Breastfeeding Guidelines for Early Childhood Education

A Literature Review prepared for the Ministry of Health

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Carol Bartle, Te Puawaitanga ki Otautahi Trust

Email: carolbartle@omwwl.maori.nz

Judith Duncan, University of Canterbury

Email: judith.duncan@canterbury.ac.nz

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Introduction

There has been an increase of infants enrolled in early childhood education (ECE) settings. Between 2004-2008 there has been a 20% increase for infants under one-year of age to be attending an out-of-maternal-home setting (for over one-year olds there has been over 24% increase in enrolments). This increase in numbers of infants raises questions as to how well early childhood centres can and do support the continuation of breastfeeding for the infants in their care. Farquhar and Galtry (2003, p. 14) describe the issue:

> Early childhood centre employers and staff have an important role to play with regard to promotion and supporting optimal child health and development, including through encouragement and support of breastfeeding in the child care setting. Of course, where mothers have clearly made a firm and informed decision to wean the infant child care staff should support this.

As babies are away from their mothers for periods of time are likely to be at greater risk of receiving breast-milk substitutes earlier than recommended for optimal health and development, and at risk of shortened duration of breastfeeding, the development of breastfeeding guidelines for early childhood education settings is timely. Farquhar and Galtry (2003) drew attention to the increasing number of children being placed in childcare from a younger age and emphasised that the support of breastfeeding in childcare centres was important. Farquhar and Galtry (2003) also stated that the development of breastfeeding friendly childcare would be an important step towards the advancement of the objectives of equal employment opportunity for women.

For women still breastfeeding when their baby, toddler or pre-schooler enters an early childhood education setting, encountering a supportive environment or knowing that such a culture exists may result in an extension of the duration of breastfeeding, with the associated health protection for both mothers and babies that this practice offers.

Early childhood settings are the natural places for promoting breastfeeding – both for active breastfeeding by the mother, and where this is not possible, feeding the infant with the mother's breastmilk. Early childhood centres are argued to be non-

discriminatory places for families which enable social support for families, family resilience and community building and well-being (Duncan, 2006; Duncan & Bowden, 2004a; Duncan, Bowden, & Smith, 2004b; Duncan, Bowden, & Smith, 2005; Duncan, Bowden, & Smith, 2006a, 2006b; Hayden, 2002; Hayden & Macdonald, 2000; Moss & Petrie, 2002).

The United States Breastfeeding Committee (2002) advocate integration of breastfeeding into childcare settings as it "promotes good health for the baby and mother, saves money, and contributes to the overall well-being of a community. It is not just a parent issue, a child care issue, but ultimately an important public health issue that affects everyone" (United States Breastfeeding Committee, 2002, p. 3).

An under-discussed aspect of this is how ECE can and should support breastfeeding.

Methods

This literature has been generated from searches from the following databases:

- Eric
- Education Research Complete
- IndexNZ
- Health and Medical Complete
- PsychInfo
- PubMed
- Medline
- Sage Publishers (limited open access period)
- Science Direct
- Scopus
- The Cochrane Library

We restricted our search to post-1990 for information pertaining to ECE and breastfeeding. We used *Google* searches to obtain current ECE breastfeeding guidelines. This literature review also includes consideration of current New Zealand documents and related research reports on databases such as: the New Zealand Families Commission, Ministry of Social Development, Ministry of Education, Ministry of Health, UNICEF, WHO.

Breastfeeding and Early Childhood Education

Attendance in Aotearoa New Zealand Early Childhood Education Contexts

Early childhood education (ECE) and early childhood education services are defined in Aotearoa New Zealand (NZ) in specific ways. In NZ the term "early childhood education" refers to the non-compulsory provision of education and care for young children and infants before they begin school on, or around, their fifth birthday. ECE as a term is the preferred for early childhood rather than preschool, as the sector holds a philosophy that the early childhood years are a time in the child's life which is not just about preparation for school or preparation for something that comes later. ECE is not compulsory and parents can choose if they wish their children to attend, at what age, for how long and what kind of service they would like to use. Since 1989 all early childhood services have received funding from the government to enable them to employ trained staff and to keep charges to parents as low as possible. Over the following years since 1989 the amount of funding has increased to centres, alongside the increased requirements for centres to meet standardised quality criteria, including the most recent requirement for fully trained[1] staff in all centres by 2012.

The types of ECE, which parents can choose from in NZ are:

Table 1: Types of early childhood education services

TYPES OF EARLY CHILDHOOD SERVICES
KINDERGARTENS are managed by Kindergarten Associations, and provide early childhood education for children aged two to five years.
CHILDCARE CENTRES (now often referred to as Education and Care Centres) may be privately owned or non-profit making. They offer early childhood education on a sessional or full-day basis. They include private kindergartens, and specific philosophical programmes such as Montessori, Christian etc[2].
These are teacher–led services.
PLAYCENTRES are parent co-operatives offering early childhood education for children under-five years.

[1] Fully trained means having a Diploma in ECE teaching as minimum qualification for being employed in an ECE centre.

[2] International literature also uses the term day-care for these centres. This is a term that the NZ sector actively discourages the use of.

KOHANGA REO offer an all-day Maori language immersions programme to children under five years, and are administered by Te Kohanga Reo National Trust Board.

PASIFIKA EARLY CHILDHOOD CENTRES offer programmes based on the languages and cultures of Pasifika peoples.

These are parent-led services.

HOME BASED SERVICES link parents with caregivers in the community. Trained co-ordinators assist the caregivers in the provision of early childhood education and care.

The CORRESPONDENCE SCHOOL offers a distance education service for children who are unable to attend an early childhood centre because of isolation, illness, or disability.

There are also multiple other types of services available to children and parents over these early childhood years, for example: playgroups where parents and children gather in both formal and informal arrangements (for example, Parents Centre, and Ante-natal support groups), Plunket groups which have a health and parenting focus on the first two years of life, and hospital and welfare centre based programmes (for example, Women's Refuge centres, Paediatric wards).

Where are the children?

The Ministry of Education (MOE) provide yearly breakdowns as to the number of services, and enrolments in services. These statistics, updated yearly, can be found at: http://www.educationcounts.govt.nz/statistics/ece/. A significant point to note is that the numbers counted for enrolment are 'apparent' numbers only, which means that some children may be counted twice, if they attend more than one setting; for example, attending a kindergarten in the morning and homebased for the rest of the day.

Acording to the MOE as at 1 July 2008:

- there were 198,784 enrolments in early childhood education ;
- there were 176,993 enrolments in licensed early childhood education services, an increase of 8.5% (13,908) since 2004 (see Table 2);
- There has been a substantial increase in the proportion of enrolments in early childhood education since 1990, with an increase of 56.5% to 2008. However, the increase in enrolment rates has levelled out over the last nine years with only an 10.8% increase since 2000, and 4.2% growth since 2006. Most of this increase has been for children aged under three for whom enrolment rates have more than doubled since 1990.

Table 2 - Enrolments in licensed and/or chartered early childhood education services by service type as at 1 July (2004 to 2008)

Service Type	2004	2005	2006	2007	2008	Difference 2004 - 08	
						Number	%
Licensed Services							
Kindergarten	45,287	44,920	44,435	43,695	41,487	-3,800	-8.4%
Playcentre	15,440	15,059	14,888	14,664	14,929	-511	-3.3%
Education and care	81,096	83,889	86,059	91,733	97,756	16,660	20.5%
Homebased network	9,922	9,770	9,802	11,073	13,065	3,143	31.7%
Kōhanga reo	10,418	10,070	9,493	9,236	9,165	-1,253	-12.0%
Correspondence School	922	813	577	737	591	-331	-35.9%
Casual-education and care	…	…	…	…	…	…	…
Total Licensed Services	**163,085**	**164,521**	**165,254**	**171,138**	**176,993**	**13,908**	**8.5%**

… Not Applicable as casual-education and care services do not have regular enrolments. (Source: Ministry of Education, 2009).

Of the 97,756 enrolments in education and care services, 39.6% (38,676) were in community-based services and 60.4% (59,080) were in privately owned services. This is a important variable, as current research has indicated that there are significant differences in provisions agreed to be of quality for children and families and whänau between private/for profit and community/not-for-profit settings (Education Review Office, 2009; Mitchell, 2002).

In regards to Pasifika and Māori children the Ministry of Education identify the following enrolment and attendance patterns:

Enrolments by ethnicity

* Of the enrolments as at 1 July 2008, 64.8% (128,910) identified as European/Pākehā, 18.7% (37,122) identified as Māori, 6.2% (12,391) identified as Pasifika, 6.6% (13,205) identified as Asian and 3.6% (7,156) identified as Other.

* In licensed and/or chartered services, European/Pākehā enrolments have increased by 3.8% (4,146), Māori enrolments have increased by 5.7% (1,882), Pasifika enrolments have increased by 16.5% (1,512), Asian enrolments have increased by 22.6% (2,125) and Other enrolments have increased by 177.3% (4,243) since 2004.
(reproduced from: www.educationcounts.govt.nz/statistics/ece 30 June 2009)

Maternal Employment and Early Childhood Attendance

The New Zealand 2006 Census of population and dwellings identified that there were 20,199 women with infants under one year of age who were employed, with 32,874 women with infants less than one year not in the paid workforce and 1,983 registered unemployed. These New Zealand figures therefore signify that a significant percentage of infants' under-one-year-old are separated from their mothers and in some form of non-maternal child care or early childhood education, and that this is increasing.

Slusser, Lange, Dickson, Hawkes and Cohen (2004) report that more than half of the women in the United States with children younger than one year of age are in paid work outside of the home. Breastfeeding prevalence for U.S. mothers working full time was also reported as being lower at six months (22.8%) than in the non-working mothers (31.4%). More recent figures reported by Angeletti (2009) from the US Department of Labour's Bureau of Labour Statistics, state that approximately 60 percent of mothers participate in the paid labour force and slightly more than 70 percent of employed mothers with children under the age of three work full time. One third of US mothers return to the paid workforce within three months of giving birth and two thirds have returned by the time the infant is six months (Angeletti, 2009). Whitehouse, Hosking and Baird (2008), analysed data from the Parental Leave in Australia Survey and found that around two thirds of Australian mothers who took some maternity leave around the birth of an infant reported returning to work earlier than they would have preferred. This was mostly for financial reasons. Galtry and Callister (2005) remind us that the discourses about parental leave have particular relevance for women with birth recovery, parent infant bonding, the cognitive development of children and breastfeeding being significant.

Enrolments in early childhood services by age of child

As at 1 July 2008, 5.6% (11,072) of enrolments in licensed services and licence-exempt ECE groups were children under one-year of age, 14.5% (28,825) were aged one year, 20.0% (39,783) were aged two years, 29.2% (57,978) were aged three years, 30.0% (59,662) were aged four and 0.7% (1,464) were aged five.

Table 3- Enrolments in licensed and/or chartered early childhood services by age as at 1 July (2004 to 2008)

Age	2004	2005	2006	2007	2008	Difference 2004-08	
						Number	%
Under 1	6,577	6,576	6,721	7,803	7,894	1,317	20.0%
1 Year	18,925	20,200	20,390	21,783	23,593	4,668	24.7%
2 Years	29,688	30,695	32,106	33,040	33,707	4,019	13.5%
3 Years	49,166	49,037	49,767	51,918	53,298	4,132	8.4%
4 Years	57,051	56,098	54,406	55,057	57,278	227	0.4%
5 Years	1,678	1,915	1,864	1,537	1,223	-455	-27.1%
TOTAL	**163,085**	**164,521**	**165,254**	**171,138**	**176,993**	**13,908**	**8.5%**
Sub-total 3 & 4 years	106,217	105,135	104,173	106,975	110,576	4,359	4.1%

(Source: Ministry of Education, 2009).

Enrolments in licensed centres for children under-one year of age is approximately 12% of the children in this age group (based on 64,340 live births for 2008, provided by Statistics New Zealand). However, these enrolments do not count other infants who are experiencing out-of-home care by family members, or other informal networks, nor does it count non-licenced services or nanny provisions. Therefore, it is realistic to assume that the actual number of infants who are not with their breastfeeding-mother for a part of each day will be much higher than 12%.

Why breastfeeding is important for infants – a short review and update

Breastfeeding is the biological norm for infant feeding and breastmilk not only provides optimum nutrition for infants but it also includes other functional components that contribute significantly to the prevention of illness and disease in the infant, toddler and child.

The immune system of human milk provides a continuum of the maternal immune protection that extends from the transfer of immunoglobulin G (IgG) from the mother via the placenta to the baby in utero, and then from the mother via breastfeeding and breastmilk to the child up until the second year of life (Slussor & Powers, 1997). Cregan (2008) also discusses how this continuum of support for the

immature human infant unfolds by describing how a new mother's mammary glands take over from the placenta to provide developmental guidance.

The complex components of breastmilk which are uniquely human are irreproducible and include lactoferrin, a single polypeptide chain glycoprotein which forms two lobes, both of which bind iron (Hanson, 2004). Lactoferrin is quite resistant to degradation in the gut and the stools and urine from a breastfed baby contain significant amounts of lactoferrin, including large fragments. Special receptors in the baby's gut uptake lactoferrin and the large lactoferrin fragments. Lactoferrin is bactericidal for many gram-negative and gram-positive bacteria and it also has anti-viral and anti-fungal properties. Lactoferrin destroys microbes without inducing tissue engagement and inflammatory responses and also prevents production of several pro-inflammatory cytokines (Hanson, 2003). It is thought that lactoferrin protects breastfed babies against urinary tract and bowel infections.

Breastfeeding has established itself significantly within research as the optimal method of feeding infants. The American Academy of Pediatrics (AAP) first released a policy statement on breastfeeding and the use of human milk in 1997, which cited 111 research articles. This statement was revised in 2005, due to "significant advances in science and clinical medicine" which utilised new research to further establish the importance of breastfeeding (AAP, 2005, p. 496).

Both AAP statements identified health, nutritional, immunologic, developmental, psychological, social, economic and environmental benefits which utilised research evidence from that time. The AAP recognised the protective effects of human milk against sudden infant death syndrome (SIDS), insulin dependent diabetes mellitus, allergic diseases, Crohns disease, ulcerative colitis and other chronic digestive diseases. It also emphasised that research shows strong evidence that human milk feeding decreases the incidence and severity of diarrhoea, lower respiratory tract infection, otitis media, bacteraemia, bacterial meningitis, botulism, urinary tract infection, necrotising enterocolitis and late-onset sepsis in preterm infants (AAP, 2005, p. 496).

Breastfeeding contributes positively to five of the thirteen priority population health objectives in New Zealand. These objectives are to improve nutrition, to reduce obesity, to reduce the incidence and impact of cancer, to reduce the incidence and impact of cardiovascular disease and to reduce the incidence and impact of diabetes.

It is significant that the World Cancer Research Fund (2007) made a recommendation, in the category of special populations, for mothers to breastfeed and children to be breastfed. This was the first breastfeeding recommendation given in a cancer prevention report.

A systematic review (World Health Organisation, 2007) found that breastfeeding had small but statistically significant positive effects on Type 2 Diabetes and obesity protection. Lower blood pressure, lower cholesterol levels and positive schooling effects were also found.

The UK Millennium study which has a cohort of 15,890 infants found that six months of exclusive breastfeeding was associated with a decrease in hospital admissions for respiratory infections and diarrhoea (Hoddinot, Tappin & Wright, 2008).

The New Zealand Ministry of Health (2008) highlights that breastfeeding is important for infants because it:

- Provides optimum nutrition for infants
- Assists the physical and emotional development of infants
- Decreases the incidence and severity of childhood infectious diseases
- Is associated with decreased infant mortality and hospitalisation
- Is associated with the decreased risk of chronic disease for infants

Recent research:

- **Cardiovascular health –** Khan et al., (2009) studied a group of 143 children who were breastfed (102) and not breastfed (41) and found that after adjustments for potential confounding factors the breastfed children had better endothelial function which suggests that this may be one of the "important mechanisms by which early infant nutrition programmes cardiovascular status" (Khan, et al., 2009, p. 141).
- **Cognitive function** – Kramer et al., (2008) found strong evidence for an improvement in child cognitive function with exclusive and prolonged

breastfeeding. An intervention to protect, promote and support breastfeeding modelled on the *Baby Friendly Hospital Initiative* was introduced. A total of 17,046 healthy breastfeeding infants were enrolled in the study and 13,889 of these were followed up at age 6.5 years. Infants in the study were born in thirty-one maternity hospitals in Belarus. It remains unclear as to whether the results were due to the components of breastmilk, such as the long chain polyunsaturated fatty acids, or to physical and social interactions between the mother-baby pair that breastfeeding promotes and facilitates. It is however possible that both mechanisms are involved. This suggests that enabling mothers with infants in early childhood education to breastfeed in those settings, as well as supply their breastmilk for use there, may be beneficial.

- **Sudden infant death syndrome (SUDI)** – Vennemann et al., (2009) studied data from 333 infants who had died of SIDs and 998 age-matched controls. They argue that there is a causal relationship between breastfeeding and reduced risk of SIDS and concluded that breastfeeding reduces the risks of SIDS and this protection continued for as long as the infant was breastfed. Breastfeeding until at least six months was recommended. Horne (2004) also emphasised the link between breastfeeding and protection against SIDS, due to more easily arousing from sleep (as a protection mechanism).

- **Breastfeeding and substantiated child abuse and neglect** – Strathhearn, Mamun, & Najman and O'Callaghan (2009) suggest that among other factors breastfeeding may possibly help protect against maternally perpetrated child maltreatment, particularly neglect. A total of 7223 Australian mother-infant pairs were monitored prospectively for over fifteen years. After adjustment for confounding factors the odds for non-breastfed infants remained 2.6 percent higher for maternal maltreatment. The authors conclude that promoting breastfeeding would be a relatively simple and cost-effective means of strengthening the relationship between the mother and child. Facilitating optimal breastfeeding conditions in early childhood education settings, which include provision for the mother to breastfeed in those environments, whenever possible, may be beneficial.

The American Academy of Family Physicians (AAFP, 2004) in their position paper on breastfeeding changed the focus of the pro-breastfeeding message to a

message about the risks associated with *not* breastfeeding rather than the benefits of breastfeeding. This was in recognition of breastfeeding being the physiologically 'normal' model of feeding (AAFP, 2004, p. 2). The AAFP state that the strongest evidence indicates that the positive effects of breastfeeding are most significant with six months of exclusive breastfeeding. Health risks increase with decreased exclusive breastfeeding and babies fed no human milk are at the greatest risk of adverse outcomes. Cattaneo (2007) also presents an argument for a paradigm shift to the harms or risks of not breastfeeding rather than the benefits of breastfeeding.

Why breastfeeding is important to mothers

Breastfeeding also has a positive impact on the health of mothers. Previously identified health protective effects include a reduced risk of pre-menopausal breast cancer (Zheng et al., 2001); a protective effect of duration of lactation and a 25 percent reduction in both premenopausal and postmenopausal breast cancer in women who were breastfed as babies (Freudenheim et al., 1997; Freudenheim et al., 1994); a possible reduction in the risks of ovarian cancer (Riman, Nilsson & Persson, 2004; Tung et al., 2003); a possible reduction in the risks of osteoporosis and hip fracture (Karlsson, Ahiborg, & Karlsson, 2005); potential contraceptive effects reported at 98 percent in the first six months after the birth (Kennedy, Rivera, & McNeilly, 1989).

New and important studies have also emerged related to cardiovascular health:

- **Incidence of myocardial infarction in middle to late adulthood** – Stuebe et al., (2009) assessed the duration of lactation and maternal incident myocardial infarction in the prospective cohort of 89,326 parous women in the Nurses' Health Study. Women who breastfed for a lifetime total of two years or longer had a 37 percent lower risk of coronary heart disease. After adjustment for early adult adiposity, parental history and lifestyle factors, women who had breastfed for a lifetime total of two years or longer had a 23 percent risk reduction.

- **Duration of lactation and risk factors for cardiovascular disease** – Schwarz et al., (2009) examined data from 139,681 postmenopausal women. Dose-response relationships were seen and women who reported a lifetime history of more than twelve months of lactation were less likely to have

hypertension, diabetes high cholesterol or cardiovascular disease than women who had never breastfed.

- **Anxiety reduction and lower blood pressure in breastfeeding women** – Unväs Moberg (2003) has contributed a huge body of work to increase the understanding of the hormone oxytocin. When mothers nurse their babies, their blood pressure decreases and the levels of the stress hormone cortisol decrease. This indicates a reduction in the activity of the sympathetic nervous system and a diminished adrenal response (Unväs Moberg, 2003, p. 97) Measurements of brain activity in nursing animals show that many sleep while they nurse their young. The positive behavioural and physiologic changes persist through the entire duration of breastfeeding. Unväs Moberg, Johansson, Lupoli and Svennersten-Sjauna (2001) suggest that oxytocin facilitates not only relaxation and claim in the mother but it also stimulates maternal interaction and the attachment process.

Health status of infants, toddlers and pre-school children in early childhood education and breastfeeding protection

Breastfeeding protects infants, toddlers and pre-school children from infection and promotes and protects child health. Out-of-home care erects barriers to continued breastfeeding, which may result in a significant higher risk of infection for the participants in early childhood education centres, if breastfeeding is reduced or duration is shortened.

Dubois and Girad (2005) studied the protective role of breastfeeding on child health in relation to childcare attendance during the first five years of life. A total of 1841 children were included in the data sample for analysis. Results indicated a positive effect on health, which persisted up until the second year of life. Breastfeeding reduced the number of antibiotic treatments given to children entering day-care before the age of 2.5 years. More at risk children were reported to receive protection also.

Pettigrew et al., (2003) investigated the association of breastfeeding with illnesses requiring a visit to a health care provider amongst infants under-six months. Analysis of data from 674 breastfeeding women was completed. Study conclusions included confirmation that the protective effects of breastfeeding amongst first-born children increased with a longer duration of breastfeeding. The protective effects

against visits to a health care provider were reported as diminished when additional children were in the household. Although the study states that 484 women [n=674] were still breastfeeding at six months one weakness of the study is the failure to define 'breastfeeding' further. The data collection instrument was reported as making it impossible to separate bottle-feeding with breastmilk from bottle-feeding with infant formula. Exclusive breastfeeding, which is the most protective, particularly in babies under six months, was not able to be determined. Therefore this study is likely to have underestimated the protective effects of breastfeeding.

Questionnaires were completed by the parents of 846 children in an Australian study of illness and child day care centres (Slack-Smith, Read, & Stanley, 2002). Differences between children attending centre day care (CDC) and family daycare homes (FDC) were found. There was a significant association with more than six respiratory illnesses in the year, otitis media, asthma and glue ear in CDC children as opposed to FCD children. Children in the study who had never been breastfed were significantly more likely to have been admitted to hospital with respiratory problems. A weakness in this study again was a lack of definition of breastfeeding.

Not being breastfed was also identified as a modifiable factor in the onset of acute otitis media and otitis media with effusion, in a study of 306 infants in the United States. Duffy, Faden, and Wasielewski, Wolf and Krystofik (1997) found a higher incidence of otitis media in infant formula fed infants. As day care outside the home was identified as a risk factor for otitis media supporting breastfeeding in early childhood education is a crucial factor.

As reported in Farquhar and Galtry, (2003) there is considerable medical literature available on child care as a risk factor for infectious illnesses, which include respiratory infections, ear infections and gastrointestinal infections. The protection, promotion and support for breastfeeding continuance in early childhood education settings therefore plays a potentially vital role in child health improvements.

Breastfeeding and mothers returning to the paid workforce

The *International Labour Organisation Convention 183*, issued in 2000 (ILO, 2000) which covers maternity protection at work, coupled with Convention 156, which covers family responsibilities, provide guidelines for countries to safeguard not only the interests of parents in the workforce but the well-being of their children. Working parents are entitled to sufficient job protected leave. Payment for parental leave, however, is a decision taken by individual countries.

New Zealand currently has provision for fourteen weeks of job protected paid parental leave with employee eligibility criteria being work for an average of at least ten hours a week continuously, with the same employer, in the six or twelve months immediately before the baby's expected date of birth or baby adoption. Extended unpaid leave is also available for up to fifty-two weeks if an employee has worked for the same employer continuously for twelve months or more (Department of Labour NZ, 2007). In a recent UNICEF report addressing a league table of early childhood education and care in economically advanced countries, NZ was positioned low on the tables in terms of our parental leave policies: Out of 25 OECD countries NZ was 22nd in its provisions of paid leave (UNICEF, 2008, p. 16).

Kell and Associates (Department of Labour, 2007) undertook a report examining parental leave and carers leave, in the International context, on behalf of the New Zealand Department of Labour. Five main areas of policy context under which parental leave policies operate are highlighted in this report. These are, maternal and child health; the well-being of preschool children; income security for families with children; the 'attachment' to the labour market of women; gender equity within families and the labour market. It is recognised that the issues embedded within the parental leave debate, as to the optimal length of leave, are complex and Kell and Associates (Department of Labour, 2007) note that financial stability for families is important.

To provide maximum benefits for parents and children leave provisions would allow sufficient time for maternal birth-recovery, time to establish breastfeeding robustly and to exclusively breastfeed for six months and to continue breastfeeding for at least a year, sufficient income replacement during leave to protect against economic hardship, paternity leave to enable fathers to participate in their children's

lives, choices and flexibility for parents to make a decision about what works best for their family, and the availability of affordable, accessible and appropriate child care facilities (Department of Labour, 2007).

Galtry and Annandale (2003) discuss breastfeeding friendly workplaces and the benefits to business from supporting breastfeeding and point out that research suggests that supporting breastfeeding among employees is not purely of benefit to the employee. Supporting breastfeeding in workplaces may also result in an earlier return to work by some mothers, employee loyalty, improved retention of female employees, lowered numbers of sick-leave days, directly related to reduced infant illness, improved morale and productivity and an improved company image.

Baker and Milligan (2008) examine issues related to employment, maternity leave, health and breastfeeding in Canada and reinforce that data on returning to the paid workforce consistently identify a relationship with both shortened duration of breastfeeding or never starting breastfeeding. Other research examined by Baker and Milligan suggests that maternal paid employment post-birth is associated with shortened duration of breastfeeding but not decreased initiation.

Conclusions from the Baker and Milligan (2008) study are that increasing maternity leave entitlements in Canada resulted in a significant positive effect on the duration of breastfeeding. Leave from work had been increased by more than three months for those eligible for leave in Canada. Leave entitlement had previously been fifteen weeks of paid benefits for mothers, and a further ten weeks that could be split between the mother and the father, giving a total of twenty-five weeks of benefits. After December 2000 another twenty-five weeks were added, making thirty-five weeks that could be split between the mother and father. This potentially gave an entitlement of fifty weeks. Required previous work hours for eligibility were also reduced from 700 hours to 600 hours. The increase in exclusive breastfeeding at six months was reported to be nearly forty percent.

Kell and Associates (Department of Labour, 2007) reported that in Canada thirty-nine percent of women were not eligible for paid parental leave due to factors such as self-employment and not being previously employed. Fifty-two percent of mothers were reported as taking nine to twelve months off work.

In a U.S. study, Guendelman et al., (2009) found that maternity leave after the birth of a baby was more beneficial for breastfeeding in those groups of women who had non-managerial and less flexible jobs. The impact of a short maternity leave of ≥ six weeks or six to twelve weeks after birth was associated with a failure to establish breastfeeding and increased probability of cessation in this study. A recommendation for pediatricians to support maternity leave and advocate for flexible workplaces and extension of paid maternity leave for breastfeeding women was made.

Galtry and Callister (2005) discuss how mothers, who wish to resume employment soon after giving birth and/or who are unable to take a long period away from work to breastfeed, may extend their breastfeeding by expressing breastmilk in the workplace.

Robust breastfeeding and breastmilk supply is dependent on removal of breast milk from the breast and maintaining hormonal responses, therefore, without the baby breastfeeding regularly or breast expression, either by a hand or by breast pump, milk supply will reduce (Cox, Owens, & Hartmann, 1998; Cregan, Mitoulas & Hartmann, 2002; Kent, 2007; Kent et al., 2006). Access to expressing or lactation breaks within workplace settings for breastfeeding women is essential.

The new 'Breaks and Infant Feeding' provisions, which are within the *Employment Relations (Rest Breaks, Infant Feeding and Other Matters) Amendment Act,* became law in New Zealand on 1st April 2009. Employers are now required to provide appropriate facilities and breaks for employees, who wish to breastfeed or express breastmilk, as far as is reasonable and practicable within individual circumstances. The breastfeeding breaks are unpaid and are to be provided in addition to standard rest and meal breaks unless the employee and employer agree otherwise.

Breastfeeding women are encouraged to discuss requirements with their managers to make arrangements which are suitable for both parties and which also aim to protect, promote and support breastfeeding. The length and frequency of these breaks is described as a matter for negotiation between employer and employee and although 'appropriate facilities' are not defined within this Act it is suggested that a separate and private space is provided and access to a fridge or chilly bin for storage is likely to be necessary for the mother who is expressing her breastmilk.

Galtry and Callister (2005) point out that there is no established body of research evidence of the effectiveness of long-term breastmilk expression. There is one study by Win et al., (2006) who investigated a cohort of 587 mothers of whom 93.5% were breastfeeding their babies when they left the hospital after birth. Study findings indicated that mothers who expressed breastmilk were more likely to breastfeed for six months. The cohort demographics, however, were described as slightly biased, in that a return to work was likely to be lower in this group, plus the definition of breastfeeding was 'full' breastfeeding for 172 babies (32.5%) and this reduced to 'any' breastfeeding for 421 babies (79.8%), as early as four weeks of age. Win et al., also suggest that women using breast pumps require continuing support particularly in the first few weeks of usage.

The changes over time in expressing 'demands' on mothers in the paid workforce are discussed by Angeletti (2009) who points out that mothers expressing breastmilk for their babies require information about the likely time-limited nature of breast expression. In an exclusively breastfed infant, milk intake increases until about one month of age and then it stabilises (Kent, 2007; Kent et al., 2006). Intake of breastmilk varies between individual infants but at six months, when complementary or supplementary feeds are introduced into the diet, the amount of milk a mother needs to express may decrease. The actual breastfeeding relationship between the mother-infant when they are reunited will assist in maintaining milk supply, and Angeletti discusses 'reverse-cycle feeding' which is a term employed by Mason and Ingersoll (1997). This describes how some infants reorganise their feeding patterns when access to their mothers is decreased during the day and then compensate for this by breastfeeding frequently at night. This is within the realms of 'to be expected' and 'normal' breastfeeding baby behaviour but mothers require information not only about how to establish and maintain their lactation but also about the wide range of normal experiences for breast expression, breastfeeding and breastfeeding and work.

The most common concern of breastfeeding mothers, regardless of their workforce status is how to maintain the breastmilk supply and as described by Bocar (1997) mothers require access to information to develop the skills needed to successfully combine breastfeeding and paid employment.

Fein, Mandal, & Roe (2008), analysed data from 810 mothers who worked and breastfed. Four strategies that mothers used to combine work and breastfeed were

analysed utilising regression and censored regression models. The four strategies were; feeding directly from the breast only; pumping and feeding directly from the breast; pump only; neither pump nor breastfeed during the work day. Study results indicated that the most successful strategies for positive breastfeeding duration were the ones which involved directly feeding from the breast and this was better than pumping only. The shortest duration of breastfeeding was associated with no pumping or breastfeeding at all during the work day.

Recommendations for ways to enable direct breastfeeding were suggested by Fein et al., such as child care at the work site, working from home, keeping the infant at work, allowing the mother to leave work to go to the infant and breastfeed, and having the infant brought to the work site. Breastfeeding supportive workplace policies and family friendly work environments were recommended by Hawkins et al., (2007), as they found, in a study of 6917 UK breastfeeding mothers, that breastfeeding was more likely to continue past four months if work flexibility and family friendly arrangements were offered.

Mother-employee wellness was described as an issue for employers by Brown, Poag, and Kasprzycki (2001) in a study of employer knowledge, attitudes and provision of support for breastfeeding employees. Some employer participants stated that breastfeeding demands at work created stress for mothers and there was concern about employees either leaving their jobs or becoming less productive in their work. Providing workplace breastfeeding support, however, was seen as diffusing some of the stress for breastfeeding employees. The positive marketing potential of becoming a family-friendly workplace was also seen as desirable from a recruitment incentive and a benefits tool perspective by employer participants.

Galtry (1995) suggested that more consideration needed to be given to the protection of breastfeeding, alongside the active promotion of breastfeeding, which was occurring at that time and which has of course continued within New Zealand and globally. It is encouraging to note that within New Zealand there have been many programmes initiated now which are concerned with the support and protection of breastfeeding rather than purely the promotion. The issues of breastfeeding duration and the return of mothers to the paid workforce is challenging and complex but the recent breaks and infant feeding provisions and proposed guidelines for supporting breastfeeding in early childhood education settings are positive strategies to not only

improve breastfeeding rates but hopefully to reduce, rather than increase, life-stress for mothers and families and to facilitate wellness.

He Korowai Oranga: Māori Health Strategy and breastfeeding support for Māori women

Māori are the indigenous people of New Zealand and breastfeeding rates in this population have consistently been reported as lower than the rates for New Zealand European babies. The 2006 Ministry of Health reported breastfeeding statistics indicated that at six months only 17 percent of Māori babies were exclusively and fully breastfed compared to 29 percent of New Zealand European and 19 percent of Pasifika babies (MOH 2008). These figures are from Plunket Society data and therefore do not include the percentage of Māori babies who are being seen by Tamariki Ora services.

He Korowai Oranga (2002) is aimed at reducing health inequalities for Māori and improving Māori health. The strategy recognises that services, programmes, interventions and initiatives to improve the health of Māori are required to be accessible, appropriate and effective for Māori people. To this aim the principles and pathways of whānau ora are promoted, protected and supported. These key pathways are whānau, hapū, iwi and community development, Māori participation, effective delivery of services and working across sectors to achieve these effective, accessible and appropriate services.

The WHO/UNICEF *Baby Friendly Initiative* documents have been adapted for use in New Zealand and both the implementation of the *Ten Steps to Successful Breastfeeding* within maternity facilities and the *Seven Point Plan* for the protection, promotion and support of breastfeeding in the community are undertaken with both recognition of, and active support for, the principles of Te Tiriti o Waitangi; Te Uru (participation), Te Tiaki (protection) and Te Mahi Ngatahi (partnership).

Recent research by Glover (2008) which set out to investigate the factors that influence Māori women's decisions to breastfeed and their choice of kaupapa Māori breastfeeding advice versus generic breastfeeding advice services was conducted between 2004-2006. The five influences or barriers which have been identified were interruption to the indigenous breastfeeding culture, early difficulties with breastfeeding in the first six weeks, poor or inadequate professional support, perception of an insufficient breastmilk supply and a return to the paid workforce.

Fifty-nine women with diverse ages, socioeconomic status, pregnancies, family size, breastfeeding experiences and service use participated in this project, most self-identified as Māori and twenty-five partners and family members were also interviewed. The exclusive breastfeeding rate in this group of women was ten percent at six months. Some mothers had to return to work and expressing breast milk to leave with caregivers was described as an "unsustainable activity" (Glover, 2009, p. 8).

Glover's research also suggests that breastfeeding for Māori women needs recognition as a tikanga, which means a culturally right, best and safe practice. Breastfeeding advice and support utilising Māori models of health and Māori philosophies of well-being, particularly the spiritual dimension, were also recommended with informality of advice being compatible with the way breastfeeding is discussed within the whānau.

In regards to paid employment issues, continuing work on extending paid parental leave, implementing breastfeeding friendly workplaces and providing breastfeeding protection, promotion and support in early childhood education and child care settings may be pivotal in reaching the goals of increasing breastfeeding duration in all New Zealand women, including Māori women.

Abel et al., (1999) conducted a qualitative study of infant care practices in Auckland Māori, Tongan, Samoan, Cook Island, Niuean and Pakeha families and found that Māori and Pasifika parents ceased breastfeeding, or cut down breastfeeds on returning to work. A recommendation to explore paid parental leave was suggested but early childhood education and 'away from mother care' and breastfeeding issues were not explored at this time. A later paper by Abel et al. (2001) found that all the ethnic groups perceived breastfeeding as important but had difficulties establishing and maintaining the practice.

Glover (2008) makes a recommendation for increasing the duration of paid parental leave and extending paid leave to include part-time and casual workers. As expressing breastmilk was seen as unsustainable by some Māori women in the Glover study this is also an area requiring attention. For any breastfeeding initiatives to be effective for Māori, however, guidelines require development by Māori and/or in

partnership with Māori, utilising a strengths-based model and apt cultural guidance to ensure appropriateness and increase the likelihood of effectiveness.

Breastfeeding and the health of Pasifika Communities in New Zealand

Within New Zealand there are many different Pasifika communities and it has been recognised that there is limited research on breastfeeding and the supports and barriers to breastfeeding within these communities (New Zealand National Strategic Plan of Action for Breastfeeding, 2009, p. 30). The New Zealand Breastfeeding Advisory Committee [NBAC] noted that evidence indicated a token service provision or a marginalised response to the needs of Pasifika mothers (2009, p. 29).

Kingi (2008) describes the core cultural values of Pasifika peoples, which include family, community, spirituality and a holistic view of life and health. Kingi recommends that provider services for Pasifika peoples must view cultural identity and cultural pride as positive factors in health care and the prevention of illness. Taufa (2008) examines the issues of income and employment amongst Pasifika people and highlights the pressures on Samoan families resulting from lower incomes and the commitments made to send money to family who remain at home in Samoa, to donate money to the church, and to requests for financial contributions for events, gifts or functions. Many Pasifika people are working in low skilled jobs for the minimum wage and managing breastfeeding and /or expression of breastmilk in these settings may be challenging.

The *Pacific Health and Disability Action Plan* aims to reduce inequalities for Pasifika people (Ministry of Health, 2002). Identified health problems in Pasifika children such as pneumonia, other respiratory infections, asthma, obesity and the hearing problems of new school entrants are linked to not being breastfed (Burke et al., 2005; Chen & Rogan, 2004; Goldfield et al., 2006; Mayer-Davis et al., 2006; Oddy et al., 1999; Oddy & Peat, 2003; Rovers, de Kok, & Schilder, 2006; World Health Organisation, 2007).

Factors associated with stopping breastfeeding in Pasifika mothers before six weeks post-birth of their babies, included prior employment, being in current employment and regular childcare (MOH, 2002). Between the years of 2000-2006 the percentage of Pasifika new entrants reporting prior participation in early

childhood education increased from 76.1% to 84.2%. (Craig, Taufa, Jackson & Han, 2008).

The National Breastfeeding Advisory Committee (2009) recommended the development of supportive workplace policies for both Māori and Pasifika women in the paid workforce (p. 30). Guidelines for both the development of appropriate services to meet the needs of breastfeeding women in Pasifika communities and their infants, toddlers and pre-schoolers within early childhood education settings requires input from these communities during the planning and development stages.

Breastfeeding and the health of Asian communities in New Zealand

Asian people resident in New Zealand represent a wide range of diverse cultures and communities with distinct and different needs. The complexity of these diverse cultural needs and the limited research into breastfeeding issues means that the supports and barriers to breastfeeding within these communities have not been identified fully.

Statistics are also limited in their usefulness as the diverse range of Asian people resident in New Zealand are not defined sufficiently to assist with identification of current and developing health issues. A recent Asian Health and Nutrition seminar (Auckland, 2008) highlighted the growing rates of ill health from such conditions as cardiovascular disease, obesity and diabetes within Asian communities in New Zealand. These are conditions of ill health with an evidence based link to not being breastfed.

A Primary Health Organisation [PHO] in Canterbury investigated the healthcare needs of Asian people in the wider Christchurch area (Reid et al., 2008). The study of 229 individuals represented 480 family members and of the survey respondents 35 percent were Chinese, 31 percent Korean and 30 percent Japanese. Limited feedback was obtained from other Asian groups. Breastfeeding was not a topic of investigation in this survey but as the results indicated a significant degree of unmet health needs it is possible that barriers to breastfeeding will exist within these populations.

It has been reported that 23 percent of women in New Zealand were born overseas and 54 percent of these women are Asian. The development of appropriate interventions that may support breastfeeding is a pressing need as reported rates of

Asian [undefined further] exclusive and full breastfeeding rates at six weeks are lower than for any other ethnic group (MOH, 2008). As an example of the differences that can be identified when the broad term 'Asian' is broken down further, statistics presented at the Asian Health and Nutrition seminar in Auckland, related to Chinese women, suggest that in 2006-2007 only 40 percent of Chinese women initiated breastfeeding with 30 percent still breastfeeding at six weeks and 20 percent at three months. In this cohort of Chinese women it was reported that there was no breastfeeding at six months.

De Souza (2006, 2008) makes a number of recommendations for improving breastfeeding rates in different Asian communities. These recommendations include considering the information needs of different Asian women from all backgrounds when planning service delivery, expanding the cultural safety knowledge of the health and breastfeeding support workforce and the development of resources suitable for these women who wish to breastfeed or who are breastfeeding. Identifying the needs of women from these communities who may be using early childhood education or child care services is also necessary for the effective development of breastfeeding guidelines for these settings.

Breastfeeding migrant and refugee women in New Zealand

As De Souza (2006) points out, mothering and migration are both major events in the life of women. Migration can cause a disruption to cultural practices and beliefs and many women experience a lack of support due to a loss of their social networks which can lead to challenging issues in the transition to both mothering and breastfeeding. De Souza (2006) found that some women needed to rely more on their husbands than they usually would in their traditional cultural settings.

Migrant and refugee women resident in New Zealand come from a range of cultures with diverse experiences of health, well-being, parenting and breastfeeding. There is limited New Zealand research available about breastfeeding women within these diverse cultures. In a study of migrant Vietnamese women in Canada, Groleau et al., (2006) found that elements of breastfeeding support were lost with migration and that breastfeeding is strongly influenced by culture and rituals even in a new country and society. Vietnamese women in Vietnam are reported to breastfeed for at least one year but a study of Vietnamese women and breastfeeding in Australia found that they had the lowest breastfeeding rates (McLachlan & Forster, 2006).

Cambodian, ethnic Chinese and Vietnamese women believed that formula was superior to breastmilk for a number of reasons in a U.S study of 110 women. Excessive cooling during childbirth was of concern to these women and they tried to counter-balance this by consuming hot foods for 100 days after the baby's birth. This cultural practice is based on the Asian humoral medical system. Because a hot diet was thought to produce unhealthy breastmilk women preferred to use infant formula after the first month, which they thought was safer and more nutritious than breastmilk (Fishman, Evans, & Jenks, 1988). McLachlan and Forster (2006) note that one reason given for low breastfeeding rates in immigrant women living in Australia, was an economic need to return to the paid workforce, but again there is limited research. Statistics from licensed early childhood services in 2008 in New Zealand reflect an increase in Asian enrolments of 2,125 or 22.6 percent since 2004. Ethnicity data is however limited as Asian is not further defined. The category of 'other' shows an increase in enrolments in 2008 of 4,242 or 177.3%.

In regards to the Islamic culture breastfeeding is underpinned by a religious base and it is recommended that a mother breastfeeds for two years if possible (Gatrad, & Sheik, 2001; Shaik, & Ahmed, 2006). The Muslim child has 'to be suckled' as part of her/his Allah given rights and "the mothers shall give suck to their children for two whole years …" (Qur'an 2:233).

Shaik and Ahmed (2006) explain that both parents are involved in the decision to wean a baby from the breast. Issues of privacy for breastfeeding are important in Islamic culture as Muslim etiquette states that women should not expose certain body parts to anyone, except their husbands, and this includes the breasts during breastfeeding (Gatrad & Sheik, 2001). This may be an issue in early childhood education settings as privacy for breastfeeding in these settings would be essential.

Some Muslim babies may have been exposed to the practice named Tahneek which involves having a small piece of softened date being rubbed on to their palate before their first breastfeed. This practice occurs because the Prophet Muhammed softened dates in his mouth (Gatrad, & Sheik, 2001; Shaik, & Ahmed, 2006). As the date does not enter the digestive system further than a brief rubbing in the mouth these babies could still be defined as exclusively breastfed.

De Souza (2006) recommends that support services for women having a baby in a new country need development and that the needs of migrant women must be

considered. De Sousa (2006) also suggests that research is necessary to identify the factors that support breastfeeding for these women in the absence of social support.

Other barriers to breastfeeding related to mothers returning to the paid workforce

Infants separated from their mothers require their expressed breastmilk feeds given to them by a breastfeeding-friendly, infant-friendly method. As described in the World Health Organisation's guiding principles for complementary feeding of the breastfed child (2004, p. 14), responsive feeding should be practiced "applying the principles of psycho-social care". Attention to how, when, where and by whom the infant/child is fed are considered important as well as what is fed to the infant (WHO, 2004). There are guidelines for caring for breastfed infants in child care settings which include holding the infant close for feeding in a way that mimics breastfeeding, being responsive to the infant's cues for frequency and amount of feed and pacing the feeds sensitively and allowing the infant to begin feeds gently (Australian Breastfeeding Association, 2006; Vermont Department of Health: Healthy Vermonters 2010). It could also be argued that utilising a gentle, responsive, sensitive and psycho-social model would be the optimal way of feeding all infants, including formula-bottle-fed infants.

The desire for privacy as a necessity for comfortable connected breastfeeding has been identified in a number of studies (Dignam, 1998; Guttmann & Zimmerman, 2000; Harris, Nayda & Summers, 2003; Hauck, 2004; MacLean, 1990; Mahon-Dalya & Andrews, 2002; Schmied & Barclay 1999; Scott & Mostyn, 2003; Smith, 2003; Stearns, 1999). Cultural factors are also an issue here with Heath et al., (2000) reporting that 83 percent of Māori mothers in their study of 59 women state that they were embarrassed to breastfeed in public. As previously mentioned Muslim women are also likely to require privacy for breastfeeding (Gatrad, & Sheik, 2001). Roe, Whittington, Beck Fein, and Teisl (1999) in their study of 712 US mothers who worked before the birth of their babies and planned to return to work, also found that embarrassment with the act of breastfeeding was problematic. It is likely that providing private spaces for some breastfeeding mothers in early child care education settings will be highly desirable.

While there is a considerable body of literature on how to combine working and breastfeeding for a mother (woman) where the infant is, while the mother is working,

is rarely discussed. There are considerable amounts of advice for the working mother on how to manage her time, her day, her workload (Mason & Ingersoll, 1986), where and how to express her breastmilk (the mechanics of pumping often discussed at length) (Cardenas & Major, 2005), how to handle and store the EBM (Cassie, 2007), how to manage the male workmates (Abdulwadud & Snow, 2009; Charrerji & Frick, 2005; Gatrell, 2007; Zinn, 2000), building support systems, and taking care of own health (James, 1999; United States Breastfeeding Committee, n.d), all to support the continuation of breastfeeding. When childcare or 'away from mother care' is mentioned the focus is usually around the mechanism of expressing for breastmilk – ie. the emphasis on pumping and expressing – and this emphasis on 'pumping' has been used in recent media discussions to challenge breastfeeding as the best for babies while women are 'trapped by breastfeeding" (i.e expressing and pumping) (LePore, 2009; Rosin, 2009).

Studies that discuss the barriers for continuation of breastfeeding most often cite lack of support for mother, perceived lack of milk (or shortage of milk supply), employment conditions that make it difficult to access the infant for feeding, lack of safe or hygience facilities for expressing and/or storing breastmilk, and societal pressures, including feminist critiques of breastfeeding (Cardenas & Major, 2005; Hall Smith, 2008) and media misinformation (Brown & Peuchaud, 2008). Very few studies mention lack of support from early childhood centres as a reason, yet this is one of the very important variables that has been under-recognised in research (exceptions in New Zealand being Farquhar and Galtry, 2003, 2004, and Vogel, 1999).

Some of the United States literature concentrates on the call for workplace childcare to facilitate breastfeeding. Galtry and Callister (1995, p. 38) list eight 1980s studies where on-site childcare is promoted to enable breastfeeding to be more than a 'pumping' exercise and to support the relationship aspect between mother and child that is such an important aspect to breastfeeding. However, this recommendation as a realistic suggestion to address the barriers to breastfeeding would only solve a very small number of mothers and infants with this issue who use child care (Galtry, 1998). For mothers who prefer to breastfeed their children directly, time to do this (breaks from work) and location (how far away the child is) can be the key barriers to continuation of feeding (Cardenas & Major, 2005).

Importantly, for some mothers using early childhood services it may not be because of employment, but using the early childhood experience for her infant for other reasons (Duncan et al., 2005; National Breastfeeding Advisory Committee of New Zealand's advice to the Director-General of Health, 2009). Therefore, the early childhood centre should provide policies to protect and support breastfeeding for these families also.

Support for Breastfeeding in Aotearoa New Zealand

Breastfeeding Initiatives

Infant feeding practices have an impact on the health, nutritional, growth and developmental status of infants and young children (WHO, 2003). This is significant, for not only infancy and childhood, but evidence indicates that breastfeeding mothers' health and adult health is also influenced by early feeding practices. The WHO/UNICEF *Global Strategy for Infant and Young Child Feeding* [GSIYCF] was developed to highlight the impact of feeding practices and as a guide to action for both governments and societies to "give tangible effects to the Strategy's aim and practical objectives" (GSIYCF, 2003, p. vi).

The Global Strategy not only aims to revitalise the *Baby Friendly Initiative* (WHO/UNICEF, 1989) and the *Innocenti Declaration* (WHO/UNICEF, 1990 & 2005) but also the *International Code of Marketing of Breast-milk Substitutes* (WHO, 1981). Recognition also needs to be given to not only the continued changes in composition of breast-milk substitutes but to the development of industry marketing strategies since the International Code was written in 1981. The World Health Assembly attempts to revitalise and maintain the significance of the International Code by the development of subsequent, relevant resolutions on a regular basis.

Protecting, promoting and supporting breastfeeding is a global public health recommendation and within New Zealand the Ministry of Health has endorsed and actively supported the goals of the WHO/UNICEF *Baby Friendly Initiative* to improve breastfeeding rates within New Zealand. The *Baby Friendly Hospital Initiative* has been successfully implemented into the majority of New Zealand maternity hospitals and programmes in the community, based on the WHO/UNICEF *Baby Friendly Community Initiative,* have now been initiated and developed. It is the *Baby Friendly Community Initiative* that is of the most relevance to the development

of community support for breastfeeding women and to the issues of breastfeeding friendly workplaces and early childhood education settings. The *Seven Point Plan* for the *Baby Friendly Community Initiative* is described in Table 4.

Table 4. The WHO/UNICEF Baby Friendly Community Initiative

Seven Point Plan for the protection, promotion and support of breastfeeding in the community.
1. Have a written breastfeeding policy that is routinely communicated to all staff and volunteers. 2. Train all health care providers in the knowledge and skills necessary to implement the breastfeeding policy. 3. Inform pregnant women and their families about the benefits and management of breastfeeding. 4. Support mothers to establish and maintain exclusive breastfeeding to six months. 5. Encourage sustained breastfeeding beyond six months, to two years or more, alongside the introduction of appropriate, adequate and safe complementary foods. 6. Provide a welcoming atmosphere for breastfeeding families. 7. Promote collaboration among health services, and between health services and the local community.

The *New Zealand National Strategic Plan of Action for Breastfeeding* (National Breastfeeding Advisory Committee, 2009) has been developed to provide a strategic framework aimed at improving breastfeeding rates in New Zealand. Within this strategic plan are outcomes and objectives, to not only give guidance for action, but to highlight areas which need both addressing and revitalising to progress the work of protecting, promoting and supporting breastfeeding. Workplace, childcare and early childhood education represent one of the four key settings addressed in the strategic plan. The *Baby Friendly Community Initiative Seven Point Plan* represents a template for action in community settings.

The New Zealand Ministry of Health recommends exclusive breastfeeding until around six months of age with the introduction of complementary foods at around six months with continued breastfeeding until at least one year of age or beyond (MOH, 2008). The World Health Organisation's global public health recommendation is exclusive breastfeeding for the first six months of life with the introduction of safe complementary foods at six months and continuation of breastfeeding for two years of age and beyond (WHO/UNICEF, 2003).

In 1999 the New Zealand Ministry of Health adopted standard breastfeeding definitions following consultation with organisations such as the Royal New Zealand Plunket Society, La Leche League New Zealand, and the New Zealand College of

Midwives. Prior to, and at this time, breastfeeding data was being collected inconsistently using a variety of definitions. The significance of this is described well by Auerbach, Renfrew and Minchin (1991) who reviewed forty-three research studies on the effects of breastfeeding and found that supplementary feeding was rarely taken into account in these studies and partially breastfed infants were recorded together with exclusively breastfed infants. This led to a lack of clarity and validity in the resulting data and findings. When exclusively breastfed babies were included in studies, the finding consistently demonstrated advantages to breastfed infants. To clarify the meanings of breastfeeding descriptions the New Zealand Ministry of Health definitions are presented in Table 5.

Table 5: N.Z Ministry of Health Breastfeeding Definitions (2002).

Exclusive Breastfeeding	The infant has never, to the mothers' knowledge, had any water, formula or other liquid or solid food. Only breastmilk, from the breast or expressed, and prescribed* medicines have been given from birth.
	* as per the Medicines Act 1981.
Fully Breastfeeding	The infant has taken breastmilk only, no other liquids or solids except a minimal amount of water or prescribed medicines, in the past 48 hours.
Partial breastfeeding	The infant has taken some breastmilk and some infant formula or other solid food in the past 48 hours.
Artificial Feeding	The infant has had no breastmilk but has had alternative liquid such as infant formula with or without solid food in the past 48 hours

New Zealand has a relatively high breastfeeding initiation rate for a Western industrialised country, with around 90 percent of women starting out with breastfeeding, but the breastfeeding exclusivity rates decline rapidly with almost half of breastfeeding women introducing breast-milk substitutes before the baby is six weeks old. The New Zealand Breastfeeding Authority reported that 80.5 percent of babies were exclusively breastfed when going home from maternity facilities in 2005 (NZ Strategic Plan of Action for Breastfeeding, 2009, p. 26). The New Zealand breastfeeding rates at six weeks, three months and six months did not change significantly from 1997 to 2006 (MOH, 2008). The weaknesses within these data sets are related to the source of the statistics with reports being based on Plunket Society data which represents an incomplete coverage of all births and population groups. Plunket data is described as covering approximately 90 percent of all births.

The New Zealand Ministry of Health reports the breastfeeding rates (based on Plunket Society data) for six weeks, three months and six months by ethnicity with the exclusive and full breastfeeding rates reported together. The breastfeeding rates for 2008 along with the Ministry of Health breastfeeding target rates are shown in Table 6.

Table 6. Exclusive and full breastfeeding rates in New Zealand, 2008

2008	**Māori**	**Pacific**	**Asian**	**NZ European & other**	**All**	**2007 to 2008 MOH targets**	**2010 MOH targets**
Exclusive and full 6 weeks	58%	55%	59%	69%	65%	74%	90%
Exclusive and full 3 months	44%	45%	54%	58%	54%	57%	70%
Exclusive and full 6 months	17%	19%	26%	30%	26%	21%	27%

For an extended table of New Zealand breastfeeding rates from the year 1997 refer to the Ministry of Health document *Food and Nutrition Guidelines for Healthy Infants and Toddlers* (MOH, 2008).

Interventions such as the *Baby Friendly Community Initiative*, public education breastfeeding campaigns, District Health Board breastfeeding strategies, *Healthy Eating Healthy Action* (HEHA) programmes, mother-to-mother peer support networks, accessible lactation consultant services in the community, health worker breastfeeding, infant feeding and *International Code* education, the *Employment Relations (breaks and infant feeding) Bill* and breastfeeding advocacy services, which have all been actively supported and initiated by the Ministry of Health, may contribute positively to achieving higher rates of breastfeeding and a longer duration.

In 2007 exclusive breastfeeding rates, combining ethnicities, were reported as being 51.5 percent at six weeks, 39 percent at three months and 14 percent at six months. Full breastfeeding rates at six weeks were 12.5 percent, 15 percent at three months and 11 percent at six months (NZ Breastfeeding Advisory Committee, 2009).

Health and early childhood education: The New Zealand Heart Foundation's Healthy Heart Award

The National Heart Foundation promotes healthy lifestyles for under-five year-olds in early childhood education centres and the innovative *Healthy Heart Award* programme is designed to encourage an environment that promotes healthy food and active movement.

Applications for the *Healthy Heart Award* require centres to provide evidence of a current nutrition policy with a review date; a current active movement and physical activity policy, also with a review date; curriculum linked active movement examples; curriculum linked nutrition activity examples; parent/whänau active involvement; cycle menus which are checked against the Healthy Heart guidelines; food safety qualifications for food prepared at the centre; guidelines which parents receive for lunchbox items and snacks.

Guidelines provided for the early childhood education centres for development of a food and nutrition policy provide an excellent example of how a breastfeeding policy could also be developed with emphasis on staff and parental involvement and consideration of the kaupapa of the centre.

Te Whāriki (New Zealand's early childhood curriculum) principles of Mana Whenua – Belonging; Mana Atua- well-being; Mana Reo- communication, Mana Aoturoa –exploration and Mana Tangata – contribution, are actively promoted and linked to the promotion of the nutrition and physical activity culture, and also to policy development. *Te Whāriki* principles may be woven into breastfeeding guidelines for early childhood education, as they are relevant and pertinent to both breastfeeding policy development and the creation of a breastfeeding culture. Guidelines for supporting breastfeeding would sit well within this framework.

Supporting breastfeeding in early childhood services

As identified by other researchers and commentators in the area of breastfeeding and early childhood centres there are currently very few mentions of support for breastfeeding as an every-day quality practice in ECE in NZ (Akitt, 2007; Banks, 2005; Farquhar & Galtry, 2003; Farquhar & Galtry, 2004). In reflecting on her own involvement over 23 years Farquhar (2006) realized:

> I feel ashamed of my own lack of recognition of breastfeeding support as a fundamental issue for young children. It was not until after carrying out a small

> research study for Dr Judith Galtry, who was researching breastfeeding and employer support, that I even realized breastfeeding support was an issue in the quality of child care services. Further, I assumed that the lack of recognition for breastfeeding support in early childhood education policy was an unintentional oversight. However, I've come to realize that the issue of breastfeeding support is being intentionally ignored by the early childhood education community. (Farquhar, 2006, p. 253)

Some centres have obtained material in terms of handouts for parent libraries, such as pamphlets from La Leche League, however, this material is written for mothers specifically and does not provide the information that early childhood practitioners need to know for the ECE setting (Farquhar & Galtry, 2004). This lack of information, guidelines, or reference materials for early childhood staff may be one of the reasons that ECE practitioners appear to have 'ignored' breastfeeding within their settings.

Supporting breastfeeding in an early childhood setting involves supporting the relationships between the mother and the infant, enabling the mother to breastfeed her baby as often as she can, feeding expressed breastmilk (EBM) in the absence of the mother (in a style of feeding that the breastfed infant is familiar with), and knowledge of the safe handling, storage, and preparation of the EBM.

Mother-infant attachment

The possibility that mother-infant separation is damaging to the developing relationship and to the infant's development has been actively debated. Goldberg and Lucas-Thompson, (2008) discuss how the timing of return to work and the quality of the alternative care setting are important factors to consider within issues of secure infant attachment, health, behaviour and development. Goldberg and Lucas-Thompson state that research suggests a small effect of maternal employment on the security of the attachment relationship. Galtry and McCallister (2005) point out that it is more difficult to assess the psychological benefits than the physiological benefits of parents taking leave from work to care for children. The increasing recognition of the benefits of bonding to fathers as well as mothers is also mentioned in Galtry and McCallister.

Mother-infant interactions indicate that there is a complex system of mutual, physiologic and behavioral control that influences maternal behavior and growth and development of the neonate (Kuhn, & Schanberg, 1998). Mother's milk and her

touch, smell, body heat and biological rhythms in the first post-birth period are considered to provide a set of bio-behavioral regulators for the infant's autonomic nervous system, thermo-regulation, feeding and anxiety management systems (Hofer, 1995). Suckling infants face a complex and varied odour blend that forms the most meaningful part of their initial olfactory scene or "smellscape" (Doucet, 2007). Many of these positive developmental triggers are related to the presence of the mother and the act of breastfeeding rather than 'just' the breastmilk.

Staehelin, Coda Berteau, & Zemp Stutz, (2007) conducted a review on the length of maternity leave and the health of mothers and children and found that longer maternity leave was associated with fewer depressive symptoms, improved mental health and higher vitality in mothers. Longer maternity leave was also associated with a higher quality of mother-infant interactions and a longer duration of breastfeeding.

The US National Longitudinal Study of Youth reported mixed conclusions according to Sherlock, Synnes and Koehoorn (2008). Some investigators concluded that maternal employment in the first year after birth is associated with an increase in negative attachment and behavioural issues, a negative impact on children's cognitive ability and also school readiness. Other studies however, were reported as finding no differences and others suggested a benefit in child cognitive development from mother employment. Sherlock, Synnes and Koehoorn (2008) also draw attention to the fact that gaps in knowledge remain.

Given the research based evidence on breastfeeding advantages it is possible that supporting mothers to continue breastfeeding may be another factor in providing a positive influence to ameliorate some of the potentially negative effects of temporary, if regular, separation.

Morris (1995, p. 59) reminds ECE teachers that when a breastfeeding child arrives at a centre they literally come with the mother attached. As Morris discusses the advantages of breastfeeding for mother and baby she also highlights two important factors: the advantages of breastfeeding rely on the infant's consumption of breastmilk only (without formula or solid supplements), and the benefits are also benefits to the caregivers in a centre-based programmes (Morris, 1995, p. 59). Published in a practitioner journal, this paper, although slightly dated now, is a key reference as Morris sets out simply and carefully how early childhood staff can accommodate their daily routines to support and promote exclusive breastfeeding. She

identifies strategies for helping to keep baby settled while waiting for mother to return, to take breastmilk from cups and off spoons, and encourages staff to understand the benefits of working in this way so as to work collaboratively with parents to find solutions to any problems that may arise.

Best practice in centre-based care for infants and toddlers is shared around relationship-based care (Petersen & Wittmer, 2008), the attachment curriculum (Bary et al., 2007; Rolfe, 2004), or a curriculum of trust (Balaban, 2006). This approach to teaching and learning with infants is shaped around a primary caregiver (the one person who takes particular notice of the child and undertakes their care routines), who is responsive to the child: "'tuned-in' to the child and sensitive and caring in response to the child" (Wittmer & Petersen, 2006, p. 3). This style of relationship is perfectly suited for the protection of breastfeeding for an infant and mother. As Petersen and Wittmer (2008, p. 41) argue relationship-based teaching supports both the child and the teacher: "the child feels that she can make herself understood and can affect the world around her. The teacher feels that she is competent and effective in reading the child's communication, understanding her, and responding in helpful ways". Pariakian and Lerner (2007, p. 1) emphasise that infant feeding is more than just the mechanics of nutrition but that it can be called the "feeding relationship". They argue that this relationship has a significant influence in shaping children's lifelong eating habits, where the caregiver, or parent can focus on each other and "share an intimate connection", and when adults can make children feel safe, secure, and loved – key elements for children's overall healthy development (Pariakian & Lerner, 2007). Douville-Watson, Watson and Wilson (2003) stress the advantages of 'consciously' caring for the infant, by which they mean that an infant should be held when fed, maintaining eye contact: "ultimately building a secure foundation for the child…only possible through conscious caring" (Douville-Watson, Watson, & Wilson, 2003. P. 256). Gonzalez-Mena and Widmeyer Eyer (2001) emphasis that all infants deserve the same one-to-one attention and physical closeness that breastfed infants received. They recommend that centres find ways to release a caregiver (teacher) to sit and feed an infant while holding him/her without having to respond to other children at the same time. They justify this by asserting that:

> Feeding time should be quality time. One reason is that, during feeding, attachments are formed between caregivers and the children they feed. For this reason, the same caregiver should feed the same babies daily insofar as possible. (Gonzalez-Mena & Widmeyer Eyer, 2001, p. 50)

Morris (1995, pp. 60-61) identifies how the breastfeeding position – "tucked close to the mother, hands free for petting, near enough for frequent touching and eye contact – as well as to switch baby from arm to arm while feeding may be factors in healthy child development". She goes onto argue how the close physical contact between mother and baby may also act as a "safety net" for the relationship between mother and baby after periods of absence and so this should be supported as a feature of ECE experience that teachers cannot provide themselves.

Feeding children as requested by parents is also discussed as important. Greenman et al., (2008) discuss how having individualised feeding programmes for children enables carers to respond to each child (and their parent's wishes). The Canadian Child Care Federation (2002, cited in Farquhar and Galtry, 2003, p. 14) "makes the point that 'balancing the various needs and demands of mother, baby and the other children in care is a juggling act that calls for flexibility'". Farquhar and Galtry (2003) add that as well as flexibility there must be willingness, knowledge and both the financial and physical resources available. Greenman et al., (2008) highlight that when feeding is individualised for each infant the dilemma of having more than one infant to feed at a time is removed.

Early Childhood Education Policy

Farquhar and Galtry (2003, 2004), Akitt (2007), Joyce, (1999) and Banks (2005) all signal that support for breastfeeding is immediately compatible with *Te Whäriki*: *Early Childhood Curriculum*. *He Whäriki Matauranga mo nga Mokopuna o Aotearoa*. (Ministry of Education, 1996). The curriculum begins with an aspiration statement for children to become "…healthy in mind, body and spirit…." (Ministry of Education, 1996, p. 9). This statement provides the framework for breastfeeding to be supported and promoted in ECE settings. Akitt (2007) argues that:

> Breastfeeding supports infant's holistic health and development. The promotion of breast-feeding in early childhood centres through education, visible advocacy and policy development will make a substantial contribution to the overall well-being of infants and toddlers in early childhood care.(Akitt, 2007, p. 34)

Joyce (1999) promotes breastfeeding in relation to the strands of well-being, belonging, contribution, communication and exploration. The curriculum provides a visionary framework to guide ECE practitioners in their daily practices with children and their families and whänau. Farquhar and Galtry (2004) raise the concern that

breastfeeding is only used as an example of supporting the strand of "belonging" to encourage family involvement in the service, ignoring the importance of breastfeeding for learning and health outcomes (p. 140). The strand "belonging" (Children and their families experience an environment where connecting links with the family and the wider world are affirmed and extended) suggests, "mothers who are breastfeeding are supported and provided for" (Ministry of Education, 1996, pp. 56-57). Banks (2005) emphasizes that breastfeeding also fits with the strand "well-being", where "children experience an environment where their health is promoted (Ministry of Education, 1996, p. 48).

Pathways to the Future: Ngā Huarahi Arataki, was the government's 10-year vision for early childhood education (2012)[3]. The goals centre around three areas:

a) Increased participation in 'quality' ECE services;
b) Improved quality of ECE services;
c) Promotion of collaborative relationships (between parents, whänau, settings, schools, community agencies etc).

The Ministry (2007) describes these goals as leading to stronger learning foundations for children and their families. Alongside these goals have been reviews of the regulations for ECE, funding, and expansion of services for parents, families and whänau (Ministry of Education, 2007). Supporting breastfeeding in early childhood centres would directly address these three goals.

Farquhar and Galtry (2004, p. 142) argue that **participation** in ECE is threatened when mothers delay enrolment over concerns that breastfeeding may have to be stopped or experience barriers to being able to continue to feed.

Interestingly, a supportive breastfeeding environment has not appeared as an official indicator for early childhood centre **quality**. However, as recognized in the research and literature around the benefits of breastfeeding for health, learning, relationships and overall development of the child, policies and practices to support breastfeeding should be a part of all service requirements (Farquhar & Galtry, 2003, 2004).

[3] At the time of writing this document the vision for early childhood education from the elected government in 2008 has not be announced in a public document which is able to analysed here. Some changes have been made already to the timeline plan for *Pathways* but no significant document setting out the plans for the sector has been made public at this time.

Collaboration with mothers, fathers and whänau is essential to support breastfeeding in ECE. As discussed earlier, ECE staff need to be able to notice, recognize and respond to both the infants feeding cues, the mothers feeding and breastmilk production needs, supporting the relationship between the mother and the infant, and build trusting relationships between the infant and the ECE practitioner/caregiver.

Enablers and Barriers in ECE Settings

In their research of two ECE centre (one with children under two-years of age, and one with children up to five years-of-age) Farquhar and Galtry (2003, 2004) identified key enablers and barriers to breastfeeding, identified by seven staff and nine mothers. They include examples of attitudes around breastfeeding, which both discouraged mothers from continuing to breastfeed once their child had begun attending the centre, or encouraged earlier weaning in preparation of attending a centre. They identified that:

> [O]ur research identified the possibility that many more mothers are being directly or indirectly asked to decide between (a) giving up breastfeeding or breastfeeding in secrecy (e.g. taking baby down the road from their centre to breastfeed in the car), and (b) not enrolling in an early childhood service or delaying their return to work because they do not have adequate childcare support. (Farquhar & Galtry, 2004, p. 136)

Witters-Green's (2003) research in the United States surveyed and interviewed individuals involved in breastfeeding promotion, surveyed 423 prenatal clients and held four focus groups of pre- and post-partum women. Amongst the results, examining employment and breastfeeding childcare concerns, were around the mothers' perceptions of childcare providers as uneasy about feeding EBM and preferring formula (Witters-Green, 2003, p. 423).

Banks (2005) argues that policy development needs to involve staff, management and consultation with families. She promotes the idea that each centre should be developing their own policies in regards to breastfeeding and that centres promote themselves as breastfeeding friendly directly to parents (Banks, 2005, p. 29).

In searching through early childhood texts and reference books for infant and toddler feeding guidelines it became clear that the dominant information presented to pre-service and current early childhood practitioners concentrated on correct bottle-feeding and supplementary feeding of solids. While most, but not all, recommended

that breastfeeding is the preferred food for an infant, this would be discussed in only a sentence or two at the most, and then no suggestions of how this could be maintained, supported or promoted would be included. For example in a text book full of instructions and diagrams for healthy practices with children this is all that was provided for breastfeeding:

> Breast feeding
>
> Breast feeding should be encouraged wherever possible. It has many benefits and few disadvantages. (Coffey, 1998, p. 210)

Similarly, in the sections on the use of a bottle, even in the few books, which had sections on breastfeeding, the discussion was on formula feeding with a bottle, and only one text discussed expressed breastmilk (EBM) and bottle-feeding. Missing from all but one of the textbooks (Greenman, 2008) was any discussion about appropriate use of bottles for the purpose of feeding the infant with EBM. Likewise, options such as using other containers, such as cups or spoons, for feeding breastmilk to a breastfeed baby do not appear either.

Through their research Farquhar and Galtry (2003, pp. 14-28) identified the following issues for the childcare services:

- Promotion of the centre as breastfeeding friendly;
- Staff knowledge, support, and professional development opportunities;
- Recognition that breastfed infants have different needs from babies that are fed on breastmilk substitutes;
- Different cultural understandings and practices about appropriate infant feeding practices;
- Attitudes towards breastfeeding older children;
- Booking arrangements and hours of attendance;
- Meeting children's needs for optimal nutrition through breastfeeding and timely feeding and mothers' needs for childcare;
- Providing appropriate facilities and equipment to support breastfeeding and the storage, handling and preparation of EBM;
- Providing a choice of spaces in the centre for breastfeeding. (Farquhar & Galtry, 2003, pp. 14-15)

Merrill and Britt (2008) suggest a range of approaches for ECE teachers to support transitions into ECE settings for the first time for babies which includes an OAR model – Observe, Ask and Respond. This model would translate well to settling in a breastfeeding baby, yet while a range of noticing, recognizing and responding (the NZ equivalent) is described for toys, clothes, activities etc it does not mention feeding at all (Merrill & Britt, 2008).

Older children and breastfeeding

While breastfeeding is emphasised for exclusive feeding up to 6 months, and then ideally up to two-years, mothers and their children may choose to continue breastfeeding for a child over-two[4]. Indeed, there appears to be an assumption in the handbooks and texts for ECE staff that breastfeeding is for infants, and is not discussed at all for the older toddler, or young child. Breastfeeding the older child raises additional issues and concerns in the public and in early childhood centres. Liz Weatherly, who wishing to continue to feed her child (who was nearly three) at an ECE centre, was told that her child could no longer attend if she continued to breastfeed him at the centre. In her submission to the Human Rights Commission (2004) she cited how the view of the centre was that breastfeeding over the age of nine months of age is deleterious to the child. Liz's response:

> This incident has caused me much distress. I have experienced discrimintaion against me for making what I believe to be a responsible parenting choice to breastfeed, that is – to allow my child to develop at his own pace, having regard for his preferences, to assist him to grow, healthy in mind, body and spirit, secure in his sense of belonging and affirmed as an individual – all of which are enhanced by the process of breastfeeding.

In her submission, Weatherly related other mothers' stories of secretly feeding their older children and hoping that the early childhood centre, and/or the community did not discover their family practices due to the perceived discrimination that may follow (Weatherly, 2004; Weatherly & Duncan, 2003).

Early Childhood Practitioner Knowledge and Skill

In 1998 Galtry called for more attention to the knowledge of staff in ECE to the storage, preparation and feeding of breastmilk (Galtry, 1998, p. 167). The majority of literature describes three types of infant feeding practices: breast, bottle or combined (with an emphasis on the bottle = formula). There appears to an assumption that breastfed babies need formula supplements, as many women are unable to produce sufficient milk for their infants. Farquhar and Galtry (2003, p. 16) suggest that with greater knowledge and understanding about breastfeeding early childhood staff would be able to advise and support mothers to continue with their breastfeeding.

[4] The NZ Ministry of Health recommends exclusive breastfeeding for 6 months, followed by the introduction of appropriate complimentary foods, with continued breastfeeding for a year or longer.

A study in the Nagasaki prefecture in Japan discovered that while there was general willingness by the staff for breastfeeding in the 257 nurseries in the study, only 12% of staff had participated in any training and were not confident in offering support to mothers. The correct handling of breastmilk, and lack of training in this area, was identified as a key reason for staff rejecting breastfeeding in their nursery (Yamomoto et al., 2003). A study in the States by Clark, Anderson, Adams and Baker (2008) assessing the knowledge of 267 child care providers in regards to infant breastfeeding found that the majority of the respondents (79%) to their survey reported low knowledge on ways to adequately store breastmilk and formula and on when to introduce solids (Clark, Anderson, Adams, & Baker, 2008, p. 128). The authors then developed a website with infant feeding information made available (this had been decided as the preferred style of delivery of information from the respondents). As part of their assessment as to the effectiveness of the web as tool for changing behaviours, the authors concluded that the Web had been a viable resource but the results were inconclusive as to whether the Web site is linked to sustained attitude and behaviour changes (Clark, Anderson, Adams, Baker, & Barrett, 2009, p. 45).

Cavalcante, Clotildes Nunes de Melo, Bustani Carneiro and Rodrigues Silva (2005) identify that children are weaned earlier than recommended due to lack of knowledge on the part of mothers and caregivers. The authors undertook a study in Brazil to assess the knowledge of 194 carers in day nurseries in five areas of child health: breastfeeding, oral rehydration therapy, child growth follow-up, immunization, and identification of signs that indicate the need to refer the child to a health facility. The knowledge expressed through a combination of a questionnaire and a practical assessment was found to be 'poor' for all five measures. A training course was developed for the carers following this survey, addressing the five areas, and the authors conclude with the urgent need for education and training for all carers working with young children (Cavalcante, Clotildes Numes de Melo, Bustani Carneiro, & Rodrigues Silva, 2005).

The American Dietetic Association (ADA) recommends that training for child care providers be ongoing in infant feeding as the turnover for staff is high (Clark et al., 2008, p. 129). As staff turnover in NZ is similarly high, this applies to the New Zealand context also. The North Carolina BluePrint for Action also recommended ongoing training opportunities for child care providers on how to support

breastfeeding: “and to assure safe and consistent storing, handling and feeding of pumped human milk at child care facilities” (Mason & Roholt, 2006, p. 38). The Colorado Physical Activity and Nutrition Program recommend that each childcare environment should have ongoing breastfeeding support training programmes, and that there needs to be guidance for mothers as to successful transitioning of breastfeeding at home to feeding with breastmilk at the centre (Colorado Department of Public Health and Environment, n.d.).

The International Code of Marketing of Breast-Milk Substitutes and subsequent relevant World Health Assembly Resolutions

The *International Code of Marketing Breast-Milk Substitutes* (World Health Organisation, 1981) affirms that educational systems and other social services should be involved in the protection and promotion of breastfeeding and in the appropriate use of complementary foods. Breastmilk substitutes are defined in the International Code as “any food being marketed or otherwise represented as a partial or total replacement for breast-milk, whether or not suitable for that purpose” and complementary foods describe, “any food whether manufactured or locally prepared, suitable as a complement to breast-milk or to infant formula, when either becomes insufficient to satisfy the nutritional requirements of the infant. These foods are also commonly called weaning foods or breast-milk supplements (p. 13). The New Zealand government adopted the International Code in 1983 and this also requires a compliance with the subsequent, relevant, World Health Assembly Resolutions as it through this medium that the *International Code* is updated and remains current.

The aim of the *International Code* is to contribute to the provision of safer, adequate nutrition for infants by the protection and promotion of breastfeeding and by ensuring the proper use of breastmilk substitutes when necessary on the basis of adequate information and through appropriate marketing and distribution (Article 1, WHO International Code, 1981).

Infants attending early childhood education centres may be exposed to both infant formula products and complementary weaning foods at some point so up to date education and information about safety, storage and preparation of these products is essential.

The International Code, Article 5.1 states there should be no advertising or other form of promotion to both the general public or mothers and that manufacturers

or distributors should not provide either directly or indirectly to pregnant women, mothers or members of their families, samples of products within the scope of the International Code –Article 5.2.

The International Code therefore does not permit contact between parents or other family members and industry personnel at early childhood education centres nor the distribution of free samples of infant formula or baby food to early childhood education workers to dispense to women. Farquhar and Galtry (2003) in their discussion about breastfeeding-friendly childcare also highlight that *International Code* issues are relevant to early childhood education settings.

The Code in New Zealand

The New Zealand MOH has developed a code of practice for health workers, the aim of which is to contribute to the provision of safe and adequate nutrition for infants by protecting and promoting breastfeeding, ensuring the proper use of breast-milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution. [5] The Health Workers' Code is based on MOH policy from the *Food and Nutrition Guidelines for Healthy Infants and Toddlers (Aged 0–2): A background paper*, and the International Code of Marketing Breast-Milk Substitutes, and includes all types of formula for infants aged 0-12 months.

The articles of the Code for Health Workers are as follows:

1. Health workers must protect, promote and support breastfeeding.
2. Health workers should enable mothers to make an informed decision about infant feeding.
3. Health workers must assist mothers and families to breastfeed.
4. Health workers must ensure appropriate use of formula when necessary.
5. All information prepared by health workers on formula feeding should explain the benefits of breastfeeding, and the costs and health hazards of the unnecessary or improper use of formula.

[5] Ministry of Health. (2007). *Implementing and Monitoring the International Code of Marketing of Breast-milk Substitutes in New Zealand: The Code in New Zealand*. Wellington, MOH.

6. Health workers must be aware of the key principles in the New Zealand Infant Formula Marketers' Association (INC) Code of Practice for the Marketing of Infant Formula.
7. Health workers should not accept samples from formula companies.
8. Health workers should not accept gifts from formula companies.
9. Health care facilities should not promote formula products in their facilities.
10. Formula products should not be donated to health care facilities

Infants fed on infant formula – keeping it safe and optimising the experience

As previously mentioned, infants who are being fed infant formula feeds would be likely to benefit from a gentle, responsive, and sensitive model of feeding but there are other factors of importance for these infants. To protect the mother-infant bond non-breastfeeding mothers and infants may benefit from the opportunity to be together at some point during the day for a feeding experience. The World Health Organisation (2005) promote responsive feeding for non-breastfed infants and suggest sensitivity to hunger and satiety cues, feeding slowly and patiently, and remind caregivers that "feeding times are periods of learning and love" (p. 22).

Another issue of great importance within early childhood education settings is food safety, which includes the safe preparation, use and storage of breast-milk substitutes [infant formula and baby foods]. The New Zealand Ministry of Health (2008), recommend that infant formula be used until the infant is one year of age. It is important to provide information to both parents and early childhood education workers about the lack of evidence of the need for products described as 'Follow-On' formulas. These products are unnecessary (World Health Assembly, 1986).

Guidelines for storage and handling of infant formula suggest that feeds should be prepared as close as possible to the feeding times (Ministry of Health, 2008). Powdered infant formula is not a sterile product and there have been reports of contamination with bacteria such as Enterobacter Sakazakii or Salmonella which have the potential to cause illness in the infant. The length of time of storage after reconstitution is an important factor in avoidance of illness as growth of bacteria is rapid in contaminated products.

Early childhood education centres require access to the optimal guidelines for safe storage, preparation and use of infant formula as well as guidelines for safe storage and use of EBM.

While for health and safety standards EBM must be handled correctly, respect must also be an aspect for consideration of staff in their handling of EBM.

Morris (1995, p. 62) stresses that:

> As we begin to realize how precious mother's milk is and how much effort may go into pumping it, carefully storing (or freezing) it, and bringing it to us, it is important and respectful to treat it appropriately.

For Muslim families ensuring that breastmilk is stored respectfully, labeled clearly and fed only to the correct babies has religious significance in addition to the health implications of shared breastmilk between infants. Clear understanding of how to store and feed infants with EBM is essential in all ECE settings.

Developmental differences

Further knowledge for early childhood staff in expectations around growth and development needs to differentiate breastfed from bottlefed infants, as breastfed babies are more likely to have variable feeding patterns (Greenman, Stonehouse, & Schweikert, 2008), may need different methods of settling (Farquhar & Galtry, 2003), and may differ in growth and weight (Cattaneo, 2008). Greenman, Stonehouse and Schweikert (2008) recommend that breastmilk fed babies (from a bottle) should be held as if they were being breastfed; that is, 'switching the child from the cradle of your right arm to the cradle of your left arm, and vice versa, to better emulate true breastfeeding" (Greenman et al., 2008, p.180).

Sterling Honig (2006) advises mothers to describe to the teachers in the early childhood setting: what kind of eater the baby is (suck frantically, suck and look around); how they like to be held when being fed; how the baby likes to be burped (and what works); do they like to be swaddled or in a quiet room. She advises mothers returning to work to consider these factors as they are important whether the baby is being weaned or not for successful feeding (Sterling Honig, 2006, p. 21).

Farquhar and Galtry (2004, p. 143) conclude that while initial teacher training and ongoing professional development may assist in supporting breastfeeding, "the

promulgation of guidelines or standards to ensure a baseline of safe and consistent practices …that parents can expect from any early childhood service".

Neifert (2000) recommends that the key for mothers returning to work to support continuation of breastfeeding is for child care providers to be encouraging breastfeeding, be willing to feed babies with expressed milk, provide a quiet space for mothers to feed their babies, develop a plan to continue the style of feeding the baby (and mother) prefer (i.e. feeding on demand); include other family members in the decisions; and for all staff at the centre to understand "the proper breastmilk storage and serving methods" (Neifert, 2000, p. 2). She provides suggestions for information that mothers should ask for when choosing a centre:

> Ask whether your child's caregiver has breastfed her own children or cared for breastfed babies, and determine if she is willing to cooperate with you in your attempts to continue breastfeeding. Discuss how she feels about handling your breast milk, coping with a baby who may not take a bottle readily, and waiting to give a bottle if you are due back shortly and could nurse upon arrival. (Neifert, 2000, p. 4)

Human rights and breastfeeding

New Zealand is a signatory to various human rights treaties and these treaties set out internationally recognised human rights. Where rights exist others must have corresponding obligations and these fundamental obligations fall on those states that are parties to the international conventions. The governments representing those states are therefore obliged to act in accordance with the agreements they have made. The state is obligated to take action to respect, protect and facilitate human rights.
The United Nations Convention on the Rights of the Child, (UNCROC), states in its preamble that childhood is entitled to special care and assistance (UNCROC, 1989, p.532).

Article 3 of UNCROC states that in all actions concerning children the best interests of the child shall be a primary consideration. Article 6 states that State Parties shall ensure to the maximum extent possible the survival and development of the child. Article 24 recognises the rights of the child to the enjoyment of the highest attainable standard of health, which includes proper nutrition. The importance of parent education about child health, nutrition and the advantages of breastfeeding are also highlighted in article 24.

The *International Covenant on Economic, Social and Cultural Rights* 1966, in article 10(2) (1966, p. 524), recognises that special protection should be accorded to mothers during a reasonable period before and after childbirth and article 10, (3) (1966, p. 524) states that special measures of protection and assistance should be taken on behalf of all children. Article 12(1) (1966, p. 525), recognises the right of everyone to the enjoyment of the highest attainable standard of physical and mental health. Steps to be taken to achieve the full realisation of this right include the provision for the healthy development of the child. Article 16(3) of the *Universal Declaration of Human Rights* (1948, p. 511) states that the family is the natural and fundamental group unit of society and is entitled to protection by society and the state. Article 25(2) (1948, p. 512) declares that motherhood and childhood are entitled to special care and assistance.

The creation of the *International Code of Marketing Breastmilk Substitutes* (1981) by the World Health Assembly, the *Innocenti Declaration* on the protection, promotion and support of breastfeeding in 1990 and its revitalization in 2005, and the World Health Organisation's *Global Strategy for Infant and Young Child Feeding* (2003) were, and are, all signifiers of the strengthening of global and unified concern about the health of the world's infants and children and the importance of breastfeeding. The WHO Global Strategy links human rights to issues of infant feeding and calls upon governments to formulate, implement and evaluate national policies on infant and young child feeding.

In New Zealand there is no specific law which protects a woman's rights to breastfeed her baby but anti-discrimination provisions do exist, which prohibits treating a woman unfairly because she is breastfeeding. The *Employment Relations Act* (2000) contains anti-discrimination provisions as does the *Human Rights Act* (1993). The New Zealand Human Rights Commission developed a document entitled 'The Right to Breastfeed' in 2005. This work was generated because of the increasing numbers of complaints made each year about discrimination against breastfeeding women.

The Human Rights Commission in New Zealand is guided by a number of key principals and new principles were added in an effort to affirm and clarify the right to breastfeed in New Zealand" (2005, p. 15). These principles are as follows;

1. A woman has a right to breastfeed and is protected from discrimination for breastfeeding under the Human Rights Act and international law.

2. The Commission should support and promote the right to breastfeed

3. When considering breastfeeding complaints a broad analysis should be used for comparisons across groups

4. A woman should be permitted to breastfeed where she and her child or children would otherwise be permitted to be

5. 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 the mother or the child

6. Breastfeeding should, generally, be considered to be in the best interests of the child but in most cases parents should be allowed to determine what is in the best interests of their child with respect to infant feeding

7. The approach to breastfeeding discrimination should encompass the view that breastfeeding mothers and their babies form an inseparable biological and social unit

George Kent (2005) reminds us of why protection, promotion and support of breastfeeding are linked to issues of human rights. The rights to adequate food require a different interpretation in the case of young children in regards to their vulnerability. The *International Code of Marketing of Breast-milk Substitutes*, (1981) in the preamble also refers to the vulnerability of infants.

Protecting the rights of all mothers to breastfeed their infants, toddlers or pre-school children is important. Judgments about the length of time a mother should breastfeed her infant/child for can be problematic. The Human Rights Commission (2005), identify that there is some international agreement on the principle not to limit breastfeeding unless there is clear evidence of detriment and state that the age of the child is not a good reason for limiting the right to breastfeed. Stein, Boies, and Snyder (2004) highlight how negative comments and criticism can interfere with the breastfeeding relationship. Extended breastfeeding may promote emotional well being in the mother and toddler/child and Stein, Boies and Synder (2004) encourage

breastfeeding for as long as the mother and child feel it is right for them. As Pryor states, “The time to stop nursing is when either partner is really ready to quit” (1991).

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