



New Zealand Child and Youth
Epidemiology Service

Health and wellbeing of under-five year olds in the South Island 2017

Breastfeeding

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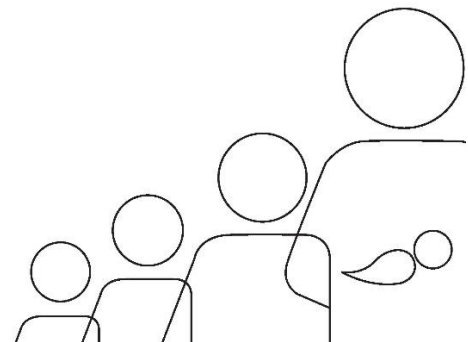
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This report has been prepared for the South Island Alliance: Nelson Marlborough, Canterbury, South Canterbury, West Coast and Southern District Health Boards.

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V. BREASTFEEDING

The Ministry of Health recommends exclusive breastfeeding until babies are around six months of age,¹ which is similar to the World Health Organization's recommendation of exclusive breastfeeding up to 6 months of age.² Most babies in New Zealand (over 90%) are receiving some breastmilk two weeks after birth, and around 80% are exclusively or fully breastfed at this time.³

Breastfeeding has health benefits for both mother and baby.⁴ Babies who are breastfed have lower rates of diarrhoea and vomiting, otitis media (ear infections), hospitalisation for respiratory infection, and sudden infant death syndrome.⁴⁻⁶ Breastfeeding for six months or more may reduce the risk of childhood leukaemia.⁷ Mothers who breastfeed have lower rates of post-partum haemorrhage, breast cancer and ovarian cancer, and are less likely to become pregnant soon after their baby's birth.⁴⁻⁶

Breastfeeding is a right of the child, however mothers should not be made to feel guilty by society or by health professionals 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 families, friends, communities, clinicians, health care leaders, employers and policymakers.⁴

The following section reviews breastfeeding rates at six weeks, three months and six months using the Well Child/Tamariki Ora (WCTO) dataset.

Data sources and methods

Indicator

Infants exclusively or fully breastfed at 6 weeks (%)

Numerator: Number of Infants exclusively or fully breastfed at 6 weeks

Denominator: Number of Infants with recorded breastfeeding status at 6 weeks

Data source: WCTO NHI Dataset

Infants exclusively or fully breastfed at 3 months (%)

Numerator: Number of Infants exclusively or fully breastfed at 3 months

Denominator: Number of Infants with recorded breastfeeding status at 3 months

Data source: WCTO NHI Dataset

Infants receiving breastmilk at six months (%)

Numerator: Number of Infants receiving breast milk at 6 months, whether exclusively, fully or partial

Denominator: Number of Infants with recorded breastfeeding status at 6 months

Data source: WCTO NHI Dataset

Additional information

The analysis was done by year of birth of baby

To get breastfeeding information for the highest possible percentage of Infants, all the records for each baby within each breastfeeding age band were searched for breastfeeding information. The record with the highest level breastfeeding information (at the earliest date if there was >1 such record) was chosen as the record indicating the breastfeeding status of that baby in that period. The DHB and deprivation score in that record was used in the analysis by DHB and NZDep2013

So if a baby had, e.g. exclusive recorded at one visit and partial recorded at another, then the baby's breastfeeding status for that time period (age band) was considered to be exclusive

This process was done on the entire 2013–2016 set to get one record per breastfeeding age band for each baby, for use in the trend analysis, the DHB rate ratio analysis, and the demographic rate ratio analysis

Breastfed at six weeks and three months

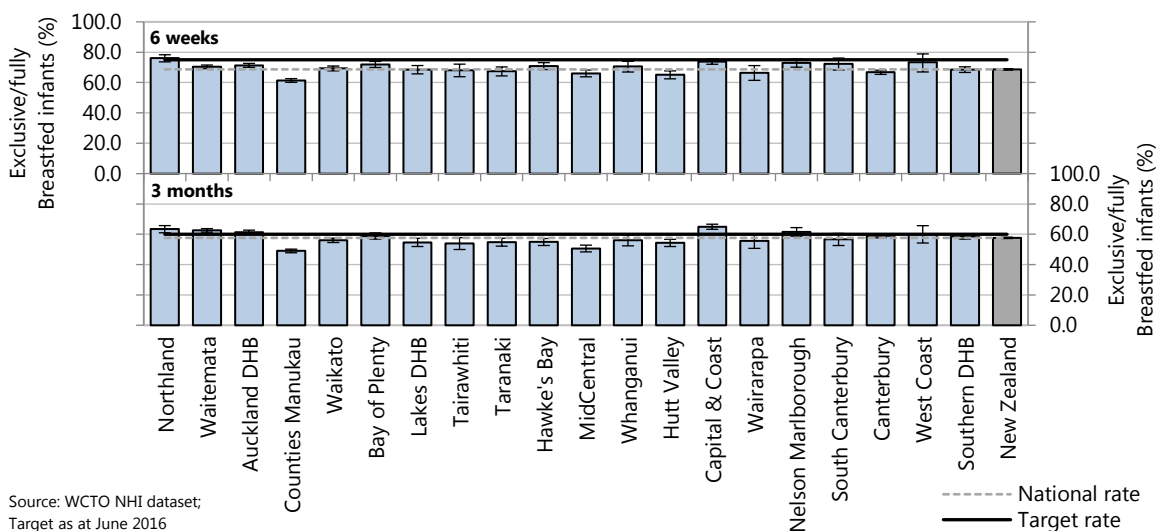
Figure V–1 and Table V–1 present the proportion of infants that were exclusively or fully breastfed for each district health board during 2015.

The Ministry of Health has set a target of 75% for the percentage of infants aged six weeks that should be exclusively or fully breastfed, and a target of 60% for infants aged three months. Compared against these targets, the six week breastfeeding rates in Canterbury and Southern DHBs fell short of the six weeks breastfed

target of 75%, while the target was met in Nelson Marlborough, South Canterbury and West Coast DHBs when the confidence intervals of the rates were taken into account. Taking confidence intervals into account, all South Island DHBs met the target of 60% of infants breastfed at age three months (Figure V-1).

The breastfeeding rates for infants aged six weeks and three months were slightly but significantly higher in Nelson Marlborough compared with the national breastfeeding rate at these ages. The breastfeeding rates for infants aged six weeks and three months were similar to the national rate in all other South Island DHBs (Figure V-1, Table V-1).

Figure V-1 Infants exclusively or fully breastfed, by age and district health board, 2015



Source: WCTO NHI dataset;
Target as at June 2016

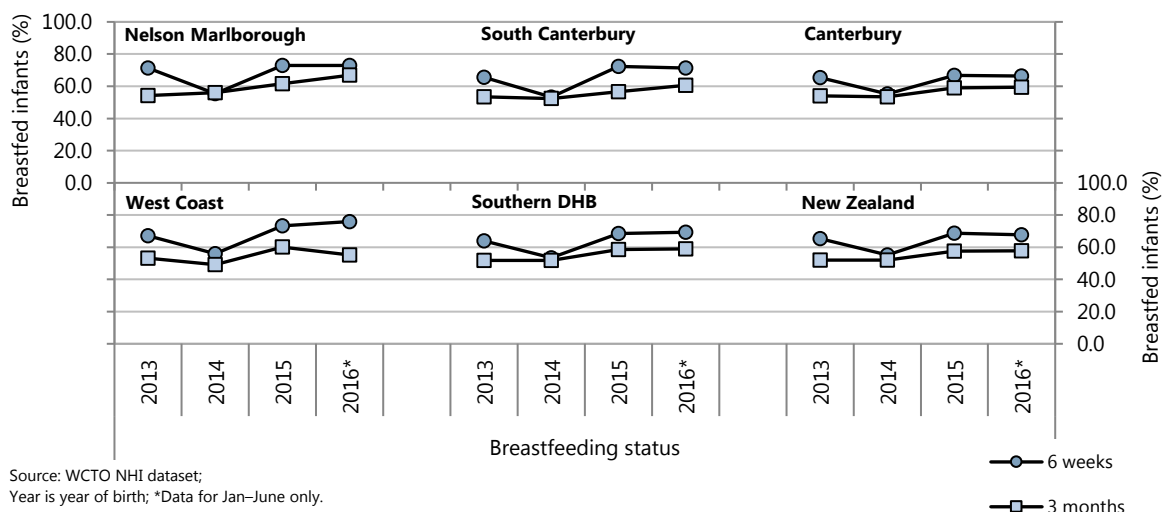
Table V-1 Exclusively or fully breastfed infants, by age, South Island DHBs 2015

DHB	Documented status	2015 (n)	%	Rate ratio	95% CI
Infants exclusively or fully breastfed at milestone age					
6 weeks					
Nelson Marlborough	1,027	749	72.93	1.06	1.02–1.10
South Canterbury	492	356	72.36	1.05	1.00–1.11
Canterbury	4,427	2,956	66.77	0.97	0.95–0.99
West Coast	210	154	73.33	1.07	0.98–1.16
Southern DHB	2,412	1,653	68.53	1.00	0.97–1.03
New Zealand	41,848	28,739	68.67	1.00	
3 months					
Nelson Marlborough	1,138	701	61.60	1.07	1.02–1.12
South Canterbury	592	335	56.59	0.98	0.91–1.05
Canterbury	5,338	3,149	58.99	1.02	1.00–1.05
West Coast	278	167	60.07	1.04	0.95–1.15
Southern DHB	3,004	1,759	58.56	1.02	0.99–1.05
New Zealand	50,208	28,927	57.61	1.00	

Source: WCTO NHI dataset; Rate ratios are unadjusted

Over the period 2013–2016, the percentage of infants exclusively/fully breastfed at six weeks in the South Island DHBs remained fairly stable. The dip seen in 2014 is unlikely to reflect a genuine decline in breastfeeding rates at six weeks and probably reflects a change in how data collectors defined breastfeeding that year. In the South Island DHBs there was a modest increase in rates of breastfeeding at three months over the same time period, with the exception of the West Coast DHB. The apparent fluctuations in the breastfeeding rates on the West Coast should be interpreted with caution as they are based on small infant numbers (Figure V-2).

Figure V-2 Breastfeeding status of infants, by age, South Island DHBs Jan 2013–Jun 2016



Source: WCTO NHI dataset;
Year is year of birth; *Data for Jan–June only.
Receiving breastmilk at 6 months

The small numbers of infants breastfed at six weeks and three months in the West Coast DHB do not allow for meaningful comparisons by demographic factor and are therefore not presented.

Table V-2 to Figure V-4 present the breastfeeding rates at six weeks, and three months for each district health board by the residential deprivation score (NZDep2013 index of deprivation score) and by ethnicity. The unadjusted rate ratio presents the gap, if any, between the groups and the reference group. The following associations were observed, bearing in mind that this univariate analysis does not quantify the independent effect of each factor:

- In the Canterbury and Southern DHBs, rates of breastfeeding at six weeks were significantly lower for those residing in areas with higher (quintiles 4–5; deciles 9–10) NZDep2013 scores compared with quintile 1 (deciles 1–2). Similarly the breastfeeding rates at three months were significantly lower for quintiles 3–5 in Canterbury and Southern DHBs
- In the South Island DHBs, exclusively/fully breastfeeding rates at six weeks or at three months were significantly lower for Māori infants compared with European/Other infants, with the exception of the six week rate in Nelson Marlborough, which was not significantly different.

Table V-2 Infants exclusively or fully breastfed at 6 weeks, by demographic factor, Nelson Marlborough 2015

Factor	Documented status (n)	Breastfed babies (n)	%	Rate ratio	95% CI
Infants exclusively or fully breastfed at 6 weeks					
Nelson Marlborough					
NZDep2013 Index of deprivation quintile					
Quintile 1 (least deprived)	116	77	66.38	1.00	
Quintile 2	295	221	74.92	1.13	0.98–1.31
Quintile 3	170	124	72.94	1.10	0.94–1.29
Quintile 4	385	281	72.99	1.10	0.95–1.27
Quintile 5 (most deprived)	61	46	75.41	1.14	0.94–1.38
Prioritised ethnicity					
Māori	189	126	66.67	0.91	0.81–1.01
Pacific	21	14	66.67	0.91	0.67–1.23
Asian/Indian	107	84	78.50	1.07	0.96–1.19
European/Other	680	500	73.53	1.00	

Source: WCTO NHI dataset, Rate ratios are unadjusted

Table V-3 Infants exclusively or fully breastfed at 3 months, by demographic factor, Nelson Marlborough 2015

Factor	Documented status (n)	Breastfed babies (n)	%	Rate ratio	95% CI
Infants exclusively or fully breastfed at 3 months					
Nelson Marlborough					
NZDep2013 Index of deprivation quintile					
Quintile 1 (least deprived)	126	79	62.70	1.00	
Quintile 2	324	213	65.74	1.05	0.90–1.23
Quintile 3	213	126	59.15	0.94	0.79–1.12
Quintile 4	409	244	59.66	0.95	0.81–1.11
Quintile 5 (most deprived)	66	39	59.09	0.94	0.74–1.20
Prioritised ethnicity					
Māori	209	112	53.59	0.84	0.73–0.96
Pacific	23	14	60.87	0.95	0.68–1.33
Asian/Indian	117	75	64.10	1.00	0.87–1.16
European/Other	758	484	63.85	1.00	

Source: WCTO NHI dataset, Rate ratios are unadjusted

Table V-4 Infants exclusively or fully breastfed at 6 weeks, by demographic factor, South Canterbury 2015

Factor	Documented status (n)	Breastfed babies (n)	%	Rate ratio	95% CI
Infants exclusively or fully breastfed at 6 weeks					
South Canterbury					
NZDep2013 Index of deprivation quintile					
Quintile 1 (least deprived)	56	46	82.14	1.00	
Quintile 2	132	100	75.76	0.92	0.79–1.08
Quintile 3	129	95	73.64	0.90	0.76–1.05
Quintile 4	147	94	63.95	0.78	0.66–0.92
Quintile 5 (most deprived)	28	21	75.00	0.91	0.71–1.17
Prioritised ethnicity					
Māori	78	44	56.41	0.74	0.61–0.91
Pacific	12	9	75.00	0.99	0.71–1.38
Asian/Indian	30	25	83.33	1.10	0.93–1.30
European/Other	359	272	75.77	1.00	

Source: WCTO NHI dataset, Rate ratios are unadjusted

Table V-5 Infants exclusively or fully breastfed at 3 months, by demographic factor, South Canterbury 2015

Factor	Documented status (n)	Breastfed babies (n)	%	Rate ratio	95% CI
Infants exclusively or fully breastfed at 3 months					
South Canterbury					
NZDep2013 Index of deprivation quintile					
Quintile 1 (least deprived)	64	39	60.94	1.00	
Quintile 2	173	105	60.69	1.00	0.79–1.25
Quintile 3	145	89	61.38	1.01	0.80–1.27
Quintile 4	179	82	45.81	0.75	0.58–0.97
Quintile 5 (most deprived)	31	20	64.52	1.06	0.76–1.47
Prioritised ethnicity					
Māori	104	47	45.19	0.77	0.61–0.96
Pacific	13	6	46.15	0.79	0.43–1.42
Asian/Indian	31	23	74.19	1.26	1.01–1.58
European/Other	434	255	58.76	1.00	

Source: WCTO NHI dataset, Rate ratios are unadjusted

Figure V-3 Infants exclusively or fully breastfed, by milestone age and demographic factor, Canterbury DHB 2015

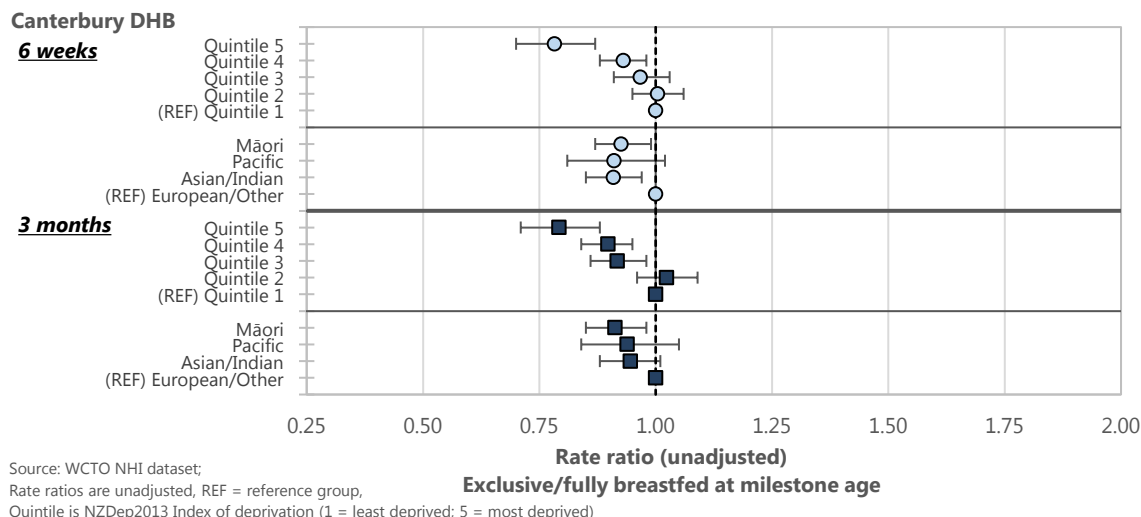
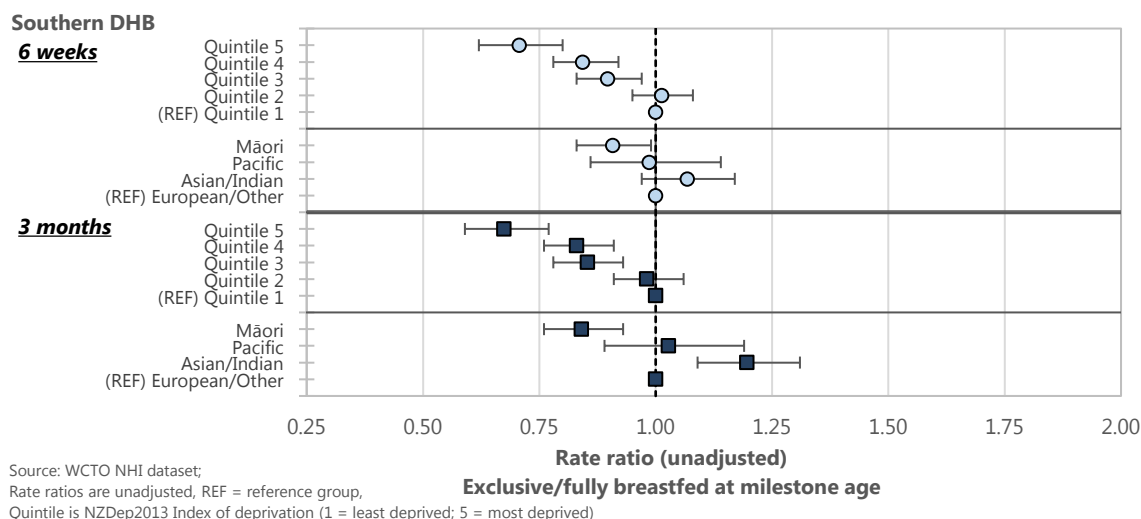


Figure V-4 Infants exclusively or fully breastfed, by milestone age and demographic factor, Southern DHB 2015

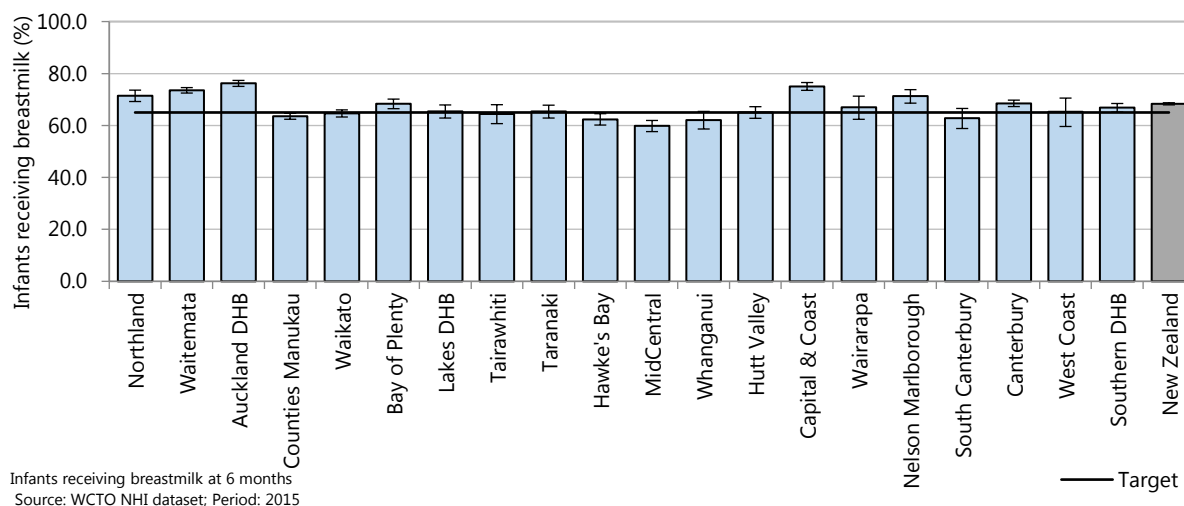


Received breastmilk at six months

Figure V-5 and Table V-6 present the proportion of infants that were receiving breastmilk (exclusively, fully or partially) at six months for each district health board during 2015.

Nelson Marlborough DHB had rates of any breastfeeding at six months significantly higher than the national rate, while the rates in all other South Island DHBs were similar to the national rate. All South Island DHBs met the Ministry of Health’s target of 65% of infants aged six months receiving breastmilk (Figure V-5, Table V-6).

Figure V-5 Infants receiving breastmilk at 6 months, by district health board, 2015



Infants receiving breastmilk at 6 months
Source: WCTO NHI dataset; Period: 2015

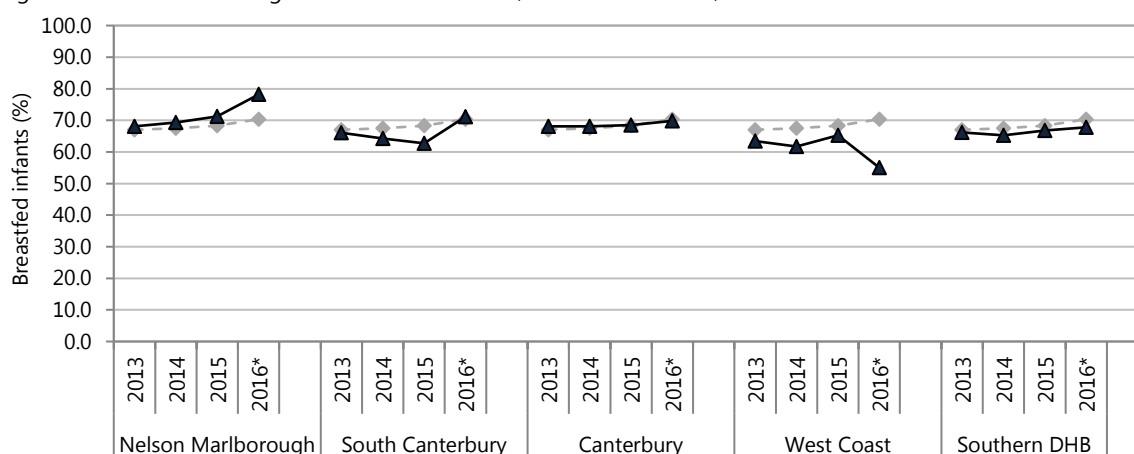
Table V-6 Infants receiving breastmilk at 6 months, South Island DHBs 2015

DHB	Documented status	2015 (n)	%	Rate ratio	95% CI
Infants receiving breastmilk at 6 months					
Nelson Marlborough	1,162	828	71.26	1.04	1.00–1.08
South Canterbury	599	376	62.77	0.92	0.86–0.98
Canterbury	5,443	3,730	68.53	1.00	0.98–1.02
West Coast	288	188	65.28	0.96	0.88–1.04
Southern DHB	3,102	2,073	66.83	0.98	0.95–1.00
New Zealand	52,075	35,585	68.33	1.00	

Source: WCTO NHI dataset; Rate ratios are unadjusted

Breastfeeding rates at six months changed little in any of the South Island DHBs over the four year period, with the exception of Nelson Marlborough, which experienced a modest increase over same period. The apparent upswing in the six months rates for South Canterbury and apparent downswing in the six months rates for the West Coast for the 2016 year should be viewed with caution as they are based on only a small number of infants (Figure V-6).

Figure V-6 Infants receiving breastmilk at 6 months, South Island DHBs, Jan 2013–Jun 2016



Source: WCTO NHI dataset;
Year is year of birth; *Data for Jan–June only.
Receiving breastmilk at 6 months

—◆— NZ: 6 months —▲— DHB: 6 months

Table V-7 to Figure V-8 present the rates of six month old infants receiving breastmilk for each district health board by the residential deprivation score (NZDep2013 index of deprivation score) and by ethnicity. The unadjusted rate ratio presents the gap, if any, between the groups and the reference group. The following associations were observed, bearing in mind that this univariate analysis does not quantify the independent effect of each factor:

- Rates of breastfeeding at six months were significantly lower for those residing in areas with higher NZDep2013 scores (quintiles 4–5; deciles 7–10) in Canterbury and Southern DHBs compared with quintile 1 (deciles 1–2)
- Compared to European/Other infants, rates of receiving breastmilk at six months were significantly lower for Māori infants in South Island DHBs, with the exception of the West Coast DHB. Rates of receiving breastmilk at six months in Canterbury, West Coast and Southern DHBs were significantly higher for Asian/Indian infants.

Table V–7 Infants receiving breastmilk at 6 months, by demographic factor, Nelson Marlborough 2015

Factor	Documented status (n)	Breastfed babies (n)	%	Rate ratio	95% CI
Infants exclusively or fully breastfed at 6 months					
Nelson Marlborough					
NZDep2013 Index of deprivation quintile					
Quintile 1 (least deprived)	124	87	70.16	1.00	
Quintile 2	329	245	74.47	1.06	0.93–1.21
Quintile 3	240	186	77.50	1.10	0.97–1.26
Quintile 4	399	263	65.91	0.94	0.82–1.07
Quintile 5 (most deprived)	69	47	68.12	0.97	0.80–1.18
Prioritised ethnicity					
Māori	196	123	62.76	0.87	0.77–0.97
Pacific	24	18	75.00	1.03	0.82–1.31
Asian/Indian	123	96	78.05	1.08	0.97–1.19
European/Other	789	572	72.50	1.00	

Source: WCTO NHI dataset, Rate ratios are unadjusted

Table V–8 Infants receiving breastmilk at 6 months, by demographic factor, South Canterbury 2015

Factor	Documented status (n)	Breastfed babies (n)	%	Rate ratio	95% CI
Infants exclusively or fully breastfed at 6 months					
South Canterbury					
NZDep2013 Index of deprivation quintile					
Quintile 1 (least deprived)	71	44	61.97	1.00	
Quintile 2	181	121	66.85	1.08	0.88–1.33
Quintile 3	142	95	66.90	1.08	0.87–1.34
Quintile 4	174	94	54.02	0.87	0.69–1.09
Quintile 5 (most deprived)	31	22	70.97	1.15	0.86–1.53
Prioritised ethnicity					
Māori	103	52	50.49	0.78	0.63–0.95
Pacific	11	7	63.64	0.98	0.62–1.54
Asian/Indian	33	26	78.79	1.21	1.00–1.47
European/Other	442	287	64.93	1.00	

Source: WCTO NHI dataset, Rate ratios are unadjusted

Figure V-7 Infants receiving breastmilk at 6 months, by demographic factor, Canterbury DHB 2015

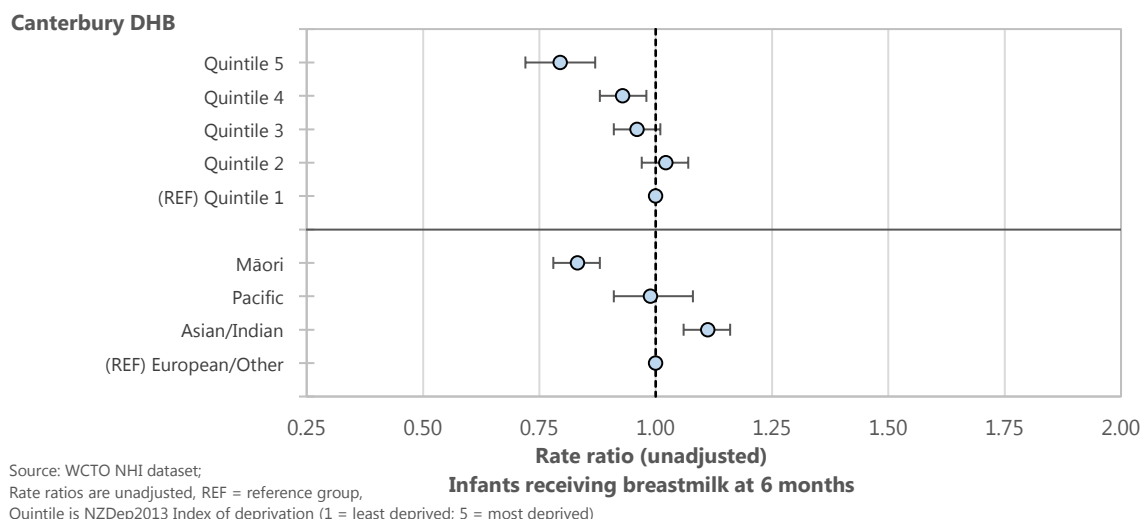
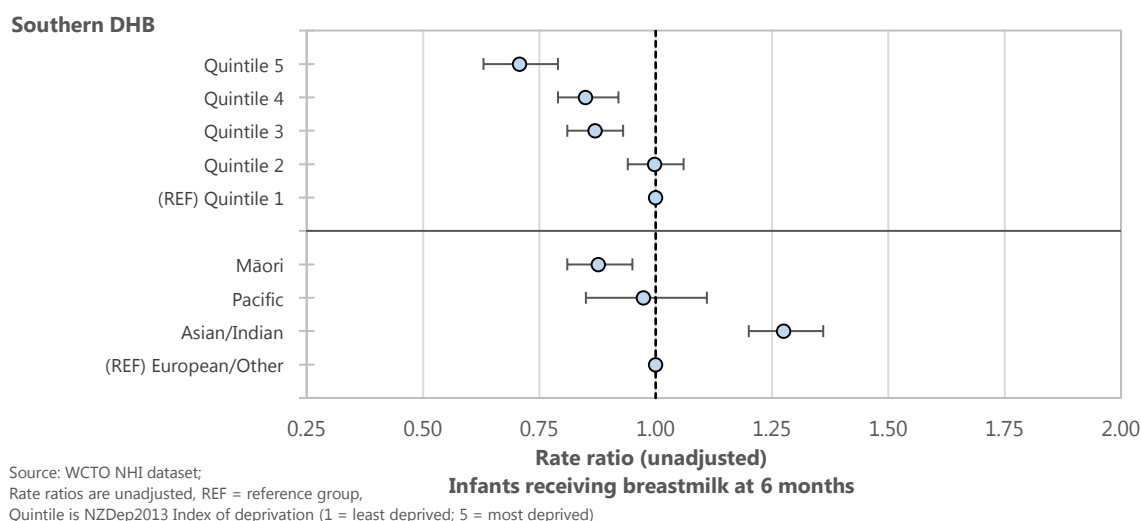


Figure V-8 Infants receiving breastmilk at 6 months, by demographic factor, Southern DHB 2015



Evidence for good practice

Breastfeeding support increases both the duration and exclusivity of breastfeeding.^{8,9} Characteristics of effective support identified in a 2017 Cochrane review¹⁰ include: that it is routinely offered by trained personnel during antenatal or postnatal care, that it includes on-going scheduled visits so that women can predict when support will be available, and that it is tailored to the setting and needs of the population. Support is likely to be more effective when initiation rates are high.¹⁰ It may be delivered by professional or lay/peer supporters, or a combination of both.¹⁰ Face to face support strategies are more likely to increase exclusive breastfeeding rates.¹⁰ There is a lack of good evidence regarding breastfeeding education and training for healthcare staff.¹¹ There is also a lack of conclusive evidence that antenatal breastfeeding education improves initiation, duration or exclusivity of breastfeeding.¹²

Concerns have been raised that promoting breastfeeding as “natural” may be problematic because it may align with a worldview that “natural” is always healthier and this may undermine other public health goals, particularly vaccination.¹³ It may also be viewed as endorsing traditional beliefs and values regarding gender roles and family life and it has been argued that promoting such values and beliefs is not the role of public agencies.¹⁴

Understanding why women stop breastfeeding is essential if women are to be better supported to continue breastfeeding. A 2016 review by Debevec and Evanson¹⁵ looked at the literature reporting on women’s perspectives and emotional experiences of breastfeeding. Common themes identified in the 21 included studies included feeling pressure to be a perfect mother, which could lead women to hide any difficulties they were having, unrealistic expectations that breastfeeding would come naturally, be easy, and be pleasurable rather than

painful, feeling judged as bad mothers if they could not meet their breastfeeding goals, and the need for support from others, both friends and family and healthcare providers. Studies of women's emotional experiences largely focussed on the negative emotions of failure and guilt stemming from the "breast is best" message and isolation due to the time commitment required for breastfeeding.

The review authors stated that healthcare providers need to provide women with honest and realistic information about breastfeeding, presenting it as a learned skill that requires time and experience to master and may be difficult initially. They also need to foster women's personal qualities of determination, flexibility, optimism and perseverance as well as acknowledging the mixed feelings many women have about breastfeeding.

The most common problems faced by breastfeeding mothers are nipple pain and perceived low milk supply.¹⁶ The most common cause of nipple pain and nipple damage is poor attachment of the infant to the breast. Health practitioners can help mothers to get their baby in the best position to get well attached with the nipple and areola deep inside the mouth. Low milk supply may be a mother's perception rather than reality. Mothers' perceptions of low milk supply may be the result of lack of confidence or lack of awareness that it is normal for breasts to become softer and feeds to become shorter as breastfeeding becomes established and that some babies may feed up to ten times a day.¹⁶ Monitoring a baby's weight gain is the best way to assess the adequacy of breastmilk supply.¹⁶ Support for new mothers is vital to enable them to increase their milk supply through better breast drainage.¹⁶

There is some controversy about the extent to which tongue tie (ankyloglossia) is a cause of breastfeeding difficulties and there is a lack of good quality evidence that surgical treatment (frenotomy) improves duration of breastfeeding.¹⁷⁻¹⁹ Frenotomy probably reduces mothers' nipple pain in the short term but the placebo effect and intensive breastfeeding support following the procedure may be partly responsible for this.¹⁷⁻¹⁹

Pacifier (dummy) use has been found to be associated with premature cessation of exclusive breastfeeding in many observational studies²⁰ and WHO recommends against using pacifiers²¹. However, pacifier use has been found in case control studies to significantly decrease the risk of sudden infant death syndrome (SIDS), especially when babies are placed to sleep^{22,23}, so some professional bodies, such as the American Academy of Pediatrics²⁴, recommend parents consider offering their babies a pacifier when put down for sleep. A 2016 Cochrane review²⁵ compared the effect of restricted versus unrestricted pacifier use on breastfeeding duration in healthy full term infants whose mothers had initiated breastfeeding and intended to exclusively breastfeed. It included data from two RCTs in its analysis (1,302 babies) and found moderate quality evidence that pacifier use had no significant effect on the proportion of infants exclusively breastfed at three months or at four months, nor on the proportions of infants partially breastfed at the same ages.

When fathers have a positive attitude to breastfeeding and are encouraging and supportive, mothers are more likely to breastfeed and to breastfeed for longer.²⁶ For women who return to paid work, supportive employers who provide lactation spaces and breastfeeding breaks can make it possible for women to continue breastfeeding.²⁷ In New Zealand, employers are legally required to give mothers unpaid breaks to breastfeed their babies or express milk, and must provide facilities for them to do this.²⁸

New Zealand guidelines

- Ministry of Health. 2016. **Breastfeeding**. <https://www.health.govt.nz/our-work/life-stages/breastfeeding>
All the breastfeeding information on the Ministry of Health's website can be accessed from this webpage.
- Ministry of Health. 2015. **For Health Practitioners**. <https://www.health.govt.nz/our-work/life-stages/breastfeeding/health-practitioners> Information on mastitis and breast abscesses; candida infections; sore, tender and cracked nipples; breast engorgement and breast oedema; medications and breastfeeding; Work and income assistance for breast pumps; and domperidone for treating low milk supply.
- Ministry of Health. 2015. **Infant Feeding in an Emergency**. <http://www.health.govt.nz/publication/infant-feeding-emergency>
- Medsafe. 2015. **Medicine use in Lactation**. <http://www.medsafe.govt.nz/Profs/PUarticles/June2015/June2015Lactation.htm>
- Ministry of Health. 2008. **Food and Nutrition Guidelines for Healthy Infants and Toddlers (Aged 0–2): A background paper - Partially revised December 2012**. Wellington: Ministry of Health. <https://www.health.govt.nz/publication/food-and-nutrition-guidelines-healthy-infants-and-toddlers-aged-0-2-background-paper-partially>

International guidelines

- Centers for Disease Control and Prevention. 2017. **Breastfeeding Guidelines and Recommendations**. <https://www.cdc.gov/breastfeeding/recommendations/index.htm>
- World Health Organization. 2017. **Protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services**. <http://www.who.int/nutrition/publications/guidelines/breastfeeding-facilities-maternity-newborn/en/>
- World Health Organization, United Nations Children's Fund. 2016. **Guideline: updates on HIV and infant feeding: the duration of breastfeeding, and support from health services to improve feeding practices among mothers living with HIV**. Geneva: World Health Organization. <http://apps.who.int/iris/bitstream/10665/246260/1/9789241549707-eng.pdf?ua=1&ua=1>
- U. S. Preventive Services Task Force. 2016. **Primary care interventions to support breastfeeding: US Preventive Services Task Force recommendation statement**. JAMA, 316(16), 1688-93. <http://dx.doi.org/10.1001/jama.2016.14697>
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- National Institute for Health and Care Excellence. 2006 (last updated February 2015). **Postnatal care up to 8 weeks after birth**. <https://www.nice.org.uk/guidance/cg37/chapter/1-Recommendations#infant-feeding> (full guideline and supporting evidence at: <https://www.nice.org.uk/Guidance/CG37/Evidence> Chapter 6 deals with infant feeding)
- Centers for Disease Control and Prevention. 2013, **The CDC Guide to Strategies to Support Breastfeeding Mothers and Babies**. Atlanta, GA: Centers for Disease Control and Prevention. <https://www.cdc.gov/breastfeeding/resources/guide.htm>
- U.S. Department of Health and Human Services. 2011. **The Surgeon General's Call to Action to Support Breastfeeding**. Washington, DC: Office of the Surgeon General. <https://www.ncbi.nlm.nih.gov/books/NBK52682/>

Evidence-based reviews

- The Cochrane Library. 2017. **Special collection of systematic reviews on breastfeeding**. <http://www.cochranelibrary.com/app/content/special-collections/article/?doi=10.1002%2F14651858.10100214651858>
- Victora CG, Bahl R, Barros AJD, et al. 2016. **Breastfeeding in the 21st century: Epidemiology, mechanisms, and lifelong effect**. The Lancet, 387(10017), 475-90. [http://dx.doi.org/10.1016/S0140-6736\(15\)01024-7](http://dx.doi.org/10.1016/S0140-6736(15)01024-7)
- Rollins NC, Bhandari N, Hajeebhoy N, et al. 2016. **Why invest, and what it will take to improve breastfeeding practices?** The Lancet, 387(10017), 491-504. [http://dx.doi.org/10.1016/S0140-6736\(15\)01044-2](http://dx.doi.org/10.1016/S0140-6736(15)01044-2)

Other relevant publications

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