

BREASTFEEDING

Introduction

The World Health Organisation recommends that infants be exclusively breastfed for the first six months of life and that breastfeeding, together with the provision of nutritionally adequate and safe complementary foods, should continue until a child reaches two years of age or beyond [23]. Breastfeeding has considerable health benefits for both the baby and the mother. Breastfed babies have lower rates of common childhood infections such as diarrhoea, respiratory infections and otitis media and lower rates of SIDS [24]. A recent U.S. Agency for Healthcare Research and Quality report concluded that formula feeding was associated with higher risks for major chronic conditions such as type 2 diabetes, asthma and obesity which are becoming more common [25]. Mothers who breastfeed have lower rates of post-partum haemorrhage, lose their extra pregnancy weight faster, are less likely to become pregnant again soon after their baby's birth and have lower rates of breast cancer and ovarian cancer [24,26,27].

In New Zealand only about 12% of babies are exclusively breastfed for six months, yet in 2005 80.5% of infants born in Baby Friendly Hospitals were exclusively breastfed on discharge [27]. While the decision to breastfeed or not is a personal one and mothers should not be made to feel guilty if they are unable to, or choose not to breastfeed, the success rate among mothers who wish to breastfeed can be improved if there is active support from their families, friends, communities, clinicians, health care leaders, employers and policymakers [24].

The following section reviews breastfeeding rates at <6 weeks, 3 months and 6 months using data from the Plunket Client Information System.

Data Sources and Methods

Indicator

1. Exclusive/Full Breastfeeding Rates in Plunket Babies at <6 Weeks, 3 Months and 6 Months of Age

Numerator: Plunket Client Information System: The number of Plunket babies exclusively/fully breastfed at <6 weeks (2 weeks to 5 weeks, 6 days), 3 months (10 weeks to 15 weeks, 6 days) and 6 months (16 weeks to 7 months, 4 weeks).

Denominator: Plunket Client Information System: The number of babies in contact with Plunket at these ages

Notes on Interpretation

Note 1: Plunket currently enrol more than 88% of the new baby population, although Māori and Pacific mothers may be under-reported in these samples. Plunket have breastfeeding data dating back to 1922, with more detailed information being available in recent years.

Note 2: Plunket's breastfeeding definitions, which are similar to those of the World Health Organisation (WHO) are as follows [28]:

**Exclusive Breastfeeding*: The infant has never, to the mother's knowledge, had any water, formula or other liquid or solid food. Only breast milk, from the breast or expressed, and prescribed medicines have been given from birth.

**Fully Breastfed*: The infant has taken breast milk only and no other liquids or solids except a minimal amount of water or prescribed medicines, in the past 48 hours.

**Partially Breastfed*: The infant has had some breast milk and some infant formula or other solid food in the past 48 hours.

**Artificially Fed*: The infant has had no breast milk, but has had an alternative liquid such as infant formula, with or without solid food in the past 48 hours.

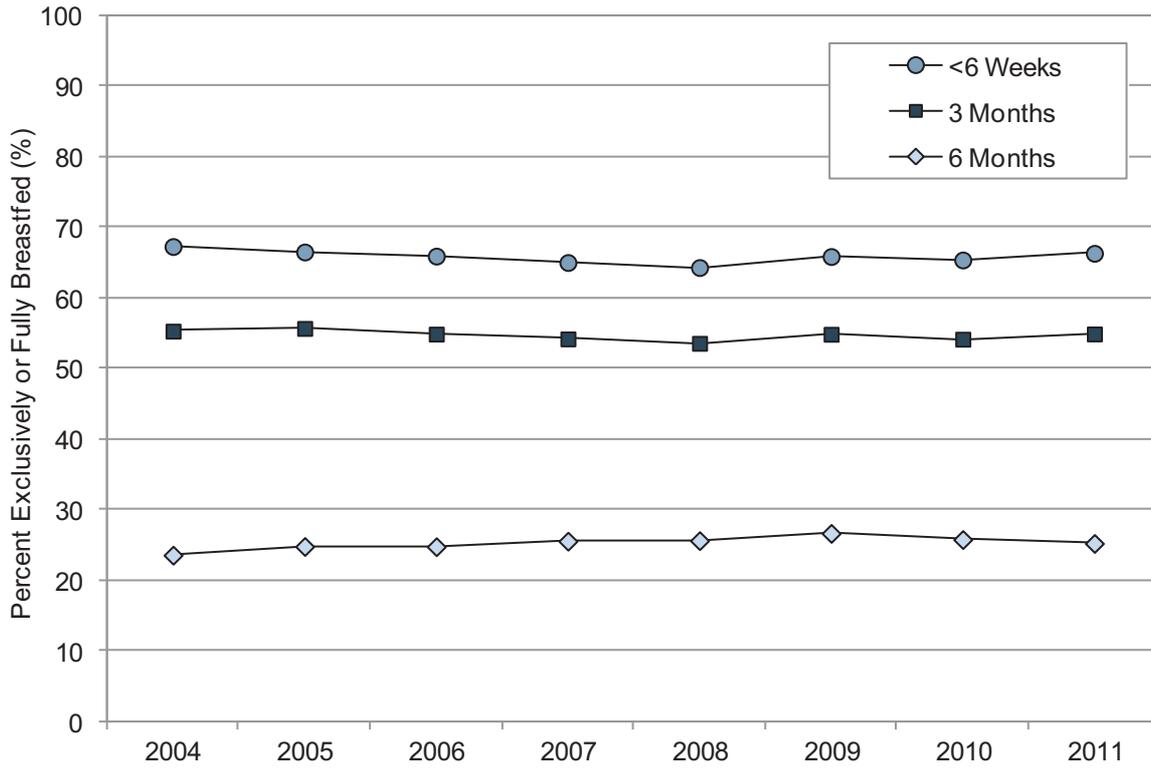
New Zealand Distribution and Trends

New Zealand Trends by Age

In New Zealand during the years ending June 2004–2011, the proportion of babies who were exclusively or fully breastfed remained fairly static, with exclusive/full breastfeeding rates in the year ending June 2011 being 66.3% at <6 weeks, 54.9% at 3 months and 25.2% at 6 months of age (**Figure 17**).

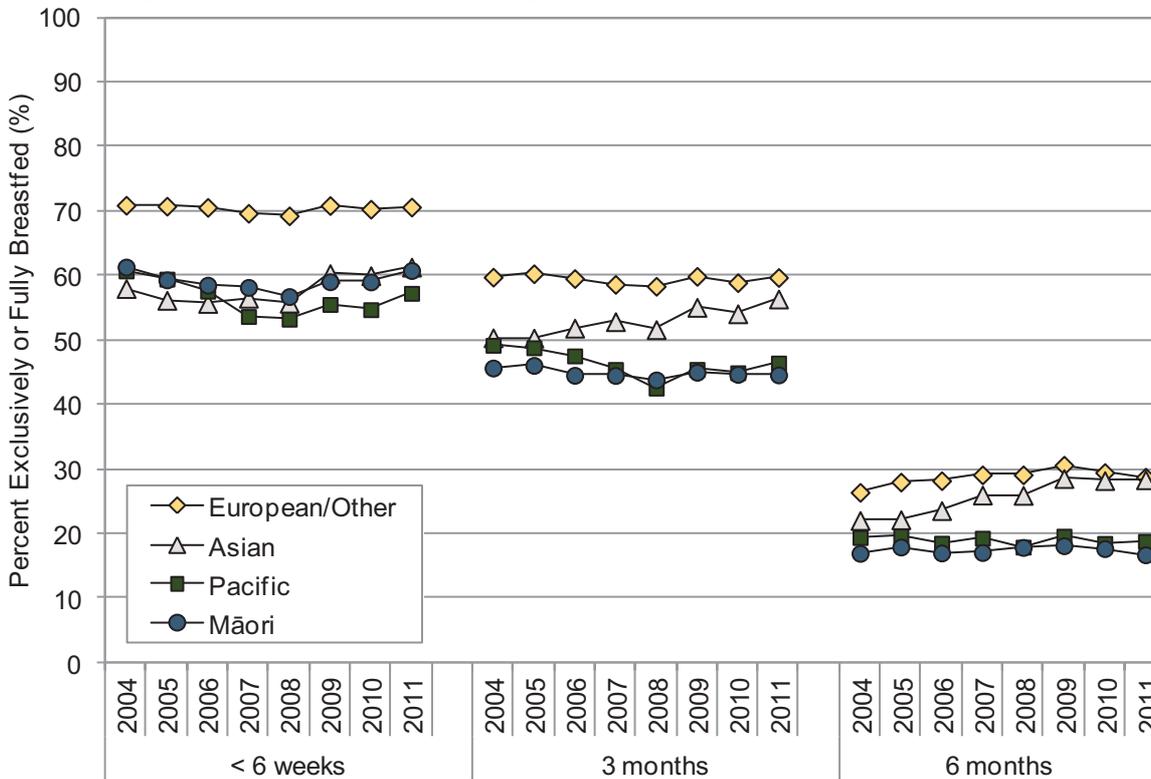


Figure 17. Proportion of Plunket Babies who were Exclusively or Fully Breastfed by Age, New Zealand, Years Ending June 2004–2011



Source: Plunket Client Information System

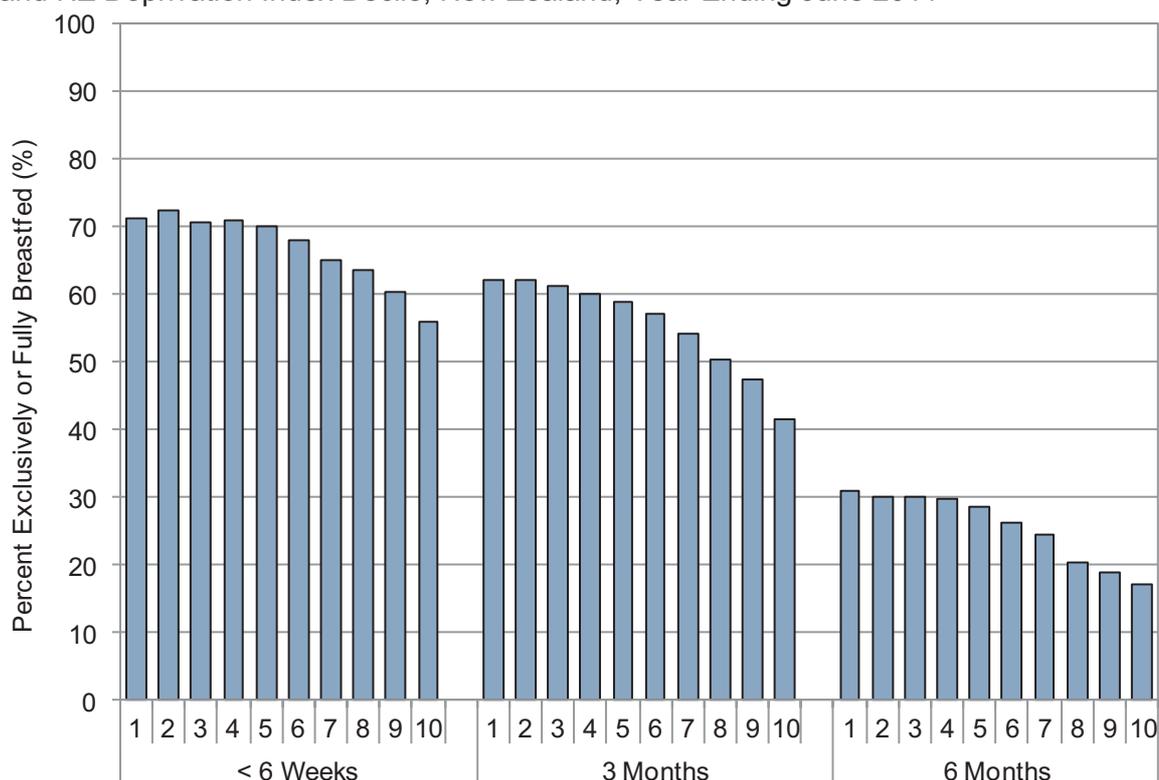
Figure 18. Proportion of Plunket Babies who were Exclusively or Fully Breastfed by Age and Ethnicity, New Zealand, Years Ending June 2004–2011



Source: Plunket Client Information System



Figure 19. Proportion of Plunket Babies who were Exclusively or Fully Breastfed by Age and NZ Deprivation Index Decile, New Zealand, Year Ending June 2011



Source: Plunket Client Information System

New Zealand Trends by Ethnicity

In New Zealand during the years ending June 2004–2011, exclusive/full breastfeeding rates at <6 weeks of age were consistently higher for European/Other babies than for babies of other ethnic groups. At 3 and 6 months of age however, exclusive/full breastfeeding rates were generally higher European/Other > Asian/Indian > Māori and Pacific babies, with differences between Asian/Indian and Māori and Pacific babies increasing as the period progressed (Figure 18).

New Zealand Distribution by NZDep Decile

In New Zealand during the year ending June 2011, exclusive/full breastfeeding rates at <6 weeks, 3 months and 6 months were generally lower for babies from the most deprived (NZDep decile 10) areas, than for babies from average or less deprived areas (Figure 19).

South Island Distribution and Trends

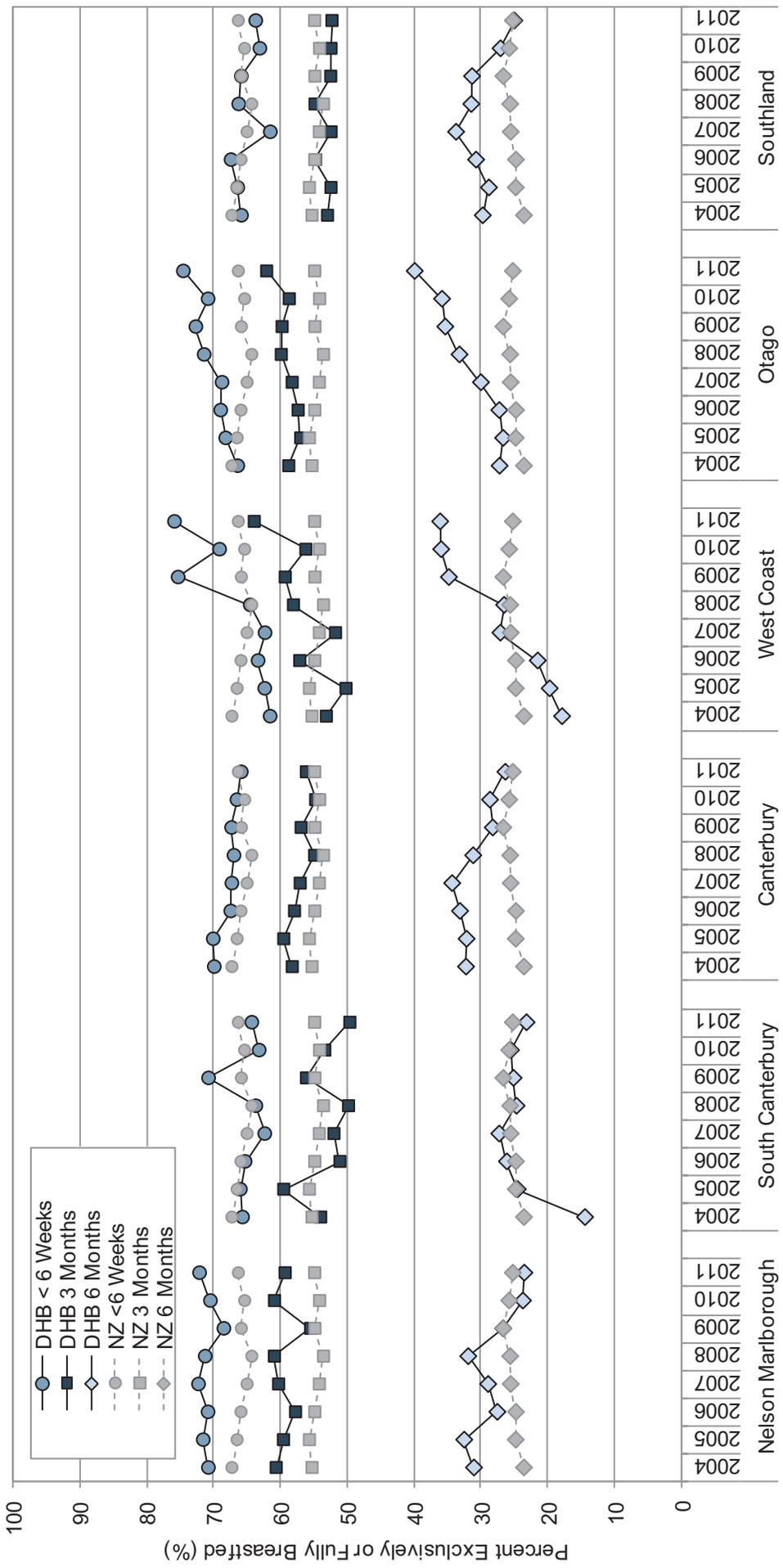
South Island DHBs vs. New Zealand

In Nelson Marlborough and Otago during the years ending June 2004–2011, exclusive/full breastfeeding rates at <6 weeks and 3 months were generally higher than the New Zealand rate, while rates in South Canterbury and Southland were more similar. Rates in the West Coast increased during this period, with rates being higher than the New Zealand rate during the late 2000s. In contrast, rates in Canterbury gradually declined, becoming more similar to the New Zealand rate during the late 2000s. Differences at 6 months were more variable (Figure 20).

South Island Distribution by NZDep Decile

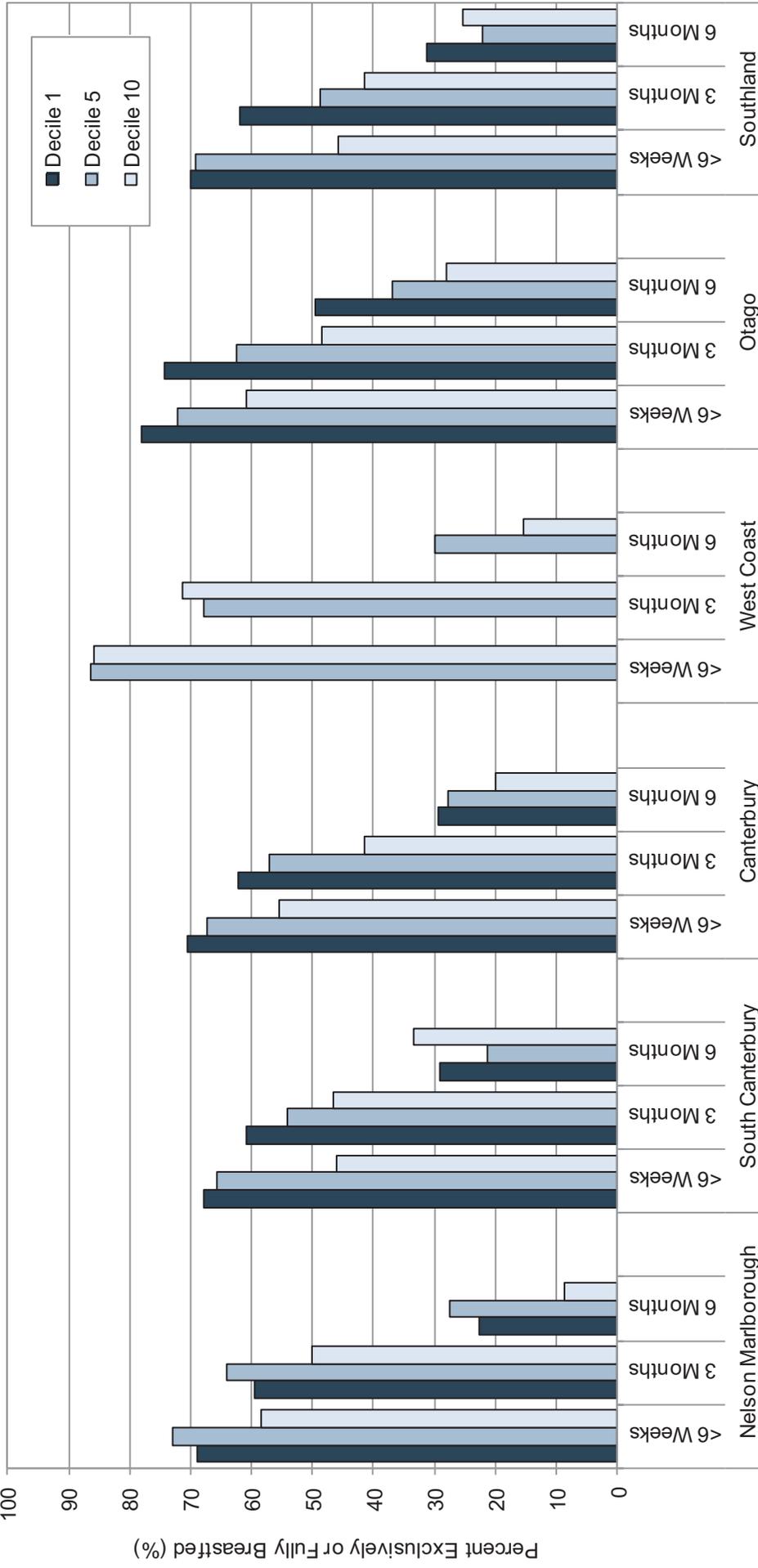
In Nelson Marlborough, Canterbury, Otago and Southland during the year ending June 2011, exclusive/full breastfeeding rates at <6 weeks, 3 months and 6 months were lower for babies living in the most deprived (NZDep decile 10) areas, than for babies living in the least deprived (NZDep decile 1) areas. Similar patterns were seen in South Canterbury at <6 weeks and 3 months, although in the West Coast small numbers made interpretation of NZDep differences less reliable (Figure 21).

Figure 20. Proportion of Plunket Babies who were Exclusively or Fully Breastfed by Age, South Island DHBs vs. New Zealand, Years Ending June 2004–2011



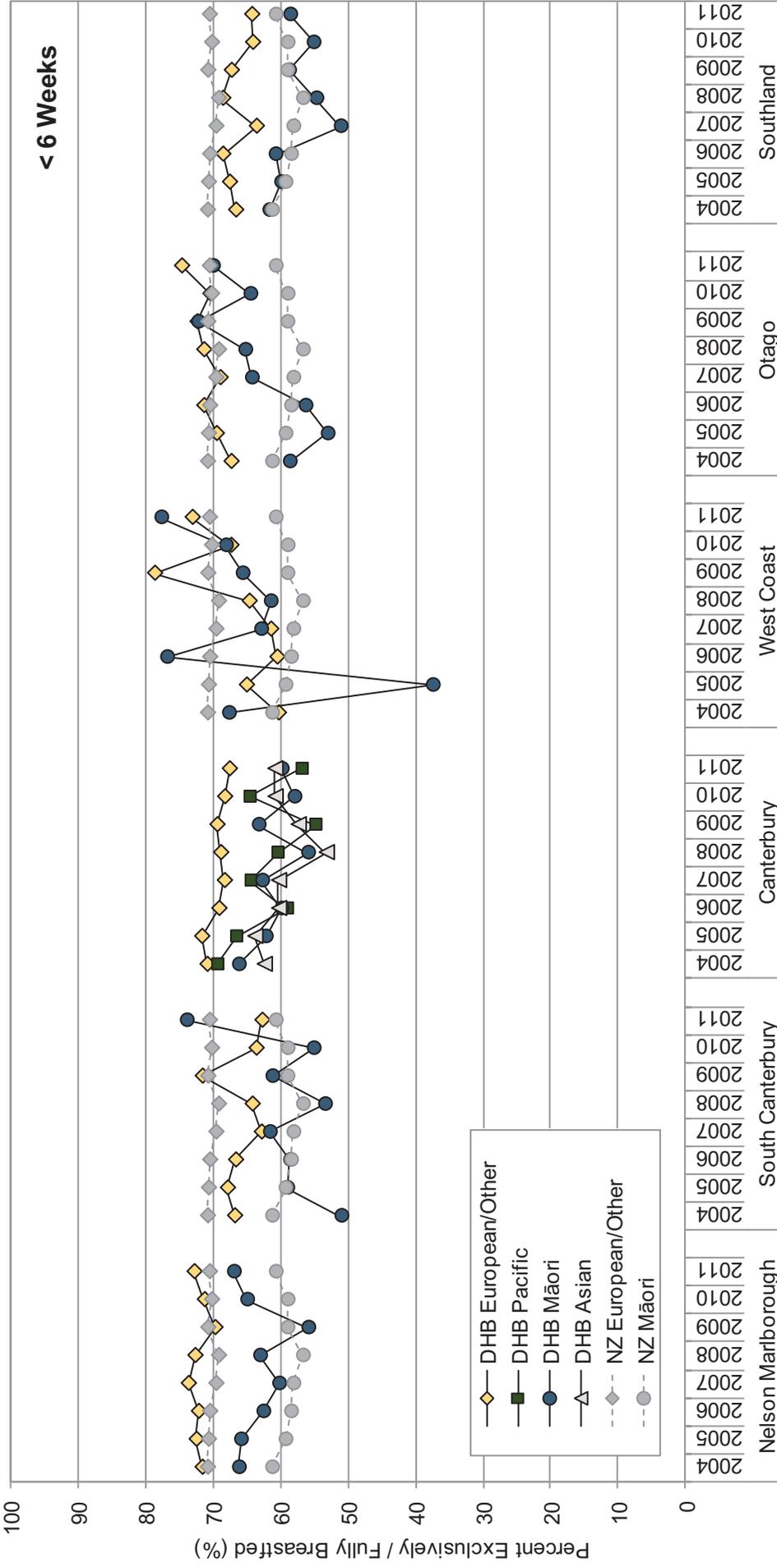
Source: Plunket Client Information System

Figure 21. Proportion of Plunket Babies who were Exclusively or Fully Breastfed by Age and NZ Deprivation Index Decile, South Island DHBs, Year Ending June 2011



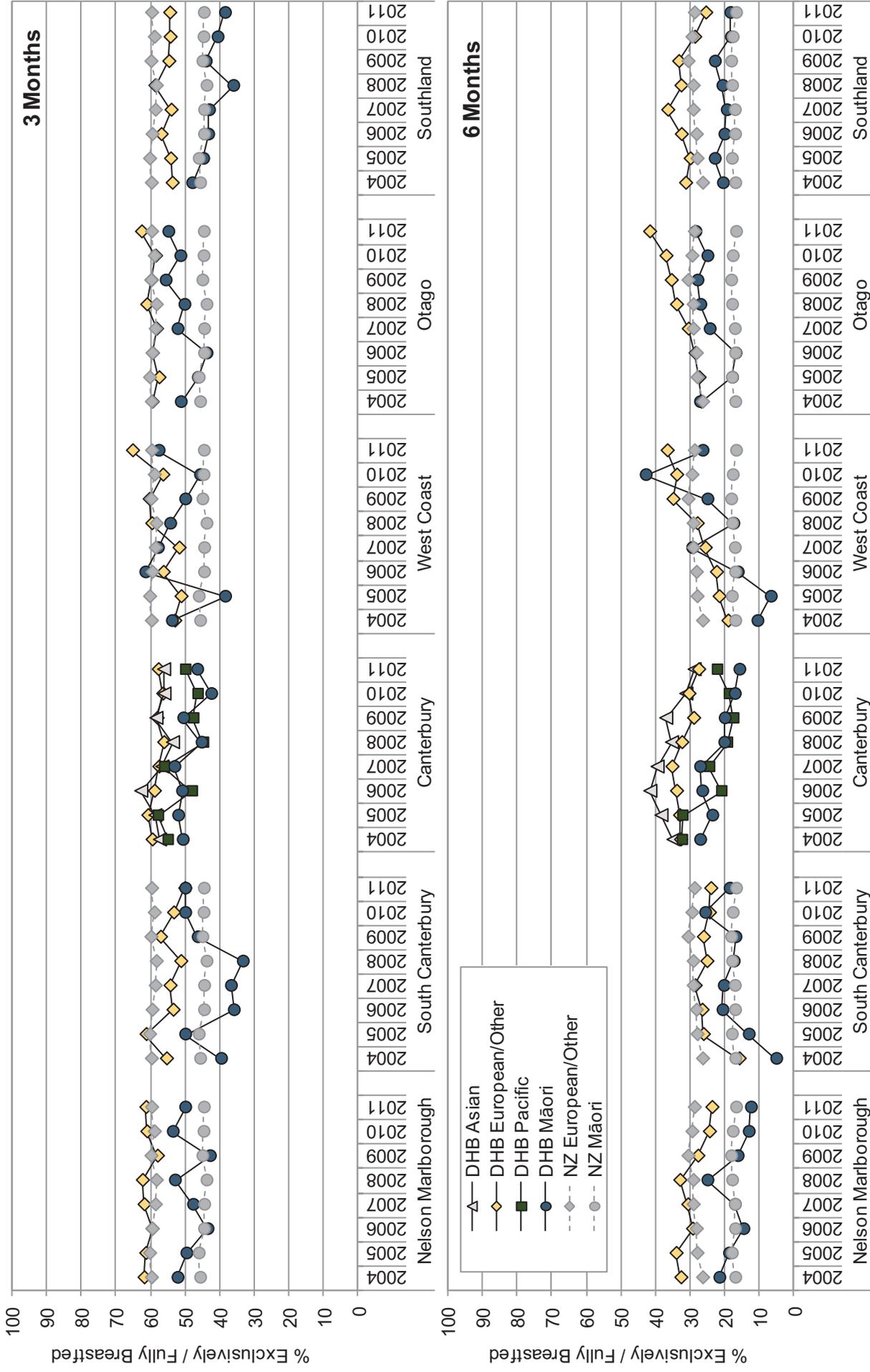
Source: Plunket Client Information System. Note: West Coast Decile 1 not shown as <15 babies in each age cohort.

Figure 22. Proportion of Plunket Babies who were Exclusively or Fully Breastfed at Less Than 6 Weeks by Ethnicity, South Island DHBs vs. New Zealand, Years Ending June 2004–2011



Source: Plunket Client Information System

Figure 23. Proportion of Plunket Babies who were Exclusively or Fully Breastfed at 3 Months and 6 Months by Ethnicity, South Island DHBs vs. New Zealand, Years Ending June 2004–2011



Source: Plunket Client Information System

South Island Distribution by Ethnicity

In Nelson Marlborough, Canterbury, South Canterbury, Otago and Southland during the years ending June 2004–2011, exclusive/full breastfeeding rates at <6 weeks, 3 months and 6 months were generally higher for European/Other babies than for Māori babies. In the West Coast however, ethnic differences were less consistent (**Figure 22**).

Summary

In New Zealand during June 2004–2011, the proportion of babies who were exclusively or fully breastfed remained fairly static, with exclusive/full breastfeeding rates in the year ending June 2011 being 66.3% at <6 weeks, 54.9% at 3 months and 25.2% at 6 months of age. When broken down by ethnicity, exclusive/full breastfeeding rates at <6 weeks were consistently higher for European/Other babies than for babies of other ethnic groups. At 3 and 6 months however, rates were generally higher for European/Other > Asian/Indian > Māori and Pacific babies, with differences between Asian/Indian and Māori and Pacific babies increasing as the period progressed.

In Nelson Marlborough and Otago during June 2004–2011, exclusive/full breastfeeding rates at <6 weeks and 3 months were generally higher than the New Zealand rate, while rates in South Canterbury and Southland were more similar. Rates in the West Coast increased during this period, with rates being higher than the New Zealand rate during the late 2000s. In contrast, rates in Canterbury gradually declined, becoming more similar to the New Zealand rate during the late 2000s. Differences at 6 months were more variable. In Nelson Marlborough, Canterbury, Otago and Southland during 2011, breastfeeding rates at all three ages were lower for babies from the most deprived (NZDep decile 10 vs. 1) areas. Similar patterns were seen in South Canterbury at <6 weeks and 3 months, although in the West Coast small numbers precluded a valid interpretation. In Nelson Marlborough, Canterbury, South Canterbury, Otago and Southland during 2004–2011, breastfeeding rates at all three ages were generally higher for European/Other babies than for Māori babies. In the West Coast however, ethnic differences were less consistent.

Local Policy Documents and Evidence-Based Reviews Relevant to the Promotion of Breastfeeding

In New Zealand there are a range of policy documents relevant to the promotion and support of breastfeeding and these are briefly summarised in **Table 27**, along with a number of evidence-based reviews which consider these issues in the overseas context.

Table 27. Local Policy Documents and Evidence-Based Reviews Relevant to the Promotion or Support of Breastfeeding

Ministry of Health Policy Documents
<p>National Breastfeeding Committee. 2009. National Strategic Plan of Action for Breastfeeding 2008-2012. Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/pagesmh/8939/\$File/breastfeeding-action-plan.pdf</p> <p>This Plan contains the advice of the National Breastfeeding Committee to the Director General of Health. The Plan recognises that the influences on breastfeeding rates are complex and that cultural change is required to improve breastfeeding rates. While the health sector has the leading role in the protection, promotion and support of breastfeeding all sectors of society need to be involved. The Plan proposes objectives to describe what needs to be done and a list of desired outcomes in each of the following settings: government, family and community, health services, and workplaces, childcare and early childhood education.</p>
<p>Ministry of Health. 2008. Food and Nutrition Guidelines for Healthy Infants and Toddlers (Aged 0-2): A background paper (4th Ed) Wellington: Ministry of Health. http://www.moh.govt.nz/moh.nsf/pagesmh/7756/\$File/food-and-nutrition-guidelines-0-2-may2011.pdf</p> <p>This paper provides up to date policy advice and information on nutrition and physical activity for infants and toddlers to be used: as a basis for education programmes to support families and children, to guide and support health practitioners in their work, to provide a basis for preparing policies on the protection, promotion and support of breastfeeding and to identify inequalities so that education and support can be targeted at reducing inequalities related to nutrition and physical activity. Chapter 3 includes concise but comprehensive guidelines on breastfeeding. Exclusive breastfeeding is recommended until an infant is six months of age. Chapters 7, 8, and 9 relate specifically to Māori, Pacific and Asian infants and toddlers respectively.</p>



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: Ministry of Health.

[http://www.moh.govt.nz/moh.nsf/pagesmh/6604/\\$File/breastmilk-substitutes-marketing-code-aug07.pdf](http://www.moh.govt.nz/moh.nsf/pagesmh/6604/$File/breastmilk-substitutes-marketing-code-aug07.pdf)

This document provides a New Zealand Interpretation of *International Code of Marketing of Breast-Milk Substitutes* (WHO 1981) and relevant World Health Assembly resolutions (to which New Zealand is a signatory). It includes the Code of Practice for Health Workers in New Zealand and the Code of Practice for the Marketing of Infant Formula.

Ministry of Health. 2006. **Food and Nutrition Guidelines for Healthy Pregnant and Breastfeeding Women: A background paper**. Wellington: Ministry of Health. [http://www.moh.govt.nz/moh.nsf/pagesmh/4676/\\$File/food-and-nutrition-guidelines-preg-and-bfeed.pdf](http://www.moh.govt.nz/moh.nsf/pagesmh/4676/$File/food-and-nutrition-guidelines-preg-and-bfeed.pdf)

This publication is intended for the use of health practitioners, educators and caregivers to assist them to provide advice and support to pregnant and breastfeeding women and their families in achieving a healthy lifestyle.

Ministry of Health. 2004. **Child and Youth Health Toolkit**. Wellington: Ministry of Health.

[http://www.moh.govt.nz/moh.nsf/pagesmh/5411/\\$File/childand youthhealthtoolkit.pdf](http://www.moh.govt.nz/moh.nsf/pagesmh/5411/$File/childand youthhealthtoolkit.pdf)

Chapter 9 deals with breastfeeding which is one of the child health indicators previously monitored by the Ministry. It provides evidence-based information on how to improve breastfeeding rates, and is intended for use by DHB funders and planners, health professionals and providers. Measures which may help to improve breastfeeding rates are stated to be achieving Baby Friendly Hospital Initiative accreditation for maternity facilities and Baby Friendly Accreditation of primary care practitioners, and better coordination between lead maternity carers and well child providers. It is important that all health professionals provide consistent and accurate advice for the optimal support of women.

Ministry of Health. 2002. **Breastfeeding: A Guide to Action** Wellington: Ministry of Health.

[http://www.moh.govt.nz/moh.nsf/f872666357c511eb4c25666d000c8888/c1a26ae746d7b471cc256c770008660d/\\$FILE/breastfeeding.pdf](http://www.moh.govt.nz/moh.nsf/f872666357c511eb4c25666d000c8888/c1a26ae746d7b471cc256c770008660d/$FILE/breastfeeding.pdf)

The aim of this Action Plan is to achieve an improvement in the breastfeeding rates of Māori and Pacific peoples and of other New Zealanders. The seven goals of the Action Plan are to:

- establish an intersectoral breastfeeding committee
- achieve Baby Friendly Hospitals throughout New Zealand
- gain active participation of Māori and Pacific whānau to improve breastfeeding promotion, advocacy and support
- establish nationally consistent breastfeeding reporting and statistics
- increase breastfeeding promotion, advocacy and co-ordination at both national and local levels
- ensure pregnant women can access antenatal education
- ensure high quality and on-going postpartum care

Systematic and Other Reviews From the International Literature

U.S. Department of Health and Human Services. 2011. **The Surgeon General's Call to Action to Support Breastfeeding**. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General.

<http://www.surgeongeneral.gov/topics/breastfeeding/calltoactiontosupportbreastfeeding.pdf>

The U.S. Surgeon General has identified 20 key actions to improve support for breastfeeding. These are presented under the headings: Actions for Mothers and their Families, Actions for Communities, Actions for Healthcare, Actions for Employment, Actions for Research and Surveillance, and Actions for Public Health Infrastructure. As well as setting out implementation strategies for each action, this report has chapters on the importance of breastfeeding, rates of breastfeeding in the U.S., barriers to breastfeeding, and breastfeeding from a public health perspective. Links to resources related to the report including Action Guides for doctors, nurses and healthcare leaders, and the executive summary can be found on this CDC website: <http://www.cdc.gov/breastfeeding/promotion/calltoaction.htm>

Jaafar SH, Jahanfar S, Angolkar M, et al. 2011. **Pacifier use versus no pacifier use in breastfeeding term infants for increasing duration of breastfeeding**. Cochrane Database of Systematic Reviews, 2011(3), Art. No.: CD007202.

DOI:10.1002/14651858.CD007202.pub2.

The World Health Organisation's *Ten steps to successful breastfeeding* recommends avoiding the use of pacifiers for breastfeeding infants. This review reports that a meta-analysis of two RCTs (involving healthy full term breastfeeding infants) indicated that pacifier use had no significant effect on the proportion of infants exclusively breastfed at three months (risk ratio (RR) 1.00), or at four months (RR 0.99) and it also had no effect on the proportion of infants partially breastfed at three months (RR 1.00), or at 4 months (RR 1.01). The authors concluded that pacifier use by healthy term breastfeeding infants of motivated mothers did not significantly affect either the prevalence or duration of full or partial breastfeeding but "there is insufficient information on the potential harms of pacifiers on infants and mothers".

Crepinsek MA, Crowe L, Michener K, et al. 2010. **Interventions for preventing mastitis after childbirth**. Cochrane Database of Systematic Reviews, 2010(8), CD007239.

Complications of lactation, including mastitis, are common reasons given by mothers for weaning their infants. This review assessed the effects of preventive strategies for mastitis and their effects on subsequent lactation. Three RCTs compared various antibiotics vs. no antibiotics for preventing mastitis. (Two of the 3 trials were very small and the largest trial involved women with HIV.) One RCT (211 mother infant pairs) compared a 30 minute breastfeeding education session with usual care and one RCT (40 participants) compared anti-secretory factor (AF) in cereal vs. a similar cereal without AF. Overall, the studies were considered to be poor in quality and design and the review authors concluded that there was insufficient evidence to show effectiveness of any of the interventions.

Mangesi L, Dowswell T. 2010. **Treatments for breast engorgement during lactation**. Cochrane Database of Systematic Reviews, 2010(9), Art. No.: CD006946. DOI: 10.1002/14651858.CD006946.pub2.

Breast engorgement is common in new mothers and can be painful and distressing. It can inhibit successful establishment of breast feeding and it is associated with more serious illness such as breast infection. This review included eight RCTs or quasi-RCTs of different treatments for breast engorgement (744 women in total): cabbage leaves (two studies), acupuncture (two studies), cold gel packs (one study), pharmacological treatments (two studies) and ultrasound (one study). The review authors concluded that, while some of these interventions may be promising, the available evidence from the trials was insufficient to justify widespread implementation of any of the interventions.

Jahanfar S, Ng C-J, Teng Cheong L. 2009. **Antibiotics for mastitis in breastfeeding women**. Cochrane Database of Systematic Reviews, 2009(1), Art. No.: CD005458. DOI: 10.1002/14651858.CD005458.pub2.

Content updated after new search for studies, no change in conclusions, published in Issue 7, 2010

Mastitis, which may be either infective (often due to *Staphylococcus aureus*) or non-infective, is usually treated by effective milk removal, pain medication and antibiotics. The aim of this review was to investigate the effectiveness of antibiotic therapies for relieving symptoms of mastitis. The authors found only one small RCT (25 participants) comparing amoxicillin with cephadrine (no significant difference found) and a three-armed 1984 study which compared "supportive therapy" (breast emptying alone), antibiotics plus supportive therapy, and no therapy. The 1984 study had some design problems (including analysing individual breasts rather than women and since some women had two affected breasts the treatment effect in each breast would not have been independent) however the findings suggested that symptoms resolved more rapidly in women who received antibiotics. The authors concluded that there was insufficient evidence to either confirm or refute the effectiveness of antibiotic therapy for mastitis during lactation.

Becker GE, McCormick FM, Renfrew MJ. 2008. **Methods of milk expression for lactating women**. Cochrane Database of Systematic Reviews, 2008(4), Art. No.: CD006170. DOI: 10.1002/14651858.CD006170.pub2.

For a number of reasons, including prematurity, illness, abnormalities or separation some babies are not able to be fed at their mother's breast but they can be fed expressed breast milk. This review evaluated the acceptability, effectiveness, safety, effects on milk composition and bacterial contamination of milk, and cost implications of a variety of methods of milk expression, including hand expression and manual, battery and electric pumps. This review included 12 studies which were either RCTs, quasi-RCTs or cross-over trials and six of these (397 mothers) provided data suitable for the analyses. Most studies were instigated by pump manufacturers. One study found that, compared to hand expression, a significantly greater volume of milk was expressed (over the six days after birth) both with an electric pump (373.10 ml, 95% CI 161.09 to 585.1 ml) and with a foot-operated pump (212.10 ml, 95% CI 9.39 to 414.8ml) although this difference may not be clinically significant. The difference in milk volume expressed between the electric pump and the foot-operated pump was not significant. One study found that women provided with a relaxation tape produced a greater volume of milk at one expression (34.70 ml, 95% CI 9.51 to 59.89). One study found that simultaneously pumping both breasts saved time compared to sequential pumping (3.50 hours/week, 95% CI 1.39 to 5.61) but there was no difference in milk volume. Different pumping methods showed no differences in milk contamination, breastfeeding at discharge, fat content of milk or serum prolactin. There was poor reporting of maternal satisfaction, adverse effects on mothers and economic effects of interventions. The authors state that further high quality, independently funded research is needed.

The National Breastfeeding Advisory Committee. 2007. **Protecting, Promoting and Supporting Breastfeeding in New Zealand: A review of breastfeeding in New Zealand, and of the evidence for successful interventions supporting breastfeeding**. Wellington: The National Breastfeeding Advisory Committee.

[http://www.moh.govt.nz/moh.nsf/pagesmh/7530/\\$File/nbac-litreview.pdf](http://www.moh.govt.nz/moh.nsf/pagesmh/7530/$File/nbac-litreview.pdf)

This literature review was commissioned by the National Breastfeeding Advisory Committee to inform the development of the National Strategic Plan of Action for Breastfeeding (above). It covers the context and history of breastfeeding in New Zealand, the local and global legislative and policy context for breastfeeding, social and clinical issues influencing breastfeeding and a literature review of the evidence for interventions supporting breastfeeding. It concludes with a concise summary of common interventions undertaken both in New Zealand and internationally and briefly assesses the quality of these interventions based on the evidence from the literature. Interventions of proven effectiveness were:

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

Promising interventions identified included prenatal education, biological nurturing approaches, social marketing, support for fathers, family/whanau and friends, and developing breastfeeding friendly business and public spaces.

Abdulwadud OA, Snow ME. 2007. **Interventions in the workplace to support breastfeeding for women in employment**. Cochrane Database of Systematic Reviews, 2007(3), Art. No.: CD006177. DOI: 10.1002/14651858.CD006177.pub2.

The authors of this review were unable to identify any RCTs or quasi-RCTs evaluating the effectiveness of workplace interventions in promoting breastfeeding among women returning to paid work after the birth of their child. They say "current sources of information on this important public health topic are limited to two US-based non-experimental studies. In both studies, the participants were self-selected and there were no true control groups".

Moore ER, Anderson GC, Bergman N. 2007. **Early skin-to-skin contact for mothers and their healthy newborn infants**. Cochrane Database of Systematic Reviews, 2007(3), Art. No.: CD003519. DOI: 10.1002/14651858.CD003519.pub2.

Early skin-to-skin contact (SSC) involves placing the naked baby (ideally soon after birth) prone on the mother's bare chest and covered across the back with a blanket. It is thought that this elicits innate mammalian behaviours from both the mother and the neonate and promotes the release of maternal oxytocin which increases maternal skin temperature (thus warming the neonate) and also decreases maternal anxiety and enhances mother-infant bonding and the likelihood of spontaneous breastfeeding. This review included thirty studies (1925 mother-infant dyads) which were either RCTs or quasi-RCTs comparing early SSC with usual hospital care, however only 8 out of 64 outcome measures had data from more than two of the trials which limited the possibilities for meta-analysis. SSC had statistically significant positive effects on breastfeeding at one to four months post birth (10 trials; 552 participants) (odds ratio (OR) 1.82, 95% CI 1.08 to 3.07), and breastfeeding duration (seven trials; 324 participants) (weighted mean difference (WMD) 42.55, 95% CI -1.69 to 86.79). There were trends found for improved summary scores with early SSC for maternal affectionate love/touch during observed breastfeeding (four trials; 314 participants) (standardized mean difference (SMD) 0.52, 95% CI 0.07 to 0.98) and maternal attachment behaviour (six trials; 396 participants) (SMD 0.52, 95% CI 0.31 to 0.72). One trial (44 participants) found that SSC infants cried for a shorter length of time (WMD -8.01, 95% CI 8.98 to 7.04). Late preterm infants with early SSC had better cardio-respiratory stability (one trial; 35 participants) (WMD 2.88, 95% CI 0.53 to 5.23). No adverse effects from SSC were found. The authors concluded "SSC appears to have some clinical benefit, especially for breastfeeding and for temperature and cardio-respiratory stability in late preterm infants".

Gagnon AJ, Sandall J. 2007. **Individual or group antenatal education for childbirth or parenthood, or both**. Cochrane Database of Systematic Reviews, 2007(3), Art. No.: CD002869. DOI: 10.1002/14651858.CD002869.pub2.

Antenatal education programmes for childbirth and/or parenthood are commonly recommended for pregnant women and their partners. This review assessed the effect of such programmes on knowledge acquisition, anxiety, sense of control, pain, labour and birth support, breastfeeding, infant-care abilities, and psychological and social adjustment. This review included nine RCTs of structured educational programmes provided during pregnancy (to either parent) which were of a general nature (i.e. they did not have a specific focus such as increasing breastfeeding success, improving maternal mental health or reducing smoking). The review included nine trials involving 2284 women. Sample sizes were small and no consistent results were found. There was no data reported on anxiety, breastfeeding success or general social support and the largest study, which examined an educational intervention designed to increase rates of vaginal after previous caesarean section, found that it did not have the desired effect. The authors concluded that the effects of general antenatal education for childbirth and/or parenthood are largely unknown.

Britton C, McCormick FM, Renfrew MJ, et al. 2007. **Support for breastfeeding mothers**. Cochrane Database of Systematic Reviews, 2007(1), Art. No.: CD001141. DOI: 10.1002/14651858.CD001141.pub3.

This review, which assessed the effectiveness of support for breastfeeding mothers, included 34 RCTs or quasi-RCTs (29,385 mother-infant pairs) comparing extra support for breastfeeding mothers with usual care. When all forms of extra support were analysed together there was found to be an increase in duration of "any breastfeeding" (relative risk of stopping any breastfeeding before six months 0.91, 95% CI 0.86 - 0.96). The effect on duration of exclusive breastfeeding was greater than that on "any breastfeeding" (RR 0.81, 95% CI 0.74 to 0.89). The provision of both lay and professional support together significantly extended the duration of any breastfeeding (RR before 4-6 weeks 0.65, 95% CI 0.51 to 0.82; RR before 2 months 0.74, 95% CI 0.66 to 0.83) but the effect on exclusive breastfeeding was less clear because there was only one high quality trial reporting this outcome and the numbers analysed were small. The use of WHO/UNICEF training significantly prolonged the duration of exclusive breastfeeding (RR 0.69, 95% CI 0.52 to 0.91). The authors state that further research is needed to identify the aspects of support that are most beneficial.

Dyson L, Renfrew M, McFadden A, et al. 2006. **Promotion of breastfeeding initiation and duration: Evidence into practice briefing**. London: National Institute for Health and Clinical Excellence.
http://www.nice.org.uk/niceMedia/pdf/EAB_Breastfeeding_final_version.pdf

This document does not represent NICE guidance but is the culmination of work commissioned by the former Health Development Agency (whose functions were transferred to the National Institute for Clinical Excellence when it became the National Institute for Health and Clinical Excellence). It sets out a series of evidence-based actions for promoting both the initiation and the continuation of breastfeeding, particularly among population groups where breastfeeding rates are low. These were developed from a list of interventions for which there is international research evidence of effectiveness which became a list of "what will really work in practice in England". The evidence-based actions are:

- Baby Friendly Initiative (BFI) in the maternity and community services
- Education and/or support programmes
- Changing policy and practice within community and hospital settings in order to support effective positioning and attachment, encourage baby-led feeding, and encourage women with "insufficient milk" through supportive care, teaching technique, providing sound information and reassurance.
- Abandoning the following policies in clinical care in hospitals and the community: restricting timing and/or frequency of breastfeeds in immediate post-natal care, restricting mother-baby contact from birth onwards, routine or medically unjustified supplementary feeding, separating babies from mothers for the treatment of jaundice, and the provision of hospital discharge packs containing promotional material for formula.
- Complementary telephone peer or volunteer support
- Education and support from one professional (targeted particularly to low income women)
- Education and support throughout the first year
- Media programmes targeting teenagers to improve attitudes towards breastfeeding

The briefing (above) is largely based on one evidence briefing and three systematic reviews but appendix B provides details of the individual studies relating to each of the effective and the harmful interventions and the full list of references is contained in appendix D. The publications on which this briefing is largely based are:

Renfrew M, Dyson L, Wallace L, et al. 2005. **The effectiveness of public health interventions to promote the duration of breastfeeding.** London: National Institute of Health and Clinical Excellence.
http://www.nice.org.uk/niceMedia/pdf/Breastfeeding_vol_1.pdf

The authors note that there are gaps in the evidence base relating to disadvantaged groups and that these gaps are widest in clinical issues, public policy and women's key concerns. They state "There is very little research to inform any aspect of public policy." Despite this assertion the first two pages of this review contain concise lists of beneficial and harmful interventions (with references) and the remainder of the 176 pages contain a review of the evidence in four chapters: Public Health Interventions, Public Policy Interventions, Clinical Interventions and Health professional and lay breastfeeding educator/counsellor training, education and practice change. The additional appendices for this review (dealing with the methodology) can be found at: http://www.nice.org.uk/niceMedia/pdf/Breastfeeding_vol_2.pdf and a useful summary of this review is at: http://www.nice.org.uk/niceMedia/pdf/Breastfeeding_summary.pdf

Protheroe L, Dyson L, Renfrew M J, et al. 2003. **The effectiveness of public health interventions to promote the initiation of breastfeeding: Evidence briefing.** London: Health Development Agency.
http://www.nice.org.uk/nicemedia/documents/breastfeeding_evidencebriefing.pdf

This evidence briefing is a review of reviews published since 1996 about public health interventions for promoting the initiation of breastfeeding. The evidence is reviewed under the headings of Health education, Health sector initiatives, Training of health professionals, Social support from health professionals, Peer support programmes, Media campaigns, Multi-faceted interventions and Packages of interventions: the Scandinavian experience. A useful summary of this publication can be found at: http://www.nice.org.uk/niceMedia/documents/breastfeeding_summary.pdf

Dyson L, McCormick F, Renfrew MJ. 2005. **Interventions for promoting the initiation of breastfeeding.** Cochrane Database of Systematic Reviews, 2005(2), Art. No.: CD001688. DOI: 10.1002/14651858.CD001688.pub2.

This review evaluated the effectiveness of interventions to encourage women to breastfeed in terms of changes in the number of women who start breastfeeding. It included eleven trials and data from eight trials (1553 women) was used in the statistical analyses. Data from five studies involving 582 low-income mostly ethnic minority women in the U.S., who typically have low breastfeeding rates, showed that, compared to usual care, breastfeeding education had a significant effect in increasing breastfeeding initiation rates (risk ratio (RR) 1.57, 95% CI 1.15 to 2.15, P = 0.005). Analyses of different sub-groups showed that, regardless of ethnicity and feeding intentions, both one-to-one, needs-based, informal education sessions and generic, formal antenatal education sessions are effective in producing an increase in breastfeeding initiation rates among low-income women but the review authors concluded that needs-based, informal, repeated education sessions are likely to result in larger increases. They note that these findings are based on studies on low-income women in the U.S. and may not be applicable to other places.

Hector D, King L, Webb K. 2004. **Overview of recent reviews of interventions to promote and support breastfeeding.** Sydney: NSW Centre for Public Health Nutrition University of Sydney, NSW Department of Health.
http://www.health.nsw.gov.au/pubs/2004/pdf/bf_interventions.pdf

This Australian publication summarises systematic reviews of interventions to promote breastfeeding and provides a framework and describes a process for systematic intervention planning. It is intended for those working to improve the breastfeeding practices of the NSW population. The authors note that while there is evidence relating to education and support strategies designed to enhance mothers' personal skills, and to health service strategies to make hospital practices conducive to breastfeeding there is no evidence of effective strategies related to public policy, supportive environments or community action. Chapter 3 covers determinants of breastfeeding, Chapter 4 Intervention options, Chapter 5 the sources of information and Chapter 6 conclusions and recommendations.

Kramer MS, Kakuma R. 2002. **Optimal duration of exclusive breastfeeding.** Cochrane Database of Systematic Reviews, 2002(1), Art. No.: CD003517. DOI: 10.1002/14651858.CD003517.

This review assessed the effects on child health, growth and development, and on maternal health, of six month's exclusive breastfeeding compared to three to four month's exclusive breastfeeding with mixed breastfeeding thereafter until six months (mixed breastfeeding involves the addition of complementary liquid or solid foods.) The results of two controlled trials and 18 observational studies (from both developed and developing countries) suggest that exclusive breastfeeding for six months has a number of benefits over exclusive breastfeeding for three to four months followed by mixed breastfeeding. These benefits are: lower risk of gastrointestinal infection, more rapid maternal weight loss and delayed return of menstrual periods. Benefits in terms of reduced risks of other infections or risks of allergic disease have not been demonstrated. Exclusive breastfeeding for six months has not been shown to impair growth but it has been associated with a reduced blood iron levels in infants in developing countries.

Fairbank L, O'Meara S, Renfrew MJ. 2000. **A systematic review to evaluate the effectiveness of interventions to promote the initiation of breastfeeding.** Health Technology Assessment, 4(25), 1-171.

<http://www.hta.ac.uk/fullmono/mon425.pdf>

This review identified promotion programmes which are effective in increasing the number of women who start to breastfeed. In addition it assessed the impact of such programmes on the duration and/or exclusivity of breastfeeding and identified implications for practice within the UK and priority areas for future research. It included 14 RCTs, 16 non-RCTs and 29 before-and-after studies. The authors concluded that three types of interventions are useful in developed countries: education (informal small group antenatal education, one-to-one health education and peer support programmes), packages of intervention which include a peer support programme and/or a media campaign combined with structural changes to the health sector and/or health education activities, and structural changes in hospital practices to promote breastfeeding, for example rooming in.

Tedstone A, Duncie N, Aviles M, et al. 1998. **Effectiveness of interventions to promote healthy feeding in infants under one year of age: a review.** London: Health Education Authority.

http://www.nice.org.uk/nicemedia/documents/effective_feeding_infants.pdf

This review included 20 (older) studies of interventions to promote breastfeeding. The authors state that "In the majority of studies included interpretation of the impact of the intervention was hampered by the quality of evaluation, study design weaknesses or failure to report methodologies fully". In summarising the main findings, the authors stated: "The most successful breastfeeding promotions were based in the U.S.A. and, in general, were long term, spanning the pre- and post-natal periods and intensive, involving multiple contacts with a professional breastfeeding promoter or peer counsellor. Weaker evidence from single studies suggests that including partners or incentives or changing the contents of hospital; discharge packs may facilitate breastfeeding". The least successful programmes were: those implemented in the post-natal period only, those where promotion of breastfeeding was only part of a programme, those involving special visits to the hospital or clinic in addition to routine visits, and those provided by telephone only.

Other Relevant Publications

Department of Labour. 2010. **Breastfeeding in the workplace: a guide for employers.** Wellington: Department of Labour. <http://www.dol.govt.nz/er/holidaysandleave/parentalleave/infantfeeding/breastfeeding.pdf>

Under section 69Y of the Employment Relations Act 2000, since 1 April 2009 employers have been required, as far as it is reasonable and practicable, to provide appropriate breaks and facilities for employees who wish to breastfeed their infants or express milk during working hours. This publication provides guidance for employers on this issue.

New Zealand Breastfeeding Authority Board. 2011. **WHO/UNICEF Baby Friendly Hospital Initiative Documents for Aotearoa New Zealand 2011.** Christchurch: New Zealand Breastfeeding Authority Board.

http://www.babyfriendly.org.nz/resources/resources_bf.html

The Ministry of Health has contracted the New Zealand Breastfeeding Authority Board (NZBA) to develop and manage the Baby Friendly Hospital Initiative (BFHI) which is a global effort launched by the WHO and UNICEF in 1991 to implement practices that protect, promote and support breastfeeding. The New Zealand BFHI documents have been developed from the WHO BFHI documents (see below) to reflect the unique circumstances of New Zealand's health system and acknowledge the Treaty of Waitangi principles of protection, partnership and participation. The format of the documents differs somewhat from that of the WHO documents.

The New Zealand BFHI documents, which can be found on the NZBA website (select BFHI resources from the drop down list under the resources tab) are:

Forward; Part 1: Background and Baby Friendly Implementation in New Zealand; Part 2: The NZBA Criteria for BFHI; Part 3: Self-Appraisal Questionnaire; Part 4: BFHI Assessment Manual; Part 5: BFHI Assessment Summary; Part 6: Resources for Aotearoa New Zealand; Part 7: BFHI Annual Self-Appraisal Questionnaire

New Zealand Breastfeeding Authority. **Baby Friendly Community Initiative.**

http://www.babyfriendly.org.nz/baby_friendly/mat_ass_stages.html accessed 10/11/11.

The Ministry of Health has contracted the New Zealand Breastfeeding Authority Board (NZBA) to facilitate the implementation of the Baby Friendly Community Initiative (BFHI) in health services in the community. The BFHI consists of a seven point plan for the protection, promotion and support of breastfeeding in the community (details of which can be found on the website) in order to achieve three objectives: to increase the proportion of babies who are breastfed, to increase the duration of exclusive breastfeeding, and to sustain breastfeeding beyond six months alongside feeding with appropriate, adequate and safe complementary foods. The BFHI also included standards of care for the non-breastfeeding mother and her baby.

World Health Organization, UNICEF. 2009. **Baby-Friendly Hospital Initiative Revised, updated and expanded for integrated care.** Geneva: World Health Organization and UNICEF.

<http://www.who.int/nutrition/publications/infantfeeding/9789241594950/en/index.html>

These documents are revisions of the original 1992 BFHI guidelines and the first four of the five sections of the revised BFHI package are available on the website. The five sections are 1. Background and Implementation, 2. Strengthening and Sustaining the BFHI: A course for decision-makers, 3. Breastfeeding Promotion and Support in a Baby-friendly Hospital: a 20-hour course for maternity staff, 4. Hospital Self-Appraisal and Monitoring, and 5. External Assessment and Reassessment. Section 5 is for limited distribution only to external assessors.