with human T-cell lymphotropic virus type I or type II;
- Are using or is dependent upon an illicit drug;
- Are taking prescribed cancer chemotherapy agents, such as antimetabolites that interfere with DNA replication and cell division; and/or
- Are undergoing radiation therapies; however, such nuclear medicine therapies require only a temporary interruption in breastfeeding.

The American Academy of Pediatrics (2005) adds herpes simplex of the breast to the list of contraindications for breastfeeding on the affected breast.

There are some pharmaceuticals that are contraindicated for breastfeeding mothers, including some epilepsy treatments and anti-depressants. In these cases, case-by-case analysis is needed to determine if there are any other treatment options, and to achieve the right balance between breastfeeding and maternal health.

²⁰ Accessed at <http://www.cdc.gov/breastfeeding/disease/contraindicators.htm>

Section 5:

Literature review of known evidence for interventions

A number of rigorous meta-analyses and systematic reviews of interventions to promote, support, and protect breastfeeding were conducted prior to 2005 (NICE 2005; EU 2004b; Hector et al 2004; Guise et al 2003). These tend to report on the same range of studies. While there are some methodological limitations of the studies informing these analyses, there is a generally high level of consistency in the findings, and the reviews have been conducted with rigour. Some of these limitations are due to the nature of the topic, which does not easily lend itself to rigorous effectiveness or internal validity analysis. General limitations found in the general body of available literature are discussed in *part 1* of this report. Specific limitations that impact on the findings of a study presented in this part are discussed in the context of the findings and an assessment of overall validity presented. Some more recent systematic reviews and meta-analyses (Britton et al 2007; Della et al 2007; Dyson et al 2005;) have drawn on data from studies completed over the last few years. At times this information has been combined with information from earlier studies.

The NICE (2005) systematic review focused on evidence related to interventions designed to improve the duration of breastfeeding. This is the same topic covered in this part of the National Breastfeeding Advisory Committee's literature review. Given the rigour and topic similarity, the authors of this literature review have included the Executive Summary of the NICE systematic review in *Appendix 4* to this report. The full report is available at <http://www.publichealth.nice.org.uk/page.aspx?o=511622>. Further information on studies included in the review is included in additional appendixes to the review.

The following areas are discussed in this section:

- 5.1 Legislative and policy interventions
- 5.2 Ante-natal education and support
- 5.3 Health professional training
- 5.4 Birth and postpartum hospital and clinical practices
- 5.5 Postpartum education and support
- 5.6 Community support
- 5.7 Workplace support

Readers should note that New Zealand's maternity care system differs from those overseas, for example it includes more home visits than are offered by other jurisdictions. Some findings, therefore, recommend support for services already offered and/or contracted for in New Zealand.

5.1 Legislative and policy interventions

The legislative interventions and policy interventions are described in sections 3.2, 3.3 and 3.4 of this report. As noted, there is very little evidence of the impact of these types of initiatives, independent of other activities designed to promote and support breastfeeding. In summary, the interventions discussed in section 3 are:

Legislative interventions

Provide legislative protection including:

- Adequate paid leave for all women for a minimum duration of 14 weeks;
- Paid breastfeeding breaks during the working day;
- Ensuring that a child's right to be breastfed is upheld and that women are not discriminated against for breastfeeding;
- Ensuring that the International Code of Marketing of Breast-milk Substitutes is adequately supported in statute and regulation;
- Investigating other innovative and imaginative mechanisms that may protect breastfeeding.

Policy and national strategic initiatives

That:

- Commit to and/or acknowledge international strategies and policies;
- Ensure that exclusive breastfeeding is recognised as the normal and preferred method of infant feeding to six months of age, and continuing breastfeeding beyond the introduction of solid foods;
- Establish a national structure including responsible agencies, national advisory bodies, and multi-lateral commitment across government and non-government sectors;
- Take a comprehensive approach to protecting, promoting and supporting breastfeeding including reviewing policy and regulatory frameworks, undertaking appropriate education and information for mothers, families and communities, collaborating between healthcare providers and support groups, providing training, education and support for health professionals and policy-makers, and emphasising the provision of information and support for working mothers and employers to protect breastfeeding in the workforce;
- Design attitudinal change programmes to make breastfeeding in public a supported and positive norm;
- Prioritise key areas for action and related recommendations and set targets against stated goals and objectives;
- Require maternity facilities to adhere to the Baby Friendly Hospital Initiative; and
- Require a comprehensive evaluation and monitoring framework.

5.2 Ante-natal education and support

Benn (1998) notes that breastfeeding is a learned experience requiring knowledge and education in order to be successful and that it may or may not come naturally to the mother and infant. Information on how to breastfeed may be needed to help mothers to learn breastfeeding skills. Benn also outlines the principles of adult learning that are likely to be applicable to breastfeeding education: active participation, positive reinforcement, readiness to learn, repetition, and environmental factors that affect learning.

Many of the interventions discussed in the literature focus on pre-natal education about breastfeeding as a separate intervention rather than the breastfeeding education included in standard pre-natal care (EU 2004b). Focusing on breastfeeding in any form of pre-natal education is appropriate, particularly given that most mothers make decisions about infant feeding prior to the birth of the infant (Hector et al (2004)). Ante-natal breastfeeding education is likely to increase breastfeeding duration as it gives expectant mothers the skills required to have confidence in their ability to breastfeed. Evidence suggests that non-attendance at childbirth education classes is associated with shorter duration of breastfeeding (Forster et al 2006).

There are many different forms of pre-natal education. This literature review looks at three of the most common forms: short lesson-based courses, multi-faceted pre-natal and postpartum education and support, and the use of written materials.

5.2.1 Short lessons

Short structured courses, single classes, or one-to-one education interventions designed to increase rates of breastfeeding initiation or duration can be delivered either ante natally, peri-partum, or postpartum, and can be delivered in a range of settings by a variety of providers, including lactation counsellors. The intended audience for these courses focuses mostly on mothers but some evaluated courses were designed to assist partners, fathers, and grandmothers to support the breastfeeding mother to breastfeed for a longer duration. A wide range of such courses exist, and cover many topics including feeding positions, identification and management of breastfeeding issues, and techniques for prolonging breastfeeding on return to work.

5.2.2 Impact of counselling on initiation and duration of breastfeeding

Results from a meta analysis by Dyson et al (2005) support the effectiveness of health education interventions in increasing initiation of breastfeeding. They completed a meta analysis of five small studies which evaluated programmes delivered in the USA to low-income women. Programme components varied but the results indicated that the interventions were effective overall (RR 1.53, 95 percent CI 1.25 to 1.88) and all forms of health education included in the review appeared to increase breastfeeding rates.

Guise et al (2003) systematically reviewed the randomised trial evidence for the effectiveness of all counselling interventions to increase the rate of initiation or the duration of breastfeeding where that education originated in a clinician's practice (such as pre-natal and postpartum support groups, education, telephone support or peer counsellors). They found that interventions consisting of pre-natal structured breastfeeding education were effective at improving both initiation and continuation of breastfeeding during the first two months postpartum, compared with usual care. Guise et al found that education could improve duration in the shorter term (up to three months) but that it did not make a difference over 6 months. The review also found that educational interventions consisting of individual or group instruction about breastfeeding knowledge, practical skills and problem-solving techniques, were effective when provided by lactation specialists or nurses. The most effective interventions used brief, directive health education combined with skills learning and problem solving for lactation management. The practical component is consistent with adult learning principles.

NICE (2005) and Guise et al (2003) noted that the length of the course impacted on duration of breastfeeding, especially if the course was a one-off lesson rather than a more comprehensive learning package. Explanations for the more limited effectiveness of the short course includes that the single educational session is unimportant compared to other factors that influence breastfeeding (e.g. psychosocial, clinical, or in-hospital practice); or limitations in study design (e.g. the Hawthorne effect is present in Labarere et al's 2003 study).

NICE (2005) and Guise et al (2003) also noted that although education is delivered both in small groups and individually, there appeared to be no difference in duration. This is further supported by Forster et al (2004) and Labarere et al (2003). Most studies are delivered by health professionals of some description, although one course was delivered by a peer educator (Wolfberg et al 2004). No conclusions about the choice of trainer are drawn in these studies.

Results from a systematic review by Britton et al (2007) indicated there was evidence of a marked reduction in the cessation of exclusive breastfeeding within the first three months when lay support was used. The reviewers found that professional support, lay support and combinations of lay and professional support did not differ significantly in their effect on the continuance of any breastfeeding, although there was a tendency for combined professional and lay support to be more effective. For continuance of exclusive breastfeeding, lay support and combinations of lay and professional support were more effective than professional support alone. The authors suggest the use of caution in interpreting the results as some of the studies were not comprehensive, there was a diversity of supporting interventions involved and there was widely different timing of study end-points.

One of the difficulties with the evidence on pre-natal education about breastfeeding is that typically, the control group used in research continues to receive information about breastfeeding. This may cloud the actual impact that some of the reported studies have. For example, Forster et al (2004) found limited evidence of a positive impact on duration between intervention class and control group; however, the control group received standard care which included elements of breastfeeding education including access to lactation consultants, standard pre-natal classes, and formal breastfeeding education classes. In reality, the information transmitted to both controls and participants did not vary significantly.

5.2.3 Timing

There is some debate within the literature regarding the most effective timing of interventions. Labarere et al (2005) found that interventions delivered postpartum were not effective, possibly because of the expectant mother decides early on in her pregnancy what her feeding intentions are. This may be because once the infant is born, the mother moves from theoretical contemplation of breastfeeding to breastfeeding practice. Arora et al (2000) found that the decision to breastfeed or bottle-feed was most often made before pregnancy or during the first trimester.

As noted in 4.3.1 some studies (Basire et al 1997; McBride-Henry 2004; DeSouza 2006; Callander 2007) have indicated that mothers have inaccurate expectations about breastfeeding as they believed it would be an innate skill and were surprised when they encountered difficulties such as engorgement, painful latching, cracked nipples and blocked milk ducts. This suggests that women may need information prior to breastfeeding initiation so that they are more prepared to face some form or level of difficulty and less likely to give up on breastfeeding at that point.

However, findings from a randomised controlled trial in Singapore (Su et al 2007) indicated that antenatal breastfeeding education and postnatal lactation support both significantly improved the rates of exclusive breastfeeding up to six months after delivery compared with routine care in a tertiary hospital setting. Su et al found that while both strategies were effective, postnatal support was marginally more effective than antenatal education in improving breastfeeding practice.

A systematic review by Britton et al (2007) found that the effect on breastfeeding duration in those studies offering postnatal support alone (as measured at the last study assessment before six months), did achieve statistical significance, whereas the effect found in studies of interventions containing an antenatal element was not significant. However, effect estimates were similar and the difference between the effect of interventions containing an antenatal element and the effect

of interventions offering postnatal support alone was not statistically significant. The limitations of this review have already been discussed.

5.2.4 Impact of different groups

Hector et al (2004) cited a study that found that women not intending to breastfeed had better initiation results when interventions were delivered one on one, whereas the initiation rates of women intending to breastfeed were not affected. This finding was also reflected by NICE (2005), which concluded that ante-natal education care had limited impact on higher income women or women who had already decided to breastfeed (or not).

NICE (2005) cited a study by Brent et al (1995) which concluded that ante-natal education had a differential effect for low income women compared to women with higher incomes. This study also noted that tailoring the ante-natal education received to the mother recipient resulted in improved rates of initiation, with 61 percent of the intervention group receiving tailored education initiated breastfeeding in hospital compared to 32 percent in the control ($p=0.002$). Thus tailoring ante-natal education could be a promising mechanism to ensure that women get the information that they require in order to support them to initiate breastfeeding.

As noted in *section 2.4*, the father's attitude plays an important role in supporting a woman's decision to breastfeed. Wolfberg et al (2004) tested the effectiveness of a two-hour educational intervention designed to assist fathers to advocate for the mother to breastfeed. This study found that it was effective for advocating for initiation (74 percent versus 41 percent); however, no statistically significant results were recorded for duration. The internal validity of this study was weak and negatively affected by self-selection bias and very high rates of attrition. Interestingly though, the authors noted a critical success factor affecting the father's participation: mothers whose partners attended the breastfeeding classes were significantly more likely to initiate breastfeeding, although there was no effect on duration.

A systematic review of the nature of support for breastfeeding adolescent women found that participants in the included studies seemed to find the emotional, esteem and network components of support most helpful (Moran et al 2007). The participants' mothers seemed to have a particularly strong influence and in fact support from mothers was more commonly identified than support from partners. The authors considered that some studies indicated that if the adolescent did not have access to her mother the provision of continuity of support from an expert individual who is skilled in both lactation support and working with adolescents may seem to be a good alternative for the input of mothers. Further evidence suggested that targeted breastfeeding educational programmes specifically designed for the adolescent learner may be successful in improving breastfeeding initiation. The variation in the design, quality and focus of the papers included in the review limited the value of the combined data arising from them.

5.2.5 Written materials

NICE (2005) completed a review of three studies and found that written materials, including self-help manuals, when used on their own did not significantly influence the duration of breastfeeding rates regardless of when or to whom the material was given. Limitations on the evidence presented related to the internal validity of two studies, particularly regarding the selection of study participants and the limited controlling for possible confounding factors such as intention to breastfeed. Guise et al (2003) also found that written materials, when used alone, have limited effectiveness, and went further to conclude that no harm has been demonstrated from the use of these materials.

Ingram and Johnson (2004) delivered a leaflet based intervention specifically designed to help the people supporting the breastfeeding mother to choose to initiate breastfeeding, including advice on managing any issues that may arise during breastfeeding. This intervention was delivered by a midwife who spent 30 minutes discussing the material contained in the leaflet. Ingram and Johnston (2004) found that mothers in the intervention group were more likely to initiate breastfeeding and to be breastfeeding at eight weeks postpartum compared to background breastfeeding rates (38 percent of the intervention group breastfed at eight weeks compared to 19 percent in the control group). It is likely that the midwife's involvement in talking to the breastfeeding mother had some impact on the success of the leaflet, although this is not discussed by the authors.

Discussion

It appears to be important to provide initial information to support a decision to breastfeed, and supplement this with practical support once the infant is born. It is likely that different approaches and materials are required to effectively support different groups of mothers. Practical postpartum support is discussed in section 4.4 of this report.

The EU (2004b) notes that successful ante-natal breastfeeding programmes had a small number of components in common: consistency in advice and support delivered; personal support from knowledgeable individual, well-designed information, and more intensive one-on-one interventions for women not intending to breastfeed. The notion that ante-natal educative initiatives should focus more closely on women not intending to breastfeed is supported by NICE (2005).

There is also some evidence indicating that the education delivered as a single class is not effective in increasing initiation and duration. This may be due to the fact that it does not provide access to sustained levels of information about feeding choices.

The findings of the literature review are quite clear that written materials, when used in isolation, are ineffective in increasing breastfeeding duration; however, when used in conjunction with other teaching methods (e.g. face-to-face discussions), written materials can play an important role in supporting verbal discussions and advice.

5.3 Health professional training

Mothers cite health professionals' advice as one of the critical factors influencing feeding decisions (WHO 2003). There is strong evidence to suggest that the provision of consistent information to the mother from her health provider positively impacts on breastfeeding initiation and duration (Dennis 2002 cited in Hector et al 2004; Taveras et al 2003). Health professionals' attitudes to, and knowledge of, breastfeeding is a critical component in ensuring that mothers and families receive accurate and consistent advice about breastfeeding management (see discussion in *section 4.4*). Health professionals need to have access to accurate information and counselling and communication skills to ensure that they can provide information about breastfeeding to mothers and families in a clear manner. In order to deliver this information, health providers, such as midwives, nurses, and general practitioners, need to be provided with sufficient training (United States Breastfeeding Committee 2001).

Training in lactation management, breastfeeding counselling, and other practices to support breastfeeding can occur either at the undergraduate level or, more commonly, as part of in-service training or continued professional development. The benefits of such education are improved confidence in health workers, providing opportunities for generating and sharing knowledge, and improving the availability of educational resources (Benn 1998).

This section looks at evidence related to both pre-service training and in-service training. While the importance of training is not disputed, there is a limited amount of evidence available on the effectiveness or quality of breastfeeding training, particularly related to pre-service training.

5.3.1 Pre-service/under-graduate training

The literature review returned no studies on the association between pre-service or undergraduate training in breastfeeding and its effectiveness in extending breastfeeding duration; instead much of the literature focuses on describing the paucity or inadequacy of available training. Cattaneo et al (2005) noted that only five countries in the European Union (mostly former Eastern Bloc nations) have certified pre-service training courses; however no comment on the quality of these courses is made, nor is there any comment on the impact of the education provided. As such, this section draws on the only New Zealand-based paper returned even though it falls outside the inclusion dates.

Benn (1998) noted that nursing or midwifery papers focused on both physiological and psycho-social issues, whereas medical papers focused mostly on breastfeeding as a physiological process. Thus, in New Zealand, the medical training undertaken by undergraduate doctors, and other specialists, may not properly prepare them for addressing the psycho-social aspects of breastfeeding. Interestingly, Benn (1998) notes that those undertaking papers specifically dedicated to breastfeeding management were more confident in their knowledge compared to those who completed papers where breastfeeding was integrated (although no statistical analysis was provided). Unfortunately, Benn did not distinguish between the professional roles that course participants were studying toward.

Education does not exist in a vacuum, and Benn (1998) found that when undergraduate course participants entered clinical practice they did not always see what they had been taught in the classroom being practised in actual clinical settings. This lack of integration of training with clinical practice was identified as a problem.

The Infant Feeding Guidelines (Ministry of Health 1997) set out some guidelines for initial training including recommendations that curricula be aligned with the International Code of Marketing of Breast-milk Substitutes. These guidelines, which were in place prior to Benn's study, focus on both the psycho-social elements of breastfeeding and the physiological elements. The guidelines include:

- Health workers' responsibilities under the International Code;
- Operational targets of Innocenti Declaration;
- A statement on breastfeeding and the role of maternity services;
- Lactation management;
- Guidelines on how to assist women who are using formula;
- Applying the Treaty of Waitangi;
- Awareness of cultural differences.

5.3.2 In-service training

Evidence on the effectiveness of in-service training for breastfeeding management and counselling is more readily available, although there is still a very limited amount of information available. Most countries in Europe offer some form of in-service training for health professionals regarding breastfeeding, although coverage is not evenly distributed among the health professions. Cattaneo et al (2005), for example, noted that in-service education coverage is higher for nurses and midwives than for doctors.

The WHO and UNICEF place a strong emphasis on breastfeeding education for health professionals. The second of the ten steps to successful breastfeeding, established to support the Baby Friendly Hospital Initiative, is to 'train all health care staff in skills necessary to implement this policy'. More specifically, the National Health Service (NHS 2004) in the UK recommends that every health professional working with mothers and infants be trained in the following areas: advantages of breastfeeding and the risks of not breastfeeding, how to achieve correct positioning and latching technique, hand expressing, how to address common breastfeeding problems, active listening skills and different teaching strategies. Importantly, the NHS also recommends that health professionals be trained in working with mothers from a range of cultures, given the critical role culture plays in breastfeeding. This range of recommended training components includes both a theoretical and clinical training opportunity, and should be a part of continued professional development. This builds on similar kinds of material as covered in the WHO/UNICEF courses.

A number of studies indicate that participation in a WHO/UNICEF course results in improved practices for health professionals' and in breastfeeding rates. This includes the 18-hour breastfeeding course delivered as part of the Baby Friendly Hospital Initiative, and a longer 40-hour clinical course. A randomised controlled trial of the 40 hour course was conducted in Brazil and found that participants in this course had better and more sustained knowledge of breastfeeding at three months, but that clinical and lactation management required additional learning time (WHO 2003). Further evidence from the EU Project indicated that WHO/UNICEF courses on breastfeeding management improved knowledge scores of health professionals about breastfeeding management and appropriate hospital practices (EU 2004b). These courses were modular, delivered during service, and followed the Baby Friendly Hospital Initiative training requirements.

Findings from a community based cluster-randomised trial in Denmark (Kronburg et al 2007) indicated that health visitors could change their practice after participating in an 18 hour course inspired by the WHO course. This was part of an intervention that resulted in increased duration of exclusive breastfeeding by mothers who participated. A controlled, nonrandomised study in Italy completed by Cattaneo et al (2001 cited in Della et al 2007) demonstrated a significant increase in breastfeeding at 6 months postpartum where women attended hospitals in which health workers had undergone the UNICEF 18 hour course in breastfeeding management and promotion in a baby friendly hospital. A Brazilian study (Bechara Coutinho et al 2005 cited in Della, 2007) found that educating maternity staff via this course resulted in an increase in the rate of exclusive breastfeeding in hospital (70 percent). However, this was not sustained (30 percent by postpartum day 10). The results in Brazil were possibly related to the very short length of postnatal stay and suggest that relying on BFHI strategies alone is unlikely to be effective in increasing breastfeeding duration.

Meta analysis by Britton et al (2007) of six trials using either the 18- or 40-hour WHO UNICEF breastfeeding training courses showed significant benefit in prolonging breastfeeding (RR 0.69, 95 percent CI 0.52 to 0.91). Although the trials were statistically heterogeneous ($I^2 = 97.9$ percent) the authors consider that the findings indicate that there is evidence that the WHO/UNICEF training courses appear to be an effective model for professional training.

Downie et al (2002) conducted research on a nursing education programme involving 12 two-hour sessions on lactation management (through the Lactation Adviser Program). Study participants were clinically experienced and included midwives and child health nurses. The programme focused on improving knowledge and attitudes to breastfeeding to support the promotion of breastfeeding among their clients. Trial results found that undertaking the course increased knowledge of lactation management and that this increase in knowledge was sustained at six months. Participants' confidence was significantly higher six months later. Participants also developed more positive attitudes to breastfeeding but this was not consistent across all

of the timeframes. The study suggests that continued professional development (e.g. through annual education) is also critical. No association between course participation and increased breastfeeding duration of clients was sought.

Iran began promoting breastfeeding in the 1980s and provided workplace based training to over 30,000 health professionals each year between 1991 and 1996. These factors have been associated with a leap in the exclusive breastfeeding rate in Iran from 10-53 percent (UNICEF 2006 cited in Zareai et al 2007).

The Infant Feeding Guidelines (Ministry of Health 1997) set out some guidelines for in-service training or continued professional development for New Zealand Health Professionals. This included being up to date with breastfeeding knowledge and infant feeding in general, supporting women to make positive breastfeeding choices pre-natally, weaning, and how to encourage participation. These guidelines are more practically focused and physiological than pre-service training.

Taveras et al (2004) looked at the relationship between the attitudes and practices of obstetric and paediatric clinicians and exclusive breastfeeding in Boston. They found that mothers who did not continue exclusively breastfeeding were more likely to have had a healthcare provider recommend using formula supplementation (OR: 2.3; 95 percent CI 1.1-5.0) and to have had problems with latching and/or suckling (OR 3.8; 95 percent CI 1.5-9.7). Mothers whose clinician did not consider breastfeeding duration advice to be very important were more likely to discontinue exclusive breastfeeding by 12 weeks (OR 2.2; 95 percent CI 1.2-3.9). This study supports findings by DiGirolamo et al (2003 cited in Della et al 2007) which also indicate that staff attitudes to infant feeding may influence women. They reported that if hospital staff expressed no preference for type of infant feeding or if they favoured formula, women were less likely to be breastfeeding at 6 weeks.

Clinicians involved in the study reported limited time to provide advice and support as a very important barrier to promoting breastfeeding. In addition, many reported lacking confidence in their ability to resolve problems related to milk supply (55 percent of obstetric providers) and problems with pain and/or cracked, painful nipples (67 percent of paediatric providers). The authors conclude that there is a need for structured education programmes to promote breastfeeding in obstetric and paediatric practices, and also a need for resources (including time) to improve clinicians' confidence and knowledge.

Discussion

Providing training for health professionals in breastfeeding and lactation management is critical given the influential role that health professionals have in supporting and promoting breastfeeding as a feeding choice to women. The provision of skills and knowledge and adequate training for health professionals enables them to provide consistent and clear advice to mothers on breastfeeding. NICE (2005) also noted that there is strong evidence for the effectiveness of the positive impact that trained and skilled health professionals have on increasing initiation and duration.

While the need for good ongoing training of all health professionals who work with mothers and babies is clear, evidence about what is effective is inconclusive given the limited evidence currently available. A key finding is that research around the assessment of breastfeeding knowledge and support skills needs to be more rigorous. For training to be effective it needs to link to clinical practice, and to include an understanding of both psycho-social and physiological factors. The studies available also suggest that training for health professionals needs to be done in conjunction with increased resources in terms of time and other support provided. A number of studies indicate that the WHO/UNICEF training courses appear to be an effective model for professional in-service training.

5.4 Birth and postpartum practices

Studies discussed in this section indicate that clinical practices in the first few hours after birth can have a profound effect in supporting breastfeeding initiation and duration. The interventions discussed here are:

- The Baby Friendly Hospital Initiative;
- Other clinical practices that support initiation; and
- Well-child postpartum clinical care.

5.4.1 Baby Friendly Hospital Initiative

A Baby Friendly Hospital is a health care facility providing care for women and/or children that adopts practices that fully protect, promote and support exclusive breastfeeding from birth. At the same time, infant-friendly facilities ensure that women who do not choose to breastfeed also receive superior maternity care, with full unbiased information, a choice free of commercial pressures, and early continuous contact that promotes good bonding.

The WHO's review of the Baby Friendly Hospital Initiative provides strong evidence for the effectiveness of this intervention, including that the Initiative increased knowledge of mothers and health workers, and the rates of breastfeeding initiation and duration. Infants born in participating hospitals were more likely to be exclusively breastfed to six months postpartum and to be receiving breast milk at aged 12 months.

The Baby Friendly Hospital Initiative is based on the WHO's Ten Steps to Successful Breastfeeding. Each of these steps is evidence-based and proven to be effective in making a difference in rates of either initiation and/or duration. Under these steps, the Baby Friendly Hospital should:

1. Have a written breastfeeding policy that is routinely communicated to staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers to initiate breastfeeding within one half-hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants of breastfeeding mothers no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in and allow mothers and infants to remain together at all times.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or dummies to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital.

The 10 steps are based on robust evidence about interventions that encourage increased initiation of breastfeeding (e.g. as described in NICE 2005). Particularly strong evidence exists for the following components:

- Training all health care staff in skills necessary to implement this policy;
- Giving newborn infants of breastfeeding mothers no food or drink other than breast milk, unless medically indicated;
- Encouraging breastfeeding on demand and allowing unrestricted access;
- Supporting skin-to-skin contact ("kangaroo care") with its associated increased maternal milk supply, longer duration of breastfeeding, and protection from infection (Blaymoer-

Bier et al 1996 and Kleinman and Walker 1999 cited in UNICEF 2005; Hector et al 2004 cited Anderson et al 2003; Della et al 2007);

- Enabling early initiation as soon as the mother and infant are ready; and
- Giving no artificial teats or dummies to breastfeeding infants.

A review of literature on breastfeeding initiation and birth setting practices in 2007 (Della et al) found evidence that hospital practices significantly contributed to breastfeeding outcomes. They found a number of studies that reported positive breastfeeding outcomes for women who give birth in BFHI accredited hospitals, or where a number of the Ten Steps are in place. A Scottish study found that babies born in BFHI-accredited hospitals were 28 percent more likely to be exclusively breastfed at seven days postpartum (Broadfoot et al 2005 cited in Della et al 2007). A further cluster randomised study in Belarus indicated that hospitals that received an intervention modelled on BFHI demonstrated an increase in the duration and exclusivity of breastfeeding as well as a decreased incidence of gastrointestinal disease and atopic eczema during the first year of life (Kramer et al 2001 cited in Della 2007). The results of a large cross-sectional Swiss study (Merten et al 2005 cited in Della et al 2007) indicated that children born in a Baby Friendly hospital were more likely to be breastfed for longer, particularly in settings where BFHI compliance was high. A longitudinal study on infant feeding practices carried out by DiGirolamo et al (2001 cited in Della 2007) found a positive relationship between the number of BFHI steps in place and breastfeeding outcomes. Women experiencing fewer BFHI practices were more likely to cease breastfeeding by six weeks, with a dose-related response relationship, which suggests that the cumulative effect of the practices, as opposed to each individual practice is important. Della et al examined studies relating to the individual steps and generally found that the studies supported the implementation of the BFHI Ten Steps.

Gau (2004) conducted a study of Taiwanese clinical practice in hospitals to see if changes in hospital and clinical policy made a difference in breastfeeding rates at two months postpartum. (Measures included the 10 steps of the Baby Friendly Hospital Initiative.) Gau found that at three years, breastfeeding knowledge and attitudes were not significantly different between the intervention and control groups but that both had increased over time. A greater percentage of the intervention group were exclusively breastfeeding at two months postpartum than the control group (6 to 12 percent versus 0-5 percent). Recently, Taiwan has had very low rates of exclusive breastfeeding so this is an encouraging sign despite the rates being very low compared to New Zealand. Gau's study supports Scottish work by Britten and Proudfoot (cited in NICE 2005) which found that national increase in breastfeeding followed the implementation of, and adherence, to the Baby Friendly Hospital Initiative.

A systematic review found that breastfeeding initiation is increased in hospitals which have a written policy (Fairbanks et al 2000 cited in Della 2007). The Academy of Breastfeeding Medicine Protocol Committee has developed a model written policy for hospitals wanting to create or update their breastfeeding policies.²¹ This policy is based on the UNICEF/WHO evidence based Ten Steps to Successful Breastfeeding and on recent recommendations from policy statements published by other organisations (mainly US based).

Philipp et al (2003) undertook a study to determine whether Baby Friendly accreditation resulted in sustained higher initiation rates over three years or whether initial accreditation led to a burst of improvement followed by decline or static initiation rates. They found comparable initiation rates across the three years of the study with initiation remaining high at around 87 percent (for any breast milk); however, rates for exclusive breastfeeding declined across the years by almost

²¹. This is available online (accessed 21 January 2008): http://www.bfmed.org/ace-files/protocol/mhpolicy_ABM.pdf

nine percent. These results did not reach statistical significance, nor did the authors discuss why exclusive rates declined during the three year period.

In 2002 a descriptive cross-sectional study was undertaken to reassess all the BFHs certified in Brazil until the year 2000 (Araújo and Schmitz 2007). The results indicated that adherence to the BFHI 10 steps was considered high for all steps in the BFHs assessed in Brazil and 82 percent of the BFHs were fully sanctioned in all 10 steps. However, 18 percent of hospitals presented low compliance with individual steps, especially steps 2 and 3, followed by steps 4, 5 and 10. Although the results reflected overall good performance the authors considered that the continuous maintenance of all 10 steps by the BFHs is of fundamental importance to increase breastfeeding rates, one of the objectives of the BFHI. The authors considered the study supported the need for a system to continuously monitor the BFHI-Certified institutions as has been proposed by Merten and Ackermann-Liebrich (2004 cited in Araújo and Schmitz 2007). It was considered that a continuous monitoring system would strengthen the initiative and improve BFH.

5.4.2 The Baby Friendly Hospital Initiative in New Zealand

The WHO recommends that nations give consideration to implementing the Baby Friendly Hospital Initiative in all maternity facilities (UNICEF 1990). New Zealand has piloted the Baby Friendly Hospital Initiative to give women access to supportive, pro-breastfeeding environments. All maternity facilities had to be BFHI accredited by December 2005. By March 2006, 34 of New Zealand's 83 maternity facilities had been accredited and this increased to 56 by March 2007 (Callander 2007). The average exclusive breastfeeding rate at discharge from New Zealand Baby Friendly Hospital accredited facilities is 82 percent, well above the 75 percent Ministry of Health's target (New Zealand Breastfeeding Authority 2006). Unfortunately, it is not clear whether this differs from the background population initiation prevalence rate given the limited initiation data available for New Zealand.

There are also some issues in New Zealand regarding the implementation of the Baby Friendly Hospital Initiative policies (Moore unpublished). These focus on difficulties finalising policies, communicating the policies, and turning the policies into demonstrable gains in the prevalence of exclusive breastfeeding at discharge. Mostly, these issues are complicated by the fact that tertiary level hospital facilities tend to care for mother infant pairs who are sick, and who therefore face additional barriers to initiation and duration (e.g. circumstances external to the programme).

5.4.3 Other clinical practices that support initiation and duration

There is some debate in the literature regarding the timing of the first attempt to breastfeed. The Baby Friendly Hospital Initiative recommends that attachment be attempted within 30 minutes of birth. UNICEF recommends within one hour. The EU (2004b) reviewed the optimal time for breastfeeding initiation and found that there was no difference in breastfeeding rates between early initiation and initiation that occurred four to six hours after birth. This literature concludes that no critical period for the initiation exists, but that initiation should begin as soon as possible/desired by the mother and infant and that no barriers impede this (as recommended by NICE 2005).

A further study (Komara et al 2007) looked at ways of overcoming barriers to early initiation of breastfeeding such as timing of initiation of breastfeeding being left to the individual nurses discretion or to the paediatrician attending the birth; new parents not always being made aware of the advantages of initiating breastfeeding in the first hour of life; and the separation of mother and infant for procedures such as the vitamin K injection. A new protocol was developed to remove barriers and assist nurses in facilitating the early initiation of breastfeeding within the first hour of birth and nurses were given in-service education that stressed the benefits of early

breastfeeding and skin to skin contact. These measures increased the early initiation rate for breastfeeding from 20 percent to 66 percent. Although the study had some limitations, including a small sample size of 100, it suggests that changes in a labour delivery room setting to encourage early initiation of breastfeeding can result in positive outcomes. Rowe-Murray and Fisher (2002 cited in Komara et al 2007) also found that appropriate hospital practices enable early initiation of breastfeeding and result in supporting baby friendly hospital initiatives. In Iran which has high breastfeeding initiation and exclusive breastfeeding rates at three and six months, considerable attention is given to early initiation of breastfeeding and mother-infant skin to skin contact (Zareai et al 2007). Further research is needed to determine the effectiveness of various practices in encouraging the early initiation of breastfeeding.

Colson (2003) reviewed the impact that biological nurturing had on breastfeeding outcomes. This study focused on preterm infants or small for gestational age infants but included healthy weight infants too. A range of biological nurturing activities were considered including: allowing the infant to sleep in the parent's arms, mouthing, licking, smelling, nuzzling, and nesting at the breast, latching onto the breast and active breastfeeding (e.g. unrestricted access to the breast and as much skin to skin contact as desired). This was an exploratory study only and thus gives a promising approach rather than conclusive evidence of effectiveness or efficacy.

Galtry and Callister (2005) note that there is no evidence linking expressing breast milk, when a mother cannot directly feed her infant, with extended duration of exclusive breastfeeding. This literature review also returned no evidence on the association (if any) between these two variables.

A submission to the Doctors in Training Workforce Roundtable from the New Zealand La Leche League in 2005 outlined a number of actions that doctors could take to support breastfeeding when planning and initiating treatment or care including:

- Choosing medications which are compatible with breastfeeding;
- Choosing treatment and timing of treatment to minimise impact on the breastfeeding relationship;
- Helping a mother to initiate and maintain lactation in the event of unavoidable separation of the mother and baby or where a treatment that is compatible with breastfeeding is not available;
- Acting in a way that encourages and empowers the mother to continue breastfeeding;
- Developing contacts with other health professionals and lay/volunteer counsellors knowledgeable about breastfeeding management to enhance personal knowledge and skills or in difficult case to refer mothers to for expert help.

5.4.4 Practices supporting breastfeeding in low birth-weight infants

Studies indicate that lactation counselling, interventions to promote and maintain supply, and techniques such as kangaroo care (skin-to-skin contact), effective support for expressing milk, and a well-managed transition from tube feeding to breastfeeding (where applicable) are critical to establishing and maintaining breastfeeding for premature and/or low birth weight infants (Spatz 2006). Spatz also commented on the need for realistic approaches to feeding very vulnerable infants, focusing for example on providing breast milk rather than breastfeeding.

Merewood et al (2006) found that peer counselling can significantly increase the proportion of babies in neonatal intensive care receiving *any* breast milk (breastfed or expressed) at 12 weeks of age. This study was, however, limited by a high loss to follow-up. It was conducted in a Baby Friendly Hospital which the authors feel may have influenced the positive outcome of the study. Trained peer counsellors were provided with support from lactation consultants and supervisors.

A further study (Sisk et al 2006) found that lactation counselling for mothers of very low birth weight infants, including those mothers who intended to formula feed, was effective in increasing lactation initiation. The study also found that lactation counselling did not increase anxiety, regardless of the mothers' original feeding plan: breastfeeding or formula feeding. The authors suggested that their findings indicated that the majority of mothers who intend to formula feed will initiate milk expression and provide breast milk for the health of their very low birth weight infants when given appropriate assistance.

The transition to oral feeding for some infants requiring intensive care can be a difficult one. Shaker and Werner (2007) have highlighted a number of measures that they consider will improve outcomes in overcoming these difficulties in a hospital setting including having protocols in place, ensuring there is timely support from appropriate experts, having a well-integrated team, supporting development, incorporating contingent care-giving, and greater decision-making by the bedside nurse. Further research is needed to assess the impact of these practices.

A recent systematic review considered cup feeding versus other forms of supplemental enteral feeding for newborn infants unable to fully breastfeed. Although infants who were cup fed demonstrated marginal improvement in breastfeeding, the review found that cup feeding conferred no benefit in maintaining breastfeeding beyond hospital discharge and may result in the infant staying longer in hospital (Flint et al 2007).

A prospective population based cohort study in two Swedish counties found that prematurity, size at birth and neonatal disorders did not show an effect on breastfeeding duration (Flacking et al 2007). Reasons that may have contributed to this result were noted to be the rare use of bottle-feeding in the transitional phase, the early initiation of breastfeeding and the pro-breastfeeding culture in Swedish neonatal care. It was also considered that the supportive legislation provided by the Swedish welfare system for long parental leave and for financial support to stay home when the infant is sick may also be beneficial for the initiation and extended duration of breastfeeding.

5.4.5 Primary care and Well-Child services

The transition between maternity care and postpartum primary care, or Well-Child services, should be seamless in order to ensure that care is provided in the most efficient and effective manner. This is likely to help a mother settle her baby and to discuss any lactation management with her health care provider.

Labarere et al (2005) undertook a study to determine whether attending an early postpartum visit could improve breastfeeding outcomes. The intervention was additional postpartum support following discharge and consisting of one visit to an outpatient clinic within two weeks of birth. Mothers in the control group received normal support which is comprehensive and included a number of well-child visits and telephone support. The intervention group had higher exclusive breastfeeding rates at four weeks postpartum: 83.0 percent compared to 71.9 percent for the control group. The hazard ratio is more telling (HR=1.17; 95 percent CI 1.1-1.34). This may be due to the fact that the control group had good access to postpartum primary care as well. Labarere et al's findings are supported by a number of other studies including Taveras et al (2003), who found that mothers provided with breastfeeding support delivered by a clinician during a normal visit were half as likely to discontinue exclusive breastfeeding at 12 weeks (OR=0.56; 95 percent CI not provided).

On the other hand, NICE (2005) found evidence contradictory to that presented by Labarere et al (2005) and Taveras et al (2003). It reviewed an Australian study in which new mothers in the intervention group were provided with one postpartum visit to their general practitioner at one week postpartum. The control women received standard care (e.g. a nurse home visit within the

first few days post-discharge and one general practitioner visit at six weeks postpartum). The authors found that full breastfeeding rates at three months were higher for the standard care group compared to the intervention group (51 percent versus 46 percent). This led to the conclusion that a single visit has limited impact on duration, possibly because the support provided in such a visit is not sustained over time.

Discussion

Clinical practices can support the successful initiation of breastfeeding. This helps to form a routine between the mother and infant and improves duration. Supportive clinical practices are also critical given the very influential role that health professionals play in helping a woman to determine her feeding preferences and practices, and assisting her to achieve these. If the clinical care does not support breastfeeding, it can provide inconsistent guidance to mothers and confuse choice.

The Ten Steps to Successful Breastfeeding are well-supported as activities that are effective in increasing breastfeeding initiation, and therefore duration. There is a small amount of debate about some of the parameters, in particular the timing of the first breastfeed postpartum (although the debate accepts that early timing is important). NICE (2005) cites strong evidence of the harmful effect that restricting access to the breast can have on initiation and duration, as this restriction limits the learning opportunities for both mother and infant.

The impact of the Baby Friendly Hospital Initiative in New Zealand remains inconclusive and additional research could support the clarification of any association between the implementation of the Initiative and changes in breastfeeding initiation and duration.

A number of studies have been completed considering the effect of a range of clinical practices in supporting breastfeeding initiation and duration in low birth weight infants. It is important that New Zealand health practitioners are aware of ongoing developments and research in this area as evidence discussed in 4.4.2 indicates that breast milk has a beneficial effect on the health outcomes for this group.

Evidence on the effectiveness of one postpartum visit to a primary care provider is inconclusive at this stage and further consideration of this may be warranted; although NICE (2005) is quite clear that it considers this mechanism to be limited in terms of its effectiveness.

Much of the evidence regarding clinical interventions to support breastfeeding focuses on initiation. This is appropriate given that this is the timing where most contact happens. There is a small gap in the literature regarding the importance of postpartum primary care services and the level of impact that such services can have on supporting women in the early days of breastfeeding. It is likely that such services, if delivered supportively, could have a positive influence on breastfeeding particularly during the critical first two weeks.

5.5 Postpartum education and support

Smale (2004) noted that breastfeeding women need a range of postpartum support, including informational, emotional and instrumental support in order to maintain breastfeeding status. This section discusses the service delivery mechanism used to provide postpartum lactation support to mothers. It covers:

- Peer support and counselling;
- Home visits; and
- Telephone/internet counselling.

5.5.1 Peer support and counselling

Peer supporters can provide the psychological and emotional support required to continue breastfeeding. Dennis et al (2002 cited in Curtis et al 2007) has defined peer support as:

a specific type of social support that incorporates informational, appraisal (feedback) and emotional assistance. This lay assistance is provided by volunteers who are not part of the participant's family or immediate social network; instead they possess experiential knowledge of the targeted behaviour (i.e. successful breastfeeding skills) and similar characteristics (e.g., age, socio-economic status, cultural back-ground, location of residence).

There are many different models of peer counselling or peer support. Some begin pre-natally with others being initiated during the postpartum period. Some programmes require the mother to initiate contact, whereas other programmes provide visits to all mothers to determine the level of support required. Given the variation in nature, this section looks at whether peer-counselling is effective in general and then identifies some of the key components of a 'successful' peer counselling programme.

There is strong evidence to support peer counselling as a mechanism to promote breastfeeding duration, especially when skilled peer counsellors are used (NICE 2005).

This evidence appears to differ across socio-economic groups, with the most promising results seen in lower-income groups, and among women who are motivated to breastfeed (NICE 2005; EU 2004b; Hector et al 2004; Smale 2004; Guise et al 2003). Hoddinott et al (2006) conducted an intervention study in Scotland using group based support or, if the woman wanted, one-to-one counselling. The intervention consisted of four breastfeeding peer support groups that included both pregnant and breastfeeding women. The style of group varied from informal chats to facilitated single topic discussions (which were participant- driven). Each group was facilitated by a health visitor or a midwife. Statistically significant differences in breastfeeding rates were recorded for breastfeeding at two weeks postpartum: 41 percent compared to 34 percent in the reference population prior to the intervention's implementation. This brought mothers in the study areas up to a similar range of breastfeeding prevalence compared to the rest of Scotland (43 percent). Prevalence rates were not significant past two weeks of age. The group model used by Hoddinott may be promising and worth further exploration in populations that have lower than average breastfeeding prevalence.

A Breastfeeding Initiative programme was set up in Michigan to increase breastfeeding rates among low-income women through the use of peer counsellors. A qualitative evaluation of this programme by Meier et al (2007) found that the programme was especially helpful in providing emotional support to mothers when their environment was not supportive of breastfeeding. Shafer et al (1998 cited in Callander 2007) found that the use of volunteer peer counsellors in promoting breastfeeding in rural low income communities was associated with a significant increase in breastfeeding duration.

Findings from a study by Anderson et al (2007) indicate that different ethnic groups respond differently to peer counselling intervention. Data from a randomised controlled trial assessing the impact of peer counselling on exclusive breastfeeding among inner-city, low-income, predominantly Latina women residing in the Greater Hartford Area of the State of Connecticut indicated that by two month postpartum, non-Puerto Rican Hispanics and Blacks responded better than Puerto Ricans to the peer counselling intervention. This finding was unexpected as the intervention was implemented by Puerto Rican peer counsellors. The authors point out that the findings raise questions regarding the belief that minority women will only respond to exclusive breastfeeding interventions delivered by counsellors of the same ethnic group. The authors suggest that further studies are needed to understand the barriers to exclusive breastfeeding for different ethnic groups.

Volunteers involved in peer support programmes vary in the amount of training they receive and there is further variability in the extent to which volunteers are required to interact with health professionals in the process of providing support to women. Curtis et al (2007) consider that in order to optimise relationships between health professionals, an ongoing process of development for volunteers and health professionals is essential as findings from their small descriptive qualitative study suggest that health professionals may be able to exert considerable influence over the volunteers' access to clients which may constrain their effectiveness.

In terms of timing of effective peer counselling, Chapman et al (2004a) found that the positive impact of peer counselling is magnified when pre, peri and postpartum peer counselling is provided. Chapman et al (2004b) found that breastfeeding peer counselling services involving one pre-natal home visit, daily peri-partum visits and three postpartum home visits and telephone contact from a lactation consultant as needed increased initiation and duration of breastfeeding. These authors reported a RR=0.39 (95 percent CI 0.18-0.89) for not initiating and the RR for stopping within three months as RR=0.78 (95 percent CI 0.61-1.0). The evidence is less certain regarding impact at three months as the intervention was not delivered as intended due to staffing difficulties. Participants received only one postpartum visit instead of three, so the effect could be more pronounced if the intervention was delivered as intended. This assumption is supported by NICE (2005). Meier et al (2007) also found participants who enrolled in an antenatal breastfeeding peer counselling programme felt most prepared to breastfeed.

Components of effective peer support and counselling programmes

As peer counselling provides additional emotional and psycho-social support for breastfeeding mothers, it is important that peer counsellors have strong interpersonal skills, including talking and listening, ability to enhance the confidence of mothers, and empathy. They also need accurate and up-to-date knowledge about breastfeeding and lactation management. Effective programmes also ensure that the peer and the mother are closely matched in terms of attitude and temperament, which facilitates greater bonding. Meier et al (2007) found that the trust in the participant-peer counsellor relationship was critical in participants' abilities to meet their breastfeeding goals. The need for assistance with the practical and mechanical aspects of breastfeeding was also emphasised by the participants and the peer counsellors in the Michigan programme. Smale (2004) provides some guidance on the kinds of training required for effective peer counselling including focusing on developing good communication skills, biomedical skills, and social issues and feelings.

5.5.2 Home visits

Home visits are a service delivery mechanism used in many settings. The evidence for the effectiveness of this mechanism is strong for increasing breastfeeding duration, possibly because of the ease of access to support a home visit programme provides to breastfeeding mothers (Bull et al 2004; Elkan 2000). Key studies reported these results about components of home visits:

- Agrasada et al (2005) conducted a randomised controlled trial to determine the efficacy of an intervention to increase exclusive breastfeeding of full term low birth weight infants (less than 2500 grams). Counsellors were trained in management of breastfeeding and benefits of breastfeeding used a semi-structured home visit schedule of eight visits in the first six months postpartum. The proportion of mothers who exclusively breastfed at six months was higher in the intervention group (6.3 times more likely (95 percent CI 3.53-11.3). Agrasada et al also noted that home visits helped women who stopped exclusive breastfeeding to reinitiate.
- McKeever et al (2002) conducted a randomised controlled trial to determine the effects of breastfeeding support offered in a home or a clinical hospital setting for newborn infants.

The intervention was routine hospital care and early discharge plus home support versus routine hospital care and normal discharge. Home support consisted of three home visits from community nurses who qualified as lactation consultants. All participants could use the hospital's outpatient breastfeeding clinic and a 24 hour telephone helpline (regardless of interventions/control status). Follow-up was conducted at 12 days postpartum. Mothers of full-term newborns had more success at breastfeeding with the early discharge and home visits (95 percent versus 73 percent). Mothers also indicated that they strongly supported home visits.

- Bonuck et al (2005) conducted a randomised controlled trial that used lactation consultants to deliver a range of supports including two pre-natal visits (to assess feeding intentions and establish a rapport and then to educate about latch, positioning etc.), a postpartum hospital visit (hands on support, establishment of breastfeeding), and postpartum home visits and telephone calls (to discuss any issues and to provide information on adequacy of nutrition, feeding frequency, confidence, expressing, etc.). Any breastfeeding was more likely in the intervention group (53 percent compared to 39.3 percent) but there was no difference for exclusive breastfeeding rates. Duration continued longer for women in the intervention group at 52 weeks (OR=2.50; 95 percent CI 1.48-4.21). Critical success factors were identified as getting involved early on to influence feeding decisions and focus on providing support, and continuity of care offered by the same lactation consultant. The estimated cost per woman was \$266.
- Quinlivan et al (2003) conducted a randomised controlled trial of a home visit programme to assess whether home visits had an outcome on breastfeeding. The intervention group received five structured home visits from a nurse/midwife. These visits provided advice on feeding techniques, immunisation, contraception, mental health (e.g. post-natal depression, substance use/abuse, and family violence), referrals to other necessary services, and any issues raised by the mother. Home visits also delivered parenting education to new teenage mothers up to six months postpartum. The control group received no structured home visits but were able to access other hospital domiciliary services. While the authors concluded that home visits could result in a reduction in adverse neo-natal outcomes, the confidence interval for the reported relative risk ratios did not indicate that such claims were confidently made (Relative risk ratio = 0.24, 95 percent confidence interval = 0.05-1.08).
- Di Napoli et al (2004) found that one home visit postpartum, and telephone counselling made no difference to breastfeeding duration/outcome or in reducing complementary feeding. Although the authors did note a slight protective effect it was not significant. The authors also note the critical importance of support to continue breastfeeding, and the potential advantages of having peers who are breastfeeding, or have experience in breastfeeding, to provide peer support alongside clinical providers' support.
- Lavender et al (2005b) used guardians to support teenage mothers to breastfeed. Teenage mothers traditionally have low rates of initiation. The guardians in Lavender et al's research supported breastfeeding both pre-natally and during the postpartum period. The guardian discussed feeding intentions and used educational material to dispel any breastfeeding myths and managing problems associated with breastfeeding. This included a video made by local teenage mothers discussing their experiences. While Lavender et al (2005b) did not conduct a quantitative analysis of the impact of the intervention on initiation and duration it provides a promising example of what can be successful with teenage mothers. This includes peer support, recognising the benefits for the infant and support and advice from a trusted outsider, like the midwife.
- Kronburg et al (2007) conducted a community based cluster randomised trial in Western Denmark in which the outcomes from an intervention group were compared with a comparison group where health visitors offered their usual services. Health visitors in the

intervention group received an 18 hour course inspired by the WHO training course and the intervention addressed maternal psychosocial factors and consisted of 1-3 home visits during the first 5 weeks postpartum. Mothers in the intervention group received their first home visit earlier, had more visits and practical training within the first five weeks than those in the comparison group. Findings indicated that mothers in the intervention group had a 14 percent lower cessation rate (HR = 0.86 CI: 0.75-0.99). Babies in the intervention group were breastfed more frequently, fewer used pacifiers, and their mothers reported being more confident about not knowing the exact amount of milk their babies had received while being breastfed. The authors concluded that home visits in the first 5 weeks following birth may prolong the duration of exclusive breastfeeding and that postnatal support should focus on both psychosocial and practical aspects of breastfeeding. Findings also indicated that mothers with no or little previous breastfeeding experience require special attention.

5.5.3 Telephone/internet counselling

There are not many studies that investigate associations between the use of internet and telephone resources and the impact of this support on increasing the duration of exclusive breastfeeding, although it is likely to provide some promising approaches.

Internet

Gribble (2001) used a case study and survey approach to investigate the use of the internet as a mechanism for providing mother-to-mother support for women who are breastfeeding in unusual circumstances such as in remote rural communities or women practising adoptive breastfeeding. Gribble concluded that the support provided through the Internet chat service helped to overcome geographical isolation, providing information and support for adoptive breastfeeding practices, and creating a sense of normality. While the creation of a supportive environment is a critical tool to improve breastfeeding duration, the author did not investigate whether such a support mechanism had an influence on the duration of breastfeeding.

While family members remain the main source of parenting advice (Kolar and Soriano (2000), cited in Williams and Holmes (2004)), the internet is becoming a popular information source. A pilot study found that 30 percent of parents used the internet to access information (Williams (2003), cited in Williams and Holmes (2004)). Williams and Holmes suggest that the internet is a potential growth area for child health nurses, particularly when many mothers find little time to attend child health clinics.

Telephone

The US Preventive Taskforce study found that telephone contact increased both short and long-term duration of breastfeeding (mean difference 0.11 percent and 0.08 percent respectively) (Guisse et al). This contradicts a finding by De Oliveira et al (cited in Hector et al 2004) and the EU (2004b) that telephone counselling was not effective compared to face to face contact. A review by Britton et al (2007) also found that in those studies where telephone support was offered no significant effect was demonstrated. They considered the results of their review indicated that strategies that depend mainly on face-to-face support appear more effective than those that rely primarily on telephone contact.

Discussion

Peer counselling has been shown to effectively increase breastfeeding duration, especially when skilled and well-trained peer counsellors are used. The effectiveness of peer counselling is enhanced when the services are delivered at multiple points in time, including ante-natally and during the intra- and postpartum periods. Delivery across different time frames means that support and advice can be provided to help women make decisions about feeding intentions and then practical support can be delivered following birth.

There is strong evidence to support home visits as a model of service delivery. Critical success factors include ensuring adequate training of the people delivering the home visiting service, many of whom tend to be trained health professionals and ensuring good temporal access (e.g. pre-natally, and intra- and postpartum). Home visits appeared to be supportive of helping mothers to reinitiate exclusive breastfeeding where they had discontinued this practice for short periods of time.

The use of telephone support lines and the internet appear to have promise, and may be particularly useful as a means of coordinating services and enabling parents (or health carers acting on their behalf) to access a wide range of support for their children; however, the evidence does not support the replacement of face-to-face contact. Telephone support alone is not effective unless it is used in combination with other forms of face-to-face support. Internet support is a promising approach. Well-designed telephone or internet systems that build in measures that can enable early and ongoing evaluation of their effectiveness would appear desirable, given that while it is apparent that the use of telephones and the internet is widespread and widely accepted, there remains little or no outcome based evidence.

5.6 Community support

The WHO (2003) notes the critical role that community-based promotion and support plays in achieving sustained breastfeeding change at a population level. There is limited evidence in New Zealand to show the effectiveness of community support, but international literature and research indicates that community attitudes and support are important in influencing the duration of breastfeeding. There are also culturally specific factors to consider in building community support.

This section specifically looks at social marketing mechanisms, support for fathers, families and whānau, and the Infant Friendly Community.

5.6.1 Social marketing to increase duration of exclusive breastfeeding

Social marketing applies marketing techniques to campaigns that are likely to have a positive effect at a population level rather than focusing at an individual level. This approach provides information to effect a specific behaviour change, recognising that an individual's behavioural decisions and choices are not made in isolation from others in their social circle. For example, social marketing to improve the rates of exclusive breastfeeding would target the population in which a breastfeeding woman lives, not just the woman making a feeding decision. Social marketing can be a useful tool for influencing community and individual attitudes, although it does not exist in isolation from other interventions discussed in this part.

The WHO (2003) notes that social marketing campaigns to improve breastfeeding are more likely to be successful if:

- Women perceive the messages as being beneficial, feasible, and socially acceptable; and
- These messages are targeted toward the breastfeeding mother, her family, health providers involved in the care of the mother and infant, and the community that they live in.

It is also critical to determine the target audience's attitudes towards breastfeeding to ensure that messages are appropriately targeted and address issues that may act as barriers to change.

Developing an effective social marketing campaign requires a number of steps: situation and needs analysis, identification of the target audience(s), development of appropriate, clear, simple, and consistent messages, and the selection of appropriate media and message testing.

Simple, clear, evidence-based and adequately targeted messages are likely to result in the best outcomes in relation to mass media campaigns designed to promote the duration of breastfeeding and to positively engender community attitudes so that these support breastfeeding mothers. Benn (1998) noted that there is relatively limited public education in New Zealand about how to promote and support breastfeeding and to change attitudes to breastfeeding. She identified this as a significant limitation to New Zealand's educative landscape, noting that only La Leche League provides such information on a regular basis.

The need for a social marketing approach to improve breastfeeding initiation and duration is supported by evidence from Tarrant and Dodgson's study (2007) of the relationships between Hong Kong University students' infant feeding knowledge, attitudes, breastfeeding exposures, and future infant feeding intentions. The results led the authors to consider that promoting breastfeeding solely to childbearing couples (as is the primary strategy in Hong Kong) is unlikely to result in significant improvements in either breastfeeding initiation or duration. They concluded that future infant feeding campaigns should be directed at the societal level to change negative attitudes and to increase acceptance of breastfeeding as a normal and natural feeding method.

Mass media plays an important role in promoting breastfeeding in Iran which has high rates of breastfeeding initiation and exclusive breastfeeding at three and six months. Zareai et al (2007) note that television programmes, and articles in newspapers and popular magazines commonly discuss the benefits of breastfeeding and the adverse effects of formulas and other breast-milk substitutes.

A Scottish study found that partners and grandparents were more likely to have concerns about whether breastfeeding will exclude them from the caring role, whereas mothers may be more worried about embarrassment if breastfeeding in public (NICE 2005). This analysis could be used to develop positive messages that attempt to create a culture where breastfeeding is commonly seen and therefore reinforces the normalcy of breastfeeding (assuming the cause of embarrassment was initiated by a point of difference from others).

The EU (2004b) reported on the impact of two reviews of media campaigns that attempted to promote more positive and supportive community attitudes towards breastfeeding (Stockley 2000 and Fairbank et al 2000). These reviews indicated that a national television based campaign led to improved attitudes towards breastfeeding but noted that newspaper advertisements were not effective. The studies also found that locally developed media campaigns suitable for national or regional social culture(s) were likely to increase initiation across all groups of mothers, especially if used in conjunction with a local clinical programme.

Ferreira-Rea and Morrow (2004) noted that there is a lack of health promotion directed towards working mothers and that which occurs is inadequately described or evaluated in the literature. Campaigns targeted at working mothers are more likely to have an impact if they are linked to increased support to encourage breastfeeding in workplaces and childcare facilities (see 4.1.6 for a detailed overview of workplace support issues).

An Australian initiative in the Blue Mountains targeted local businesses and services to develop a supportive environment for breastfeeding, and developed a 'Breastfeeding welcome here' sticker which over 200 supportive and suitable local premises display prominently. The participating businesses and services are also promoted on a widely distributed free brochure. Once the initiative was well implemented, it was seen as very important in supporting public breastfeeding, particularly in the first few months of breastfeeding; however, it did require personal visits to businesses to ensure they were suitable and to improve usage of the stickers (Lobley and Walker 2000).

There is no published evidence about the effectiveness of a national breastfeeding week. Given other evidence, it is expected that the impact would vary depending on how it was promoted and whether it was run in conjunction with other awareness, attitude-influencing and support campaigns.

5.6.2 Support from fathers and whānau

Although the influence of the infant's father, family/whānau and friends is recognised as important in encouraging and supporting mothers to breastfeed there is little robust evidence measuring the effectiveness of interventions in this area (EU 2004b); however, given the importance of fathers, family/whānau, and partners in supporting a breastfeeding mother, it is likely that activities aimed at informing and motivating them will have an impact.

The importance of educating families, especially fathers was indicated in a study by Arora et al (2000) which found that the most significant factor for mothers to initiate bottle-feeding was the mother's perception of the father's attitude. Pisacane et al (2005) found quite significant increases in breastfeeding prevalence when fathers are educated on what to expect and how to provide support to breastfeeding mothers. There are a number of education initiatives discussed in section 4.1.1.1 which will provide more information to support this approach.

5.6.3 Baby Friendly Community Initiative

The Baby Friendly Community Initiative extends the concept of Baby Friendly Hospitals into primary healthcare providers in the community. The Baby Friendly Community initiative is based on a seven point plan which is drawn from the ten points in the Baby Friendly Hospitals plan and modified for a community setting. The aim of the initiative is to protect, promote and support breastfeeding for healthy mothers and infants to promote the overall vision of breastfeeding as the cultural norm. Mothers who choose not to breastfeed are supported in their decision and provided with unbiased advice and information (NZBA 2006; Stufkins 2006).

In New Zealand, the Baby Friendly Community Initiative is being piloted at present. It is supported by a committee under the NZBA.

5.6.4 Integration of breastfeeding into curricula activities

One paper (EU 2004b) notes that breastfeeding information is being integrated into some schools in the United States; however no evaluation of this approach has been conducted. The authors note, however, that a review in the UK has found that such inclusion can have a positive effect on behaviour (although this review did not specifically look at breastfeeding).

Discussion

In summary, although there is limited robust evidence about the influence of social marketing in a New Zealand context on rates of breastfeeding, there is sufficient knowledge to support a campaign that is designed to address local barriers and social/cultural contexts. Social marketing would best focus on using television and local support campaigns rather than newspaper advertising, in order to reach the wider community. It should also be supported and used in conjunction with other programmes. An effective longitudinal assessment of such a programme would also be a useful contribution to the international knowledge base.

Other possible approaches that could be further explored include support for fathers and whānau, the Infant Friendly Community Initiative, and curricula activities.

5.7 Workplace support

As identified in *section 2.4*, a woman's return to work can negatively influence the duration of exclusive breastfeeding, particularly if the mother returns to work within six months postpartum. Exclusive breastfeeding can become more complicated, particularly if the mother is separated

from her infant and there are constraints on the mother's time while she is at work. There are three dimensions to this relationship:

- Timing of return to paid employment: early return to work makes it more difficult for a woman to continue to breastfeed and statistics indicate that significant drop-offs in breastfeeding rates occur at 11-15 weeks (when women return to work following the lapse of paid maternity leave);
- Pattern of work hours: many women find part-time work more conducive to continuing to exclusively breastfeed than full-time employment (especially if there are limited supports within the workplace); and
- Nature and status of the work: women who return to employment for a career have more control over breastfeeding continuation whereas women who return to work for economic reasons generally have more limited control over their working environment (Galtry 2002; McInernery 2002; Galtry 2000; Kurinij et al 1989 cited in Ferreira-Rea and Morrow 2004).

This relationship is further complicated by longer-term market drivers for women as time out of the paid workforce can be economically and professionally costly (e.g. loss of income, possible depreciation of professional skills, possible loss of professional opportunities, or potential downward job mobility). Loss of income often presents a proportionally higher cost for women and families/whānau with lower earning power whereas mid-high income women and families/whānau may be able to sustain these income-related costs more easily.

In order to develop successful strategies to support women in the workplace, interventions and initiatives need to be cognisant of the complexities of the relationship between breastfeeding mothers and paid employment. Interventions and initiatives congregate around the following areas:

- Statutory requirements relating to paid or unpaid maternity leave and breastfeeding breaks;
- Organisational policies to support breastfeeding;
- Structural facilities to support breastfeeding, such as breast milk expression; and
- The role of early childhood care in supporting working women to breastfeed.

Statutory requirements relating to paid or unpaid maternity leave and breastfeeding breaks constitute some of the most effective mechanisms that can support women to breastfeed following their return to paid employment. These are discussed in section 3.2 and 3.3 of this report, and are not further outlined here.

There is a need for further research in relation to the effect of workplace interventions on breastfeeding rates and duration and whether breastfeeding is exclusive or partial. A systematic review by Abdulward and Snow (2007) found no studies or randomised controlled trials and quasi-randomised controlled trials that compared workplace interventions with no interventions or two or more workplace interventions against each other. The authors suggested that there is a need for randomised trials to evaluate and provide reliable evidence on the effectiveness of work-support intervention to promote breastfeeding among working mothers.

5.7.1 Organisational policies

Galtry (2000) notes that flexi-time policies, working at home and telecommuting have a number of advantages, including more time to establish breastfeeding, gradual readjustment to the workplace, and more coordinated childcare. Whether the implementation of such policies translates into increased duration of breastfeeding has yet to be studied or clearly demonstrated (e.g. the literature review returned no information specifically studying interventions in this area). Flexible working hours and employment conditions are likely to be most beneficial to certain

types of work that are not dependent on a mother being in a particular place for the duration of her working day.

5.7.2 Facilities to support breastfeeding: breast milk expression

Facilities necessary to support breastfeeding in the workplace include tables, chairs appropriate for expressing or breastfeeding, refrigeration to store expressed milk, and clean running water. Ideally, these facilities should be private. The provision of such facilities assumes that providing a space for breastfeeding women enables the women to continue to lactate for as long as she desires (either through directly feeding or expression).

Ferreira-Rea et al (1999) (cited in Ferreira-Rea and Morrow 2004) found that women who had access to breastfeeding facilities on-site were more likely to breastfeed for longer than a comparable group of women who did not have access to these facilities. Unfortunately, Ferreira-Rea et al did not elaborate on the exact nature of the facilities that were studied.

Assuming that most women are not able to take their infant/child into the workplace means that women need to express a sufficient amount of breast milk for the infant to consume while the mother is at work. As breast milk comes down in response to a supply/demand mechanism, breast milk expression is a critical skill that working mothers may need to develop and be supported in undertaking in the workplace. Valdes et al (2001) conducted a study in Chile, a nation with very strong maternity protection laws relating to motherhood and work. This study looked at clinical techniques that could support mothers to express effectively and therefore maintain exclusive breastfeeding for longer periods. The study group involved women returning to paid employment within 120 days postpartum. The authors found that teaching expression and providing clinical support through health clinics increased exclusive breastfeeding (53 percent of the intervention women were exclusively breastfeeding at 6 months compared to 6 percent in control group). Critical success factors included teaching the correct way to hand-express and anticipatory counselling and practice and support during return to work. It is unclear how much impact the strong maternity environment had on these outcomes, and this issue is not discussed by the authors.

Ortiz et al (2004) conducted a descriptive study of three employer-sponsored lactation programmes to determine the duration of breast milk expression among working women enrolled in one of the programmes. The programme's three components were:

- A class on the benefits of breastfeeding (accurate information);
- Access to the services of a certified lactation consultant (assistance); and
- The provision of a private room for expressing in the workplace and the provision of a refrigerated tote bag for storing the expressed breast milk (support).

The study group of 462 mothers all returned to work relatively early (at 2.8 months postpartum); however they continued to breastfeed (in varying but undisclosed intensities) using expression at work for an average of 9.1 months postpartum (median = 5.3 months). No information on the population rates of breastfeeding is provided, making it difficult to determine whether this was an effective intervention, or which parts of the intervention were most successful.

Ortiz et al (2004) found a number of differences in the breast milk expression by the type of work conducted. Salaried women were more likely to express (and therefore breastfeed for longer) than women paid on an hourly rate. Although the conclusions that can be drawn from this study are limited by its descriptive nature, it provides a pointer about some of the useful activities that an employment-based programme could have in order to support breast milk expression in the workplace (e.g. it can be supported).

A United Kingdom study (Gatrell 2007) involving in-depth interviews with educated mothers in managerial and/or professional occupations found there was conflict between health guidance on the benefits of breastfeeding and workplace attitudes towards breastfeeding women. This study found considerable workplace negativity towards breastfeeding as well as a lack of facilities and the author concluded that improvements to the maternal experience of breastfeeding at work (and consequently, perhaps, the enhancement of breastfeeding duration rates) may be achieved only if employers, as well as mothers, become the focus of health initiatives to promote breastfeeding.

The Department of Labour (2005) has developed a resource for employers in New Zealand outlining some of the evidence-based good practice that employers can undertake in order to support breastfeeding in the workplace. It focuses on four key areas (as discussed above): communication, time, space and facilities, and support. The Department recommends that employers:

- Initiate good communication as early as possible in order to identify issues and solutions with a focus on support, flexibility, early timing, and clarity;
- Review hours of work and the timing, nature, and frequency of breaks;
- Provide adequate facilities including a clean, quiet, and private space and a list of possible equipment/furniture required; and
- Develop supportive environments by clear communication about what is acceptable and tolerable.

Importantly, the guidance material from the Department recognises that solutions provided for larger employers may not be appropriate for smaller employers, and provides practical initiatives for both groups built on the fundamentals discussed in the bullets above. For smaller employers, it focuses on providing support and time to make breastfeeding arrangements as well as cheap fixes to space issues. For larger businesses, suggestions focus on the provision of space, facilities and equipment, and written policies, in addition to the time-related initiatives.

5.7.3 Breastfeeding and childcare

Breastfeeding duration appears to be closely linked to the point at which mothers return to work. For families with infants in child care, continuing to breastfeed can be difficult and requires quite specific support in the form of childcare centres with explicit policies and practices that encourage and support breastfeeding (Farquhar and Galtry 2003). When child-care is situated on-site or near-site to the mother's place of employment it is likely to facilitate the continuation of breastfeeding. However, no evaluations of this factor are covered in the literature reviewed.

Many women place their infants in early childhood care on their return to paid employment. Farquhar and Galtry (2004) noted that early childhood teachers are in a good position to support mothers to continue to breastfeed. Generally, there is a paucity of research about the impact that early childhood care can have on breastfeeding duration; however, as service providers caring for a family's child, their influence is likely to be a factor. As Galtry and Farquhar (2004) noted, early childhood care is an important area for intervention because of the increase in very young infants and children entering childcare (e.g. those aged less than six months).

Farquhar and Galtry (2003) undertook case studies of breastfeeding practices in two early childcare centres in New Zealand. One centre catered for children aged less than two years whereas the second centre catered for children aged up to five years. Farquhar and Galtry found that establishing a breastfeeding friendly childcare is important way of getting women back to work while supporting breastfeeding duration. Key factors identified by Farquhar and Galtry were:

- Professional development for centre staff about breastfeeding and storing and handling expressed breast milk correctly;
- Providing a private space for mothers to breastfeed or express, including facilities that support breastfeeding (low couches, refrigeration, etc.);
- Openness of staff to breastfeeding and infant feeding that is non-judgemental and culturally attuned (e.g. a conducive physical and attitudinal environment);
- Information provision to parents on accessing health professionals and breastfeeding specialists;
- Promotion of the centre as being breastfeeding friendly;
- Written breastfeeding policy; and
- Communication including understanding family requests and meeting these.

These findings are further supported by the Canadian Care Federation (2002) (cited in Farquhar and Galtry 2004). The key steps identified by the Canadian Care Federation focused on creating breastfeeding-friendly child care using the following:

1. Individual breastfeeding support plans: Work with family members to develop the infant's individual breastfeeding support plan and identify who is to do what and when. Individual plans should:
 - Be regularly updated;
 - Have support plans should include details about how breast milk is to be stored and served;
 - Ensure that the mother clarifies what she wants you to do if the infant is hungry and she is late, or her supply of expressed breast milk is gone; and
 - Encourage nursing mothers to come and breastfeed and/or express milk comfortably and at their convenience.
2. Feeding policies: develop policies around breastfeeding in consultation with families, board members, staff and others in the community. Support each family's choice in a non-judgmental manner through:
 - Allowing flexibility in programs and schedules so the infant's needs are met;
 - Providing opportunities for communication and education of parents and staff;
 - Offering staff professional development opportunities on breastfeeding and nutrition in infancy and childhood; and
 - Promoting your setting as breastfeeding friendly.
3. Communication and education: Be sensitive to the needs of all the children in your care. Present a positive, warm, non-judgmental attitude and behaviour towards all feeding decisions and practices through:
 - Fostering ongoing dialogue between parents and staff about how to put breastfeeding policies into practice;
 - Encouraging peer support for breastfeeding mothers/families;
 - Providing breastfeeding information through newsletters and bulletin boards;
 - Establishing a network of volunteers to mentor breastfeeding mothers; and
 - Consulting with external community groups to train staff and supporting breastfeeding families.

The key success factors identified by Farquhar and Galtry (2004) are very similar to those found in the Baby Friendly Hospital Initiative. There are also similarities to those factors identified as being critical to the development of supportive workplaces.

Given that many workers currently have little opportunity to take an extended period of breastfeeding leave, it is important that early childhood programmes include such measures as have been outlined. However, governments need to weigh up societal gains relative to the fiscal costs of providing parental leave income support and/or childcare subsidies for newborns or very young infants. The at-home ideal for infants promoted by Sweden's range of policies has already been discussed (Galtry 2003). In contrast the International Labour Organization (1997 cited in Galtry 2003) notes that while governments may decide that it is cheaper to provide longer maternity leave than to subsidise early childcare programmes, maternity leave must not serve as a substitute for the provision of the latter facilities. There is some evidence of adverse effects on women's short-term income associated with taking leave and other evidence has also indicated that very long periods of leave may have detrimental effects on a woman's career path and earnings as discussed in 3.2.2

Discussion

Generally, workplace interventions are supported by statutory measures related to unpaid or paid maternity leave and the provision of breaks during the working day so that the mother can breastfeed or express. These are not the only mechanisms that are likely to support increased duration, especially increased duration of exclusive breastfeeding.

While there is a general paucity of information regarding the effectiveness of initiatives to support breastfeeding in the workplace, there are a number of practices which can support a breastfeeding woman on her return to work. These practices focus on:

- Workplace policy, employment conditions, and timing of work;
- Communication between the employer, the breastfeeding woman, and other employees;
- The provision of adequate facilities in which to express or breastfeed; and
- Infant-focused childcare that supports and promotes breastfeeding.

5.8 Comments and conclusions

The interventions discussed in *section 5* cover a wide range of initiatives including:

- Developing personal skills (of both the mother and those who can and support her);
- Improving health professionals' knowledge of breastfeeding practice;
- Re-orienting health services so that they are breastfeeding friendly;
- The creation of supportive environments; and
- Community action.

While most of the interventions discussed in *section 5* focus on individual activities there is some evidence to suggest that multi-faceted interventions can be effective. Hector et al (2004) notes that evidence on the most effective combination of interventions is not available and may be determined largely by the group the programme is delivered to. These initiatives also need to be supported by public policy and legislation that promotes health of the infant and mother.

Intervention points focus on pre-natal, intra- and postpartum in a range of settings including with mothers in the home, health services, and the community and workplaces. Providing support across a range of timeframes is likely to support breastfeeding duration as it enables mothers to get support on the issues that are most pressing at the time (e.g. making a decision to breastfeed and then getting support to manage lactation).

An assessment of the appropriateness of certain approaches is provided in the *Good Practices* section of this report.

Section 6: Good practice design and delivery

As breastfeeding is a learned cultural practice it is necessary that any action relating to these conclusions considers New Zealand's cultural and attitudinal landscape during design and implementation. This will help to ensure that the right balance of interventions are considered and that these build on cultural successes relating to breastfeeding while challenging the barriers faced by women in choosing to initiate breastfeeding, and in determining how long to breastfeed their infant or child.

The following provides a summary of common interventions undertaken both here in New Zealand and internationally and briefly assesses the quality of such interventions based on the information detailed in the literature reviewed.

Legislative interventions

Many jurisdictions, including New Zealand provide legislative protection for maternity. Examples of such measures include:

- Providing adequate paid leave for all women to a minimum duration of 14 weeks;
- Providing paid breastfeeding breaks during the working day;
- Ensuring that a child's right to be breastfed is upheld and that women are not discriminated against for breastfeeding;
- Ensuring that the International Code of Marketing of Breast-milk Substitutes is adequately supported in statute and regulation; and
- Investigating other innovative and imaginative mechanisms that may protect breastfeeding.

Policy and national strategic initiatives

A number of jurisdictions have also developed national strategies and policies focused on protecting the rights of women to breastfeed. These include:

- A commitment to and/or acknowledge international strategies and policies;
- Ensuring that exclusive breastfeeding is recognised as the normal and preferred method of infant feeding to six months of age, and continuing breastfeeding beyond the introduction of solid foods;
- Establishing a national structure including responsible agencies, national advisory bodies, and multi-lateral commitment across government and non-government sectors;
- Taking a comprehensive approach to protecting, promoting and supporting breastfeeding including: reviewing policy and regulatory frameworks; undertaking appropriate education and information for mothers, families and communities, collaborating between healthcare providers and support groups, providing training, education and support for health professionals and policy-makers, and emphasising the provision of information and support for working mothers and employers to protect breastfeeding in the workforce;
- Designing attitudinal change programmes to make breastfeeding in public a supported and positive norm;
- Prioritising key areas for action and related recommendations and setting targets against stated goals and objectives;
- Requiring maternity facilities to adhere to the Baby Friendly Hospital Initiative; and
- Ensuring adequate evaluation and monitoring.

Interventions that have been proven effective

Interventions that have been proven effective through evidence based analysis include:

- Training health professionals in the psycho-social and physiological elements of breastfeeding and lactation management;
- Accreditation to the Baby Friendly Hospital Initiative and implementation of the 10 Steps to successful breastfeeding, particularly the following clinical practices: kangaroo care, training of staff, early initiation of breastfeeding, the promotion of exclusive breastfeeding and limitation of any form of supplementation, and on-demand breastfeeding;
- Skilled peer support provided by well-trained and knowledgeable peers;
- Home visitation as a service delivery mechanism;
- The provision of adequate workplace facilities in which to express breast milk or to breastfeed; and
- Childcare that is supportive of breastfeeding.

Interventions that are promising approaches

A number of promising approaches and interventions were identified through the analysis of the literature. These included:

- Prenatal education especially where it:
 - Is tailored to the individual woman and their cultural context;
 - Uses approaches based on adult learning principles;
 - Is targeted toward women who have not yet decided their feeding intention or who have decided to not initiate breastfeeding;
 - Is targeted at and accessible to low income women.
- Biological nurturing approaches that build on the concept of kangaroo care;
- Social marketing of breastfeeding - positive messages that are designed to influence community attitudes;
- Support for fathers, families/whānau, and friends to be positive and support the breastfeeding mother and infant; and
- Developing breastfeeding friendly businesses and public spaces.

Inconclusive interventions

The benefits of telephone and internet counselling, where these are used as a sole strategy rather than as a component to a multi-faceted approach, remain uncertain.

Interventions that have been proven to have no impact or possibly a harmful impact

A number of interventions have been identified as having minimal or possibly harmful effects on breastfeeding initiation and duration, including:

- Written materials about breastfeeding, when these are not supported by face-to-face discussions of the material;
- Single session pre-natal classes on breastfeeding, where these are not supported by other breastfeeding-related activities for both mothers and others;
- A one-off visit to a primary care provider in the first few weeks postpartum.

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