Breastfeeding Data

- Analysis of 2004-2009 data

Royal NZ Plunket Society

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Breastfeeding Outcomes

Introduction

This paper is the first of a series of papers that examines population health. A population health approach focuses on improving the health of an entire population or sub-population rather than the individual. Therefore focusing on improving the health of the population also means reducing the inequalities in the health status between subgroups within the population. In order to improve the health of populations, there need to be elements or health outcomes that are examined. Some of these data need to be examined in conjunction with other national data and some can be examined on its own.

The first health outcome examined is breastfeeding. This paper will analyse breastfeeding data over the past six years. It will examine national and area data. Nationally Plunket sees over 90% of the population of new babies. However, this percentage will vary by area and ethnicity.

Breastfeeding is important for child health outcomes. It is the optimal food for infants\(^1\). It has been shown to reduce the severity of many infectious diseases (gastro-enteritis, upper respiratory tract infections) as well as possible impact on long term health outcomes such as obesity\(^2,3\). It also reduces the risk of SUDI and is important for the mental health of the child as it promotes attachment between the mother and baby\(^4,5\). It is also important for maternal health outcomes. It reduces the risk of ovarian and breast cancer and decreases the likelihood of post-partum haemorrhaging, and if the mother is

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\(^{1}\) Riordan, J. and Auerbach, K (1993) *Breastfeeding and Human Lactation.* Boston, Jones and Bartlett.


exclusively breastfeeding, it decreases the likelihood of getting pregnant in the first six months after birth\(^6, 7, 8, 9\).

**Limitations**

Limitations of this paper are that it only examines Plunket data (Plunket National Database 2004-2009). Plunket sees over 90% of the population of new babies, therefore there are approximately ten percent of new babies that are not included in this dataset. A second limitation is that the only clients counted in each period are the ones who have had a core contact in the correct age band in that period. A further limitation is how ethnic groups are prioritised; Maori, Pacific, Asian, Other. If a client is Niuean and NZ Maori, then they will be counted as Maori and not as both Maori and Pacific. Another limitation to consider is that the deprivation information in the clinical database was updated in 2008 – 2009 with census 2006 information, therefore the Deprivation information prior to this utilises a different set of information.

**Breastfeeding Definitions**

This report utilises the following breastfeeding definitions\(^10\):  

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

**Full** – 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

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Partial – the infant / child has taken some breastmilk and some infant formula or other solid food in the past 48 hours

Artificial – the infant / child has had no breastmilk, but has had alternative liquid such as infant formula, with or without solid food, in the past 48 hours

Time Intervals of Reporting

2 weeks – 5 weeks, 6 days. These data are recorded for Core 1 contacts when the baby is this age. This is the often the first contact that Plunket has with the family. Therefore these data reflect what has occurred in the 48 hours prior to receiving the Plunket service. These data are also given to the Ministry of Health for their 6 week breastfeeding data.

6 weeks – 9 weeks. These data are gathered when the baby is between 6 weeks to 9 weeks, or Core 2 contact.

10 weeks – 15 weeks. These data are collected when the baby is between 10 to 15 week, or Core 3 contact. These data are given to the Ministry of Health for their 3 month breastfeeding data.

16 weeks – 7 months. These data are collected when the baby is between 16 weeks to 7 months. These data are given to the Ministry of health for their 6 month breastfeeding data.

Ministry of Health Breastfeeding Targets

The Ministry of Health established these breastfeeding targets in 2002\textsuperscript{11}. They are:

- To increase the breastfeeding (exclusive and fully) rate at 6 weeks to 74% by 2005 and to 90% by 2010
- To increase the breastfeeding (exclusive and fully) rate at 3 months to 57% by 2005 and to 70% by 2010
- To increase the breastfeeding (exclusive and fully) rate at 6 months to 21% by 2005 and to 27% by 2010

National Breastfeeding Data

Figure 1: “Any” breastfeeding when first seen by Plunket Nurse

Figure 1 shows the historic overview of any breastfeeding when first seen by a Plunket nurse from 1922 to the year ending June 2010. This shows that in 1968-1969 was the lowest point at approximately 48%. This compares to June 2010 when the rate of any breastfeeding was approximately 84%. While it appears that the rate was higher in 1993, this is a reflection that Plunket nurses first visited families at an earlier time in comparison to now when the first core contact is between 2wks and 5 weeks, 6 days. This graph reflects the value that society has placed on breastfeeding over time.

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**All Ethnicities**

This section examines national breastfeeding trends and compares these to the Ministry of Health targets.

**2-5 weeks, 6 days**

![Graph showing national breastfeeding rates for 2-5 weeks, 6 days across different years and ethnicities][1]

**Figure 2: National Breastfeeding Data 2-5 weeks, percentage**

Figure 2 shows breastfeeding data for 2-5 weeks. This information is collected when the mother and baby is first seen by the Plunket nurse. It is also the information that is used for the “six week” breastfeeding rate. This shows that over the time of 2004 through to 2009, the exclusive rate of breastfeeding has increased from approximately 50% to 54%. Over this time, the full rate has decreased from 17% to 12%. This means that when exclusive and full rates are combined, there has been very little change (from 67% to 65%). This rate is still below the target for 2005 set by the Ministry of Health of 74% for this age group and well below the 2010 target of 90% for this age group. It appears that neither target will be met in 2010.

Over this period of time artificial feeding rates have decreased slightly from 19% to 17%.

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Figure 3: National Breastfeeding Data 6-9 weeks, percentage

Figure 3 shows national breastfeeding data for infants aged 6-9 weeks. It shows that over the time period, exclusive breastfeeding rates have increased from 45% to 49% and the full rates have decreased from 17% to 12%. This means that when exclusive and full rates have been combined there has been insignificant change from 63% to 61%.

Over this time period, artificial feeding rates for this age group have decreased slightly from 23% to 21%.
10-15 weeks

**Figure 4: National Breastfeeding Data 10-15 weeks, percentage**

Figure 4 shows national breastfeeding data for 10-15 weeks from 2004 to 2009. It shows that over the time period, exclusive breastfeeding rates have increased from 38% to 42% and the full rates have decreased from 18% to 13%. This means that when exclusive and full rates have been combined there was no slight decrease from 56% to 55%. For this age group the Ministry of Health have a target of 57% for exclusive and full breastfeeding combined. This breastfeeding rate for 2009 is still slightly below the target for 2005 set by the Ministry of Health of 57% for this age group and is well below the 2010 target of 70%. There is a possibility that the 2005 target may be met by the end of 2010.

Over this time period, artificial feeding rates for this age group have decreased slightly from 29% to 27.

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16 weeks to 7 months

Figure 5: National breastfeeding data, 16 weeks to 7 months, percentage

Figure 5 shows national breastfeeding data for 16 weeks to 7 months from 2004 to 2009. It shows that over the time period, exclusive breastfeeding rates have increased from 10% to 16% and the full rates have decreased from 14% to 10%. This means that when exclusive and full rates have been combined there was a small increase from 24% to 26%. For this age group the Ministry of Health have a target of 27% for 2010 for exclusive and full breastfeeding combined. This rate has nearly been met for this age group.

Over this time period, artificial feeding rates for this age group have decreased slightly from 40% to 39%.
Discussion of National Data – All Ethnicities

The results show that nationally there has been a steady increase in exclusive breastfeeding rates, however when these rates are combined with full rates there has been no significant change. Therefore there is still more work required to increase the rates of exclusive and full breastfeeding to bring them up to the Ministry of Health’s targets of 74% at 6 weeks and 57% at 3 months. It is encouraging to see that the 6 month breastfeeding rate has increased for both exclusive and full breastfeeding (from 24% to 26% from 2004 to 2009) and this has now nearly met the Ministry of Health target of 27%.

Further research is required to ascertain the reasons for these increases and whether changes to paid parental leave has had any impact.
**Ethnic Breakdown of Breastfeeding Data**

2-5 weeks

![Bar graph showing national percentage exclusive breastfeeding for 2-5 weeks by ethnicity from 2004 to 2009.]

**Figure 6: Exclusive breastfeeding by ethnicity 2-5 weeks, percentage**

Figure 6 shows the exclusive breastfeeding rates for 2-5 weeks by ethnicity from 2004 to 2009.

- This shows that “other” has consistently had higher breastfeeding rates than Maori, Pacific or Asian. The rates for “other” for exclusive breastfeeding over the time period increased from 54% to 59%. When Exclusive and Full rates for “other” were combined, there was a slight decrease over the time period, from 71% to 70%.
- Maori had the second highest rates of exclusive breastfeeding over the time period. The rates for Maori increased from 45% to 48%. This has remains approximately ten percent lower than the exclusive breastfeeding rate for “other”. When Maori exclusive and full rates were combined, there was a slight decrease from 60% to 59%.
- Asian breastfeeding rates over this time period went from being the lowest to the second lowest. They had the largest increase in exclusive breastfeeding rates for this age group from 36% to 46%. When exclusive and full breastfeeding rates were combined for Asian, there was a slight increase from 55% to 60%.

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• Pacific had a decrease in exclusive breastfeeding rates for this age group over the time period (45% to 41%). This will need to be re-examined in future years to assess whether this is a trend. When exclusive and full breastfeeding rates were combined for Pacific, there was a significant decrease from 59% to 54%.

6-9 weeks

Figure 7: Exclusive breastfeeding by ethnicity 6-9 weeks, percentage

Figure 7 shows the exclusive breastfeeding rates for 6-9 weeks by ethnicity from 2004 to 2009.

• This shows that “other” has consistently had higher breastfeeding rates than Maori, Pacific or Asian. The rates for “other” for exclusive breastfeeding over the time period increased from 50% to 54%. When exclusive and full breastfeeding rates were combined for “other”, the rate decreased slightly from 67% to 66%.
• The rates for Maori for exclusive breastfeeding increased from 39% to 41%. The gap between the Maori rate and “other” rate widened over the time period from 11% to 13%. When exclusive and full rates for Maori were combined, the rate decreased slightly from 55% to 53%.
• Asian breastfeeding rates over this time period went from being the lowest to the second highest. They had the largest increase in exclusive breastfeeding rates for this age group from

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34% to 44%. There was also an increase for Asian when exclusive and full breastfeeding rates were combined, from 54% to 59%.

- Pacific had a change in exclusive breastfeeding rates for this age group over the time period from 40% to 37%. When exclusive and full breastfeeding rates were combined for Pacific, there was a significant decrease from 56% to 50% over the time period.

10-15 weeks

![Graph showing national% exclusive breastfeeding for 10 weeks - 15 weeks 6 days by ethnicity from 2004 to 2009.]

**Figure 8: Exclusive breastfeeding by ethnicity, 10-15 weeks, percentage**

Figure 8 shows the exclusive breastfeeding rates for 10-15 weeks by ethnicity from 2004 to 2009.

- This shows that “other” has consistently had higher breastfeeding rates than Maori, Pacific or Asian. The rates for “other” for exclusive breastfeeding over the time period increased from 42% to 47%. When exclusive and full breastfeeding rates were combined for “other”, the rate decreased slightly from 60% to 59%.

- The rates for Maori for exclusive breastfeeding increased from 30% to 33%. The gap between the Maori rate and “other” rate increased from 13% to 14%. When exclusive and full breastfeeding rates were combined for Maori, the rate decreased slightly from 46% to 45%.

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Asian breastfeeding rates over this time period went from being the second lowest to the second highest. They had the largest increase in exclusive breastfeeding rates for this age group from 30% to 39%. There was also an increase for Asian when exclusive and full breastfeeding rates were combined, from 51% to 55%.

Pacific have had a constant exclusive breastfeeding rates at 31% over the time period. When exclusive and full breastfeeding rates were combined for Pacific, there was a significant decrease from 50% to 44% over the time period.

16 weeks to 7 months

![Graph showing national exclusive breastfeeding rates for 16 weeks to 7 months by ethnicity from 2004 to 2009.]

Figure 9: Exclusive breastfeeding by ethnicity 16 weeks to 7 months, percentage

Figure 9 shows the exclusive breastfeeding rates for 16 weeks to 7 months by ethnicity from 2004 to 2009.

This shows that “other” has consistently had higher breastfeeding rates than Maori, Pacific or Asian. The rates for “other” for exclusive breastfeeding over the time period increased from 12% to 19%. When exclusive and full breastfeeding rates were combined for “other”, the rate increased from 27% to 30%.

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• The exclusive rates for Maori increased from 6% to 9%. The gap between the exclusive Maori rate and “other” increased from 6% to 9%. When exclusive and full breastfeeding rates were combined for Maori, the rate increased slightly from 18% to 19%.

• Asian breastfeeding rates over this time period were the second highest. They had the largest increase in exclusive breastfeeding rates for this age group from 9% to 18%. There was also an increase for Asian when exclusive and full breastfeeding rates were combined, from 23% to 30%.

• Pacific had an increase in exclusive breastfeeding rates for this age group over the time period (7% to 12%). When exclusive and full breastfeeding rates were combined for Pacific, there was no change at 20% over the time period.

Discussion of Data by Ethnicity
When ethnic differences are examined, “other” continues to have the highest rates. The disparities between “other” and Maori at all ages either remained constant or increased. This indicates that specific strategies are required to increase the rate of breastfeeding by Maori.

Over the study period Asian breastfeeding rates have shown the greatest increase. Further research is required to find out what has increased their exclusive breastfeeding rates and whether any contextual factors have been present. Research also needs to occur to investigate whether any breastfeeding promotion strategies can be replicated for other ethnic groups.

The ethnic group that has the lowest rates is Pacific people. Over the study period their rates have either decreased or remained constant for the age bands. There may be many reasons for this and further research is required to discover what has occurred to cause these results.
Breastfeeding Data by Deprivation

![Bar chart showing breastfeeding data by deprivation]

**Figure 10: Exclusive breastfeeding data 2009 by deprivation, percentage**

Figure 10 shows breastfeeding by deprivation bands for 2009 (the higher the number, the greater the deprivation as ascertained by the NZDep. score based on census information). This shows that the greater the deprivation, the less likely that exclusive breastfeeding occurs across all the age bands.
District Health Board Breakdown of Breastfeeding Data

2-5 weeks

Figure 11: 2-5 week exclusive breastfeeding by area (percentage)

Figure 11 shows exclusive breastfeeding rates for 2-5 weeks by area. It shows that Counties Manakau has consistently had the lowest rate of exclusive breastfeeding for this age (37% in 2009) with Taranaki having the highest rate for the 2009 year (68%). On the whole, each individual area does not show a trend. Nationally though, the trend is increasing for exclusive breastfeeding.
Figure 12: Exclusive and Full Breastfeeding (2-5 weeks) 2009 (percentage)

Figure 12 shows exclusive and full breastfeeding rates for 2-5 weeks. For this age group, the Ministry of Health targets (for 2005) are 74% for exclusive and full breastfeeding. Areas that achieved this target in 2009 were Tairawhiti (76%) and West Coast (75%). Areas that were more than 10% lower than the target were Counties Manakau (53%), Hutt (58%), Mid Central (59%), and Whanganui (60%). No areas have achieved the Ministry of Health target for 2010 of 90% for this age group.
Figure 13: 6-9 week exclusive breastfeeding by area (percentage)

Figure 13 shows exclusive breastfeeding data by area for 6-9 weeks. It shows that Counties Manukau consistently had the lowest rate of exclusive breastfeeding (31% in 2009) and South Canterbury had the highest rate in 2009 at 61%.
Figure 14: Exclusive and Full Breastfeeding (6-9 weeks) 2009 (percentage)

Figure 14 shows exclusive and full breastfeeding for 6-9 weeks for 2009 by area. This shows that Counties Manukau had the lowest rate of exclusive and full breastfeeding for this age group for 2008-2009 (49%) with Capital and Coast at the highest (71%). Other areas that were below 60% were Hutt (57%), Mid Central (57%) and Whanganui (54%).

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Figure 15: 10-15 week exclusive breastfeeding by area (percentage)

Figure 15 shows exclusive breastfeeding by area for 10-15 weeks. This shows that Counties Manukau consistently had the lowest exclusive breastfeeding for this age group (26% in 2009) with Otago with the highest in 2008-2009 (52%). South Canterbury and Capital and Coast had a rate of 50% for this age group. Nationally the rate was 42% for this age group in 2009. This has steadily increased from 38% in 2004. Most areas had exclusive breastfeeding rates for this age group between 40% and 50%. Areas that were below that (other than Counties Manakau) were Auckland (39%) Hutt (39%), Wairarapa (39%), Mid Central (39%) and Whanganui (34%).
Figure 16 shows the exclusive and full breastfeeding rates for 2009 for 10-15 wks. This shows that the national rate for this age group was 55% with a Ministry of Health target of 57% by 2005. Capital and Coast had the highest rate of exclusive and full breastfeeding for this age group at 65% with Counties Manukau at the least at 43%. Other areas that achieved the Ministry of Health target for 2005 were Auckland (57%), Capital and Coast (65%), Nelson Marlborough (57%), Northland (60%), Otago (59%), Tairawhiti (61%), Waikato (57%), Waitemata (59%) and West Coast (62%). No areas have achieved the 2010 Ministry of Health target of 70%.
16 weeks to 7 months

Figure 17: 16 weeks to 7 months exclusive breastfeeding by area (percentage)

Figure 17 shows the exclusive breastfeeding rates by area for 16 weeks to 7 months. This shows that Counties Manakau and Whanganui had the lowest rates in 2009 at 9%. Otago and Capital and Coast had the highest rate in 2009 at 24%. Canterbury and South Canterbury were also over 20% (22% and 20% respectively).
Figure 18: Exclusive and Full Breastfeeding (16 weeks to 7 months) 2009 (percentage)

Figure 18 shows the rates of exclusive and full breastfeeding for infants aged 16 weeks to 7 months for 2009. Capital and Coast area has the highest rate of exclusive and full breastfeeding for this age group at 39%. For this age group the Ministry of Health target is 27% for 2010. Nationally, this target has not quite been reached. Some areas have reached this target. Areas that still are more than 5% below the target in 2009 include Counties Manakau (18%), Hutt (18%), Lakes (19%), Mid Central (20%), Taranaki (21%) and Whanganui (18%). Several areas were more than five percent over the Ministry of Health target. These included Capital and Coast at 38%, Tairawhiti at 36%, and Otago and West Coast, both at 35%.

Discussion of Data by Area

Over time many areas have their exclusive breastfeeding rates fluctuating. Therefore for many areas it is hard to establish a trend. However, nationally, the exclusive breastfeeding rates are increasing, indicating that for the majority of areas the trend is also increasing.

Only one area achieved the Ministry of Health’s targets for 2005 (and the 2010 target at 6 months) at all ages. This area was Northland. Why this is the case is unclear and would require examination of the Northland situation.
Many areas achieved the Ministry of Health 2005 breastfeeding target for 3 months and the 2010 target 6 months. These areas included: Auckland, Bay of Plenty, Canterbury, Capital and Coast, Otago, Tairawhiti, Waikato, Waitemata and West Coast. A few areas also additionally achieved the Ministry of Health target at 6 months. These included: Nelson/ Marlborough and Southland. Areas that achieved targets at 3 months and 6 months must have factors to ensure that the population maintains its exclusive/full breastfeeding status. These factors need to be further explored so that if possible, strategies to maintain breastfeeding can be adopted by other areas.

The area of the country that has the lowest rate of exclusive and full breastfeeding across all age groups is Counties Manukau. This may be due to a number of reasons and further research is required to explore these.
Conclusion

This report has discussed breastfeeding rates in depth. It shows that there are very different breastfeeding rates by age, ethnic group, deprivation level and area. It shows that while overall exclusive and full breastfeeding appears to be increasing, there are some sub populations that require more intervention in order for them to further improve their rates and decrease disparities. Why these disparities occur requires further investigation. By improving breastfeeding rates nationally and at area level Plunket will be helping to achieve its vision ‘Together, the best start for every child, Mā te mahi ngātahi, e puāwai ai ā tātou tamariki’.