Responding to Infants' Hunger and Satiety Cues

Report commissioned by the Health Promotion Agency

October 2014

Project commissioned: June 2014

Final report received: September 2014

Provider: Research New Zealand Limited

ISBN: 978-1-927303-28-3 (online)

Citation: Research New Zealand Limited (2014). Responding to Infants' Hunger and Satiety Cues. Wellington: Health Promotion Agency.

Prepared for the Health Promotion Agency by:
Katrina Magill
Research New Zealand Limited

This document is available at: http://www.hpa.org.nz/research-library/research-publications.

Any queries regarding this report should be directed to HPA at the following address:

Kerri Kruse
Health Promotion Agency
PO Box 2142
Wellington 6140
New Zealand

www.hpa.org.nz

research@hpa.org.nz

October 2014

COMMISSIONING CONTACT'S COMMENTS

The Health Promotion Agency (HPA) commission was managed by Kerri Kruse, Researcher.

This research was undertaken to explore first time mothers' experiences with feeding their infants. In some countries, such as the United States, evidence shows that overweight prevalence in infancy has increased in recent decades. It is possible that a similar growth trajectory is occurring in New Zealand, particularly in light of the high overweight/obesity prevalence among two-to-four year olds here.

HPA's Nutrition and Physical Activity (NPA) team consulted with nutrition experts across New Zealand to inform the development of their programme. Given the Ministry of Health's strategic direction in obesity prevention that focuses on maternal and infant nutrition, the result of the consultation process was the development of a work stream that involves working with key influencers on infant feeding practices. Some evidence suggests that a feeding style which responds to infants' hunger and satiety cues promotes the retention of infants' ability to naturally self-regulate their food intake. It has been found that healthier infant weight is associated with this responsive approach, compared to one that does not actively respond to these cues.

To help inform this work stream, HPA commissioned Research New Zealand to carry out an exploratory project to learn more about mothers' knowledge, attitudes, behaviours, and experiences relating to their infants' hunger and satiety cues. The project involved conducting six focus groups with first-time Māori, Pacific, and low-income mothers of infants aged six to 23 months to explore their perceptions of a feeding approach that recognises and responds to infants' hunger and satiety cues. The NPA team was also interested in learning from whom these mothers receive information or advice on feeding their infants and the content of the advice. As this research was qualitative, the findings cannot be interpreted as being nationally representative among these populations; however, the themes that emerged can help to identify likely perceptions of this feeding approach and any related barriers and facilitators, which will help inform message development and dissemination. This report includes Research New Zealand's recommendations to HPA on its communications strategy based on the implications of the study's findings. It is noted, however, that HPA did not specifically ask for recommendations to be made, nor does HPA necessarily endorse them.

REVIEWED INTERNALLY BY

Kerri Kruse, Researcher; Darren Walton, Manager Research & Evaluation; Mary-Ann Carter, Manager Nutrition, Physical Activity, and Communicable Diseases

NOT EXTERNALLY REVIEWED

ACKNOWLEDGEMENTS

HPA would like to thank those respondents who took the time to participate in this research. Their experiences, opinions, and insights will be used to help inform the development of nutrition-related health promotion messages.

DISCLAIMER

This research has been carried out by an independent party under contract or by instruction of HPA. The content should not be taken to imply or endorse HPA policy, strategy or health promotion activities.

FINAL

Responding to Infants' Hunger and Satiety Cues

September 2014

Confidential

Responding to Infants' Hunger and Satiety Cues

PREPARED FOR Health Promotion Agency

PREPARED BY Katrina Magill
Sarah Buchanan
Emanuel Kalafatelis

CONTACT DETAILS Katrina Magill
Research New Zealand
Phone 04 499 3088
www.researchnz.com

PROJECT NUMBER #4645

Contents

1.0 Executive summary

This report presents the results of exploratory research conducted on behalf of the Health Promotion Agency (HPA) with first time mothers in order to help inform HPA's Nutrition and Physical Activity programme aimed at increasing mothers' ability to recognise hunger and satiety cues during infant feeding[1].

The Nutrition and Physical Activity (NPA) programme of the Health Promotion Agency has recently developed a work stream focused on infant feeding. Its overarching objective is "for caregivers to be responsive to their infants' hunger and satiety cues so that the child may grow up maintaining their natural ability to self-regulate their food intake".

This research was conducted to explore first-time mothers' knowledge, attitudes, and behaviours relating to feeding and their infants' hunger and satiety cues. In order to do this, focus groups were conducted with first-time mothers of infants aged six to 23 months of age. Participants were selected on the basis of their ethnicity or socioeconomic status. More specifically, participants included those who were Māori, Pacific and those with low incomes.

The data were collected in Auckland and the greater Wellington region between 5 and 14 August 2014.

1.1 Key findings

Key findings from the infant hunger and satiety focus groups are as follows:

1. **Mother's lack of confidence in reading their baby's hunger and satiety cues, coupled with their desire to establish a routine as soon as possible, are preventing them from being truly responsive to these cues.**

   Solids are generally introduced earlier than the recommended six months because mothers believe (or are convinced by others) that their child is hungry or ready for food.

   The assumption that their baby is hungry (or ready for food) is based on one or a number of the following signs or cues: baby putting things in their mouth, watching or mimicking other people eat, reaching for food, grizzling or not sleeping well.

   Baby putting things in his or her mouth (especially their fist) was the most commonly mentioned hunger sign. This was also the cue that mothers had been advised to watch for by their Well Child provider and other family members. Following this, the next most prominent cue was that the baby was watching other people eat or that they were mimicking the motions of eating.

[1] Throughout this report, this particular approach to feeding is referred to as the 'responsive feeding approach'.

Satiety cues included baby turning their head away from the food, closing their lips together to prevent food from entering their mouths, spitting the food out, pushing the food away or throwing it on the floor.

However, despite being able to mention numerous hunger and satiety cues, there was general agreement that these signs can be misinterpreted. For example, although their baby was putting things in his or her mouth, this may have meant that they were hungry or it could have meant that they were teething, or simply exploring the texture and feel of a new object.

Furthermore, research participants were divided as to whether or not the babies themselves really know when they are hungry or if they are just so used to their routine that they know when they are 'supposed to be' fed. Others reasoned that because they have always regularly fed their child, the child does not get to the stage where they really feel pangs of hunger.

Nevertheless, the fact that baby ate the first solids that were introduced was taken as confirmation that even if they weren't actually hungry, they were 'ready for food'.

A few of the mothers also did not believe their baby knew when they were full, as given the chance, they continued eating until they were sick.

2. **Mothers identified a range of different information sources and influencers that had helped or contributed to the way in which they introduced solids and established their current feeding approach. However, there were some notable differences in this regard, based on the mothers' ethnicity and cultural background.**

Māori and Pacific mothers were both heavily influenced by the advice and actions of their own mothers or mothers-in-law. However, while the Māori mothers were less likely to follow that advice if they did not agree with it, they acknowledged they had little say in what their mothers (or grandmothers) themselves chose to do in this regard.

While the Pacific mothers also revealed that they had little say in what or when their mothers chose to feed their children, they were more likely to follow their mothers advice themselves (even if they did not entirely agree with it).

In contrast, the low income, European mothers appeared much more independent in this regard. These mothers had conducted quite extensive research themselves, through the Internet, forums, books, magazines, consulting health professionals and by attending classes, seminars and coffee groups. Armed with this knowledge, they would more confidently disregard any advice they did not agree with – regardless of where or whom it came from. The key influencers for this group were other mothers of a similar age as they felt they were better able to relate to the issues they were facing and had less of a traditional 'old school' approach.

While the large majority of the mothers interviewed had received some level of contact from their Plunket nurse or other Well Child provider, such as Tamariki ora or a Karitane nurse, they did not necessarily rate them as a credible or particularly helpful source of information.

With the exception of the New Zealand-born Pacific mothers, many found their Well Child provider's approach too rigid and 'by the book'. Although most had received a generic (Watties-branded) chart from their Well Child provider with tips and advice with regard to introducing solids and what to feed their babies and when, they were disappointed with the lack of personal or tailored advice that was offered.

3. **Very few participants had any prior knowledge or awareness of the responsive feeding approach. Although a small number of participants did appear to be taking their child's hunger and satiety cues into account, most had adopted a more controlled, or structured approach to feeding.**

   The two participants who were aware of the responsive feeding approach were both European and had come across the concept while researching childcare and feeding options. Although they recognised that encouraging self-regulation could benefit children later in life, they were not quite ready to try this approach with their own children (one due to the child's medical complications).

   Although none had intentionally tried the responsive approach per se, a small number of participants did appear to be taking their child's hunger and satiety cues into account by feeding their child when they were hungry and not forcing them to finish a meal if they indicated they had had 'enough'.

   While most of the other mothers also reported that they would not force their child to finish a meal, the fact that they were feeding their children to a set routine (not based on the child's hunger cues), suggests a more controlled approach to feeding.

4. **With the key benefits of the responsive feeding approach not immediately obvious, participant's initial reaction to this approach was muted. However, by the end of the discussion they appeared more receptive and open to the idea. This highlighted the fact that any future promotion of the responsive feeding approach, will need to clearly (and quickly) explain the benefits of the approach for it to be considered as a viable option.**

   As mentioned above, the initial reaction to the responsive feeding approach was not particularly positive. In fact, most appeared quite dubious of the idea and struggled to think of any benefits, aside from the fact that the child would be happy because they would be fed whenever they wanted to be fed.

   A number of issues or concerns were raised with regard to the responsive feeding approach, with the two key concerns being:

   - The likely disruption to their routines.

     This was a particular concern for Māori and Pacific mothers who were concerned that if meal times were initiated by the baby, it would potentially disrupt their plans for the rest of the day. For example, if baby decided to eat later than usual, then their bath time would be later than usual, their sleep time would be later than usual and the periods in-

between where the mother would normally do housework, eat her own meals, go to work etc. would also be affected.

- A lack of confidence that the mothers can accurately read their baby's hunger and satiety cues, or that the baby even knows when they are hungry or when they are full.

  This was identified as a particular concern amongst the low income, European mothers, who were not only concerned that they would miss the cues, but also that it would be more difficult to keep track of what the baby had eaten and when. Without the more structured approach they were accustomed to, they were also concerned their baby's dietary (and nutritional) needs would not be met.

  Of all the groups, the Pacific mothers were the least receptive to the idea. Not only were they reluctant to disrupt their routine, they were also dubious that their families would support it. They were also concerned that their children would want to eat 'all the time' and become obese.

  However, in each of the Māori and low income, European groups at least one person recognised that this type of approach could help the child develop healthy eating habits for the future (by learning to self-regulate their food intake). It was at this point that participants became more receptive to the concept. In fact, at the end of the discussion, when asked if they would have used or at least tried this type of approach had they known about it earlier, most answered in the affirmative.

5. **To improve receptiveness towards the response feeding approach, participants suggested HPA take the following suggestions into account:**

   - Provide proof/evidence that the responsive feeding approach actually works – both from a practical point of view and in terms of the long term benefits.

     Not prepared to 'gamble' with their child's health and wellbeing, mothers require proof that this approach actually works. This not only includes proof that the approach will work on a practical level, but also in terms of the long-term benefits.

   - Clearly explain what those benefits are.

     As mentioned earlier, participants' reaction to the responsive feeding approach became noticeably more positive as soon as they understood what the long-term benefits were. It is important therefore, that these are communicated as clearly and as quickly as possible, to avoid the concept being automatically dismissed.

   - Provide clear information and advice on how to interpret hunger and satiety cues.

     As mothers are not particularly confident about interpreting hunger and satiety cues, it is vital that they understand how to do this and to not feel anxious about getting it wrong.

The whole effectiveness of this approach depends on the carer being able to respond to these cues.

- Promote the approach through a range of sources and ensure the message is consistent across the board.

  To cut through the 'noise' and present the responsive feeding approach as a credible option that is more than just a fad, it is important that the messages relating to the approach are consistent and delivered through a range of sources. These include Well Child providers, health professionals, midwives and child education groups (i.e. PAFT and PP providers).

- Advise mothers about the approach and present it as an option, but do not tell them to use it.

  One of the key criticisms of The Well Child providers was that they were too rigid in their approach. Although they are first-time mothers and have little experience, they do not appreciate being told what is best for their baby as it can make them feel that their abilities as a mother are being questioned or judged. They are generally more open to advice that is presented as an option for them to consider.

Conclusions

As a general observation, the first-time mothers interviewed for this research were very open and willing to contribute to the discussion. As such, they provided valuable insights into what, how and why they were feeding their infants in a particular way.

Whilst initially dubious of a feeding approach that would rely on their infant's ability to recognise and clearly express hunger and satiety cues, participants did become more receptive to the concept once they had the opportunity to consider the potential benefits. In fact, some realised as result of the discussions that they were indirectly using a similar approach already (or at least elements of the desired approach).

However, there are a number of concerns and barriers that HPA will need to consider in its development of appropriate information and communication strategies. Of particular importance in this regard are mothers' ethnic and cultural backgrounds and the extent to which they are influenced by those around them.

2.0 Background, purpose and objectives

This section of the report provides more detailed information on the background, purpose and objectives of the research.

2.1 Background

The Nutrition and Physical Activity (NPA) programme of the Health Promotion Agency has recently developed a work stream focused on infant feeding. Its overarching objective is "for caregivers to be responsive to their infants' hunger and satiety cues so that the child may grow up maintaining their natural ability to self-regulate their food intake".

To inform the NPA programme regarding opportunities to work with first-time mothers and their key influencers to promote the responsive feeding approach, more information was required in order to understand the target audience's current beliefs and behaviours in this regard and to identify who their key influencers are.

2.2 Research and information objectives

This research was conducted in order to explore first-time mothers' knowledge, attitudes and behaviours relating to their infants' hunger and satiety cues. More specifically, the research sought to examine first-time mothers:

- Current behaviour and practices with regard to feeding their infant, particularly those which relate to their infant's hunger and satiety cues.
- Who/what their key influencers are with regard to feeding.
- Their views (perceived benefits and barriers) to a feeding approach that is responsive to hunger and satiety cues.
- Receptiveness to messages about recognising hunger and satiety cues.

The research also examines the differences that exist in attitudes, perceptions or behavior by population sub-groups (based on ethnicity and socio-economic status).

3.0 Methodology

This research was completed as six focus groups, held in Auckland and Wellington, and conducted between 5 and 14 August 2014. Participants were recruited on the basis that they were first-time mothers of an infant aged between six and 23 months. This section describes the design, recruitment, methodology and the approach used to analyse the data.

3.1 Research design and rationale

A qualitative approach was used to explore first-time mothers' knowledge, attitudes and behaviours relating to their infants' hunger and satiety cues as this research was exploratory in its nature.

The interviewing was conducted in the form of focus groups, as opposed to one-on-one interviews, as this method is considered to be more conducive to exploring participants' attitudes and opinions in particular. As a general observation, participants can be more comfortable in this type of situation, particularly if the focus group comprises participants of a similar background, and therefore they can potentially be more open with their feedback. Furthermore, this approach is both more cost and time-efficient.

The research involved completing six focus groups; two with each of HPA's primary target groups (viz. Māori, Pacific and low income first-time mothers). Our preference is to complete at least two focus groups with each individual group of interest, so that we can have greater confidence in the results.

The key objectives of the research were reflected in the content of the discussion guide (refer Appendix A), which was developed in consultation with HPA. Questions were included covering three key subject topics; (i) current behaviour and practices with regard to feeding, particularly those which relate to their infant's hunger and satiety cues, (ii) key influencers with regard to feeding, and (iii) views and receptiveness to the responsive feeding approach.

It is important to note that the purpose of the discussion guide is to facilitate the discussion and provide researchers with a reference document that outlines each of the key areas to be covered during the course of the discussion. Unlike quantitative studies, it is not a structured questionnaire that is asked word for word of every respondent.

The final draft of the discussion guide was informally pre-tested with senior members of Research New Zealand's field staff (who were also mothers of young children) as a final check to confirm that each of the subject topics were covered in a logical, clear and unobtrusive manner.

After the first focus group, and in consultation with HPA, the discussion guide was slightly revised in order to include specific questions around the use of 'routines' as this had emerged as a key theme for mothers in terms of the style and type of feeding approach currently being used.

3.2 Recruitment

Recruitment criteria

Participants were recruited on the basis that they were a first-time mother of an infant aged six to 23 months. The focus was placed on first-time mothers because HPA feels that they may be more receptive to receiving messages about responsive feeding than mothers with more than one child and caregivers of infants who may already have pre-conceived notions about feeding.

Depending on the focus group, first-time mothers were recruited based on their ethnicity or socio-economic status. HPA were particularly interested in the knowledge, attitudes and behaviours of Māori and Pacifica first-time mothers, as well as first-time mothers with a low income.

Two focus groups were completed with each of the following three groups of first-time mothers:

- Māori first-time mothers of infants, six to 23 months.
- Pacific first-time mothers of infants, six to 23 months.
- First-time mothers of infants, six to 23 months, who have a low income (Māori and Pacific first-time mothers were excluded from these groups).

Recruitment process

For each focus group, a maximum of eight participants (plus two 'back-ups') were recruited using the following methods:

- Māori first-time mothers

  The recruitment of Māori first-time mothers was organised by our Māori research consultant who used her own personal networks within community-based organisations such as Tamariki Ora, PAFT (Parents as First Teachers) and local Marae.

- Pacific first-time mothers

  The Pacific members of the Research Team used church-based networks and other personal contacts to recruit Pacific first-time mothers. For example, one member of the Research Team approached a relative who is a Samoan midwife for help with recruitment, while others approached extended family members, colleagues and acquaintances. One group of Pacific first-time mothers was recruited on the basis that they were born in New Zealand, while Island-born Pacific mothers were recruited for the second group. The distinction was made between these two groups in order to examine whether there were any differences in terms of attitudes, behaviours and cultural influences.

- First-time mothers who have a low income

  The Research Team again used personal networks to recruit first-time mothers with a low income. In this case, the personal networks approached, included extended family members, colleagues and acquaintances. Māori and Pacific mothers were excluded from these groups.

Low income first-time mothers were defined by their eligibility to receive a community services card. The income limits for receiving a Community Services Card depend on their individual situation, as shown in Table 1, below.

Table 1: Eligibility criteria to receive a Community Services Card

Living situation	Yearly income (before tax)
Single – living with others	$25,594
Single – living alone	$27,150
Married, civil union or de facto couple – no children	$40,590
Family of 2	$48,549
Family of 3	$58,793
Family of 4	$66,940
Family of 5	$74,919

External parties involved in recruiting for this research (e.g. our Māori consultant, community-based organisations, and those recruiting through churches) were provided with detailed recruitment specifications and appropriate background information about the research.

It is also important to note that where personal networks were used for recruitment, explicit instructions were provided to ensure these respondents met the necessary qualifying criteria.

All recruiters were instructed to advise participants that the research was being conducted with first-time mothers about how they care for their infant. That is, they were not specifically told that the discussion would be centred around feeding or responding to hunger and satiety cues. This was in order to avoid bias resulting from mothers researching different feeding styles before their focus group was held.

Particular care was taken to ensure that a diverse range of first-time mothers was recruited for each focus group, provided the met the primary recruitment criteria. Therefore, restrictions were placed on the number of participants who knew each other or were recruited from the same community programme, church or Marae.

In this regard, a maximum of five participants was placed on recruitment from any one source. This was on the proviso that no more than two participants were recruited from the same programme or branch, but we could recruit one ‘back-up’ participant from that source.

In total, the aim was to recruit eight participants, as well as two ‘back-ups’ for each focus group in order to achieve our target of 6-8 participants for each group.

Participants were given $60 each to cover transportation and other costs incurred in attending the focus groups. In addition, the community-based organisations involved in the recruitment process were given a $100 koha/mea alofa/donation as an acknowledgement and in appreciation of their assistance.

3.3 Focus group procedure

Locations and dates

As shown in Table 2, three of the focus groups, hui and fono were held in Auckland and three in the greater Wellington region between 5 and 14 August 2014. With regard to the venues, the focus groups were held in a mixture of hotels, motels and community centres. The Wellington-based group was conducted in Research New Zealand's offices in the CBD.

Table 2: Description, location and date of the six focus groups

Māori Petone 5 August 2014	Māori Orakei 12 August 2014
NZ-born Pacific Wellington 6 August 2014	Island-born Pacific Manukau, Auckland 13 August 2014
Low income, European Lower Hutt 11 August 2014	Low income, European Manukau, Auckland 14 August 2014

Methodology

The hui were co-hosted by Katrina Magill (Research Director) and Research New Zealand's Māori research consultant, Teresa Taylor (Taylor & Taylor). The fono were moderated by Katrina Magill and Luma Alaimoana – a Pacific member of the Research Team at Research New Zealand. The low income focus groups were facilitated by Katrina Magill and Sarah Buchanan (also a member of the Research Team at Research New Zealand).

Before each group commenced, participants were asked to complete an administration/consent form including their first name, age, ethnicity and their baby's age. As part of this form, participants were informed that anything they said in the focus group would remain strictly confidential. They were also asked for their written consent for Research New Zealand to audio-record the proceedings and for transcripts to be provided to HPA. A copy of this form is attached as Appendix B.

Each group commenced at around 6 pm in the evening and took between 90 and 120 minutes to complete. The groups were scheduled for the evenings to make it easier for participants to arrange babysitters.

Light refreshments were provided for each group. In most cases, the food was offered before the discussion commenced. This was due to the time of day (as it was close to 'dinner time') and because the food helped respondents to relax and become more comfortable with each other before the discussion got underway.

Using the discussion guide as an 'aide memoir', the discussions proceeded from talking generally about infant feeding (i.e. what they were feeding their infants, why and when) to a more specific discussion about infant hunger and satiety cues, before moving onto discussing the responsive feeding approach.

Confidentiality and consent for written transcripts to be provided to HPA was reiterated and confirmed at the conclusion of the discussion.

Table 3: Profile of participants

Māori n=6 mothers, 21-30 yrs Babies aged 6-23 mths	Māori n=6 mothers, 17-35 yrs Babies aged 6-12 mths
NZ-born Pacific n=7 mothers, 18-25 yrs Babies aged 6-11 mths	Island-born Pacific n=5 mothers, 22-29 yrs Babies aged 6-15 mths
Low income, European n=5 mothers, 17-31 yrs Babies aged 7-22 mths	Low income, European n=5 mothers, 23-42 yrs Babies aged 6-22 mths

3.4 Analytical approach

Immediately following the conclusion of each focus group, the Researchers involved conducted a de-briefing session amongst themselves. This allowed for initial discussions on themes that had emerged during the focus group and how these compared (or differed) in comparison to earlier groups.

Once the focus groups had all been completed, the audio recordings were transcribed by an external professional transcriber. The transcripts were then checked by both Katrina Magill and Sarah Buchanan, who also corrected any omissions, spelling and pronunciation errors. At this point, any information capable of identifying individual participants was removed in the interest of participant confidentiality.

The content of the transcripts were then thematically analysed. This involved the Researchers examining the transcripts, highlighting themes embedded in the results and discussing the most important themes in the context of the information objectives. From this analysis, a summary table of common themes was compiled and compared for each focus group.

Whilst the number of times particular themes were mentioned was recorded on the summary table, these counts are indicative only as this research is qualitative.

The transcripts were also used as a basis on which to provide specific anonymised quotations for reporting purposes.

3.5 Limitations and implications

The major limitation with this research is that it is qualitative and care should therefore be exercised when interpreting the results. Although the themes that arose during the course of this research were relatively consistent for all of the mothers interviewed, or between those of a specific ethnicity, the nature of qualitative research is that we cannot guarantee the findings are representative of all first-time mothers or all first-time mothers of a particular ethnicity.

That said, the specific hunger and satiety cues identified in this research generally reflect those identified in other similar research or literature. Furthermore, this report also provides valuable insight into how those cues are interpreted and responded to (or not) by first-time mothers. The research also explores mothers' initial reactions and reservations with regard to the responsive feeding approach and provides suggestions as to how the approach could be most effectively communicated and promoted.

This research also raises important issues with regard to first-time mothers' key influencers, particularly amongst Pacific and Māori families. Without the acceptance and support of Māori and Pacific mothers' mothers (Pacific in particular), the responsive feeding approach is unlikely to be adopted. It is important therefore, that further work/research is conducted with this specific audience in order to better understand how their support might be gained.

In addition to bearing these results in mind when HPA develops its communications strategy and related material as part of the NPA programme, it is also important that further research or consultation is conducted with each of the key audiences in order to confirm or test its effectiveness and appeal.

4.0 Current feeding practices and how (if at all) they relate to hunger and satiety cues

A brief summary of the findings from this section are as follows:

- Although most mothers had been advised (by their Well Child provider, a health professional, or through other child-related literature) that the recommended age to introduce solids was six months, in most cases, solids were introduced earlier, when the baby was three to four months of age.

- Solids were introduced earlier than six months because mothers suspected (or had been advised by other female family members) that their babies were hungry or 'ready for food'. The fact that baby ate the food, was taken as confirmation that even if baby was not actually hungry at the time, they were at least 'ready for food'.

- Specific hunger cues identified by mothers included; baby putting things in their mouth, watching or mimicking other people eat, reaching for food, grizzling or not sleeping well.

- Satiety cues included baby turning their head away from the food, pressing their lips together so no food can get in, spitting the food out, playing with the food or throwing it on the ground.

- However, while numerous specific hunger and satiety cues were identified, there was general agreement that these signs can be misinterpreted. Mothers were also divided as to whether or not the babies themselves really know when they are hungry or when they are full.

- Therefore, while mothers are paying some attention to their baby's hunger and satiety cues, their lack of confidence in this regard, coupled with their desire to establish a routine as soon as possible, are preventing them from being truly responsive to those cues.

- There were no apparent differences on the basis on ethnicity, with regard to when, how or why first-time mothers chose to introduce solids to their baby's diet, in their propensity to establish a feeding routine or what that routine is based on.

Introducing solids

While the majority of those interviewed had breastfed their baby, on-demand, from birth, a very small number had bottle-fed due to difficulties with breastfeeding and one was tube-fed.

By the time their babies were four months of age, most mothers had introduced solids to the baby's diet. Based on those who did provide this level of information, almost half reported having introduced solids at four months while just over one quarter had done so earlier (i.e. when their baby was three months old).

While two mothers reported having waited until their child was six months old before introducing solids, both had done so because of specific health concerns; one because her child was tube-fed due to complications at birth, while the other mother had adopted a very cautious approach to the introduction of solids because she herself had severe food allergies.

While many were aware that introducing solids at three or four months was earlier than recommended (i.e. they had been told by their Well Child provider or had read, that solids should not be introduced until the child was six months old), they had decided to introduce solids early because they believed their child was hungry and/or not getting enough nourishment from milk alone.

> *I was told maybe I should feed my daughter at 6 months. I was told that by my Tamariki Ora nurse, but I didn't really listen to her because my daughter was liking food and she wasn't bringing any of it back up. I could just tell she was hungry, she was getting grizzly and the milk wasn't enough for her. So I just didn't follow her advice.*

Hunger cues

When asked to elaborate on how they had come to the conclusion that their child was hungry, the most common indicator or cue identified, was that baby was putting things in his or her mouth. Some specifically mentioned baby putting their fist in their mouth, a cue that they had been advised to watch out for by their Well Child nurse or other female relatives as a sign of hunger. While others did not specifically mention the fist, they did note that their baby was putting other things in their mouth, or that they were biting or chewing 'everything'. The fact that they appeared to be trying to 'eat' anything they could get their hands on was interpreted as a sign that they wanted to eat food.

Although the incessant biting and chewing on objects may also have meant that the child was teething, a few of the mothers had specifically mentioned that they had taken the biting as a hunger sign because their child did not appear to have been teething at the time.

Most of the groups also mentioned that their baby would grizzle or had a 'hungry cry' they would use to indicate hunger. While a few of the mothers were fairly confident in their ability to recognise their child's 'hungry cry', others found it quite difficult to differentiate this particular cry from any other. Whilst this obviously became easier as the child got older and was able to confirm what they wanted verbally using a certain word or sound, when the child was younger and less able to communicate a specific need, every cry would result in the mother running through a mental check

list. She would check the baby's nappy to see if he or she needed changing, offer them milk to see if they were thirsty and then offer them food to see if they were hungry. If the baby stopped crying at any of those points, then it was assumed that that was what the baby had wanted (i.e. that was why they had been crying).

Another common perception was that 'if a baby is watching you eat then they want your food'. Having the child watch them eat was clearly quite uncomfortable for some mothers. In this regard, one of the mothers described how she would eat discretely in a corner with her back to the room so her child could not see what she was doing. Watching others eat was regarded as an even stronger hunger cue if the child was watching with their mouth open, or if they were mimicking the motions of eating/chewing.

> *When they get to that age they do start kind of copying and they see you eating and they start kind of opening their mouth and they start kind of poking their tongue out, like I want to start doing the movement of eating and that's kind of when I was like, right, you're hungry.*

Some also interpreted particular hand signals or baby reaching for food as a sign of hunger. This included baby reaching for food that someone else was eating, reaching for food they could see, or in the direction of where they knew the food was kept. One mother also mentioned that her baby would reach her arms out and open and shut her fingers to demonstrate that she wanted to be given food.

> *I just judged it on her movement, like because they say if your baby starts to stare at the food and move closer to the food it means they're ready for food. So that's why I started her at 3½ months because she was like moving towards the food.*

Solids were also introduced to help improve the child's sleeping habits. In this regard, if the child was not sleeping as well as they had been, or if they were not sleeping through the night, some took this as a sign that the baby was not getting enough nourishment from milk alone. In these cases, solids were generally introduced as part of the child's evening 'meal' to keep them satiated throughout the night.

> *I fed her at night time because she was so hungry, she would wake up in the middle of the night. So one meal before bed every day for a couple weeks and then I introduced food in the morning as well. Just so she would sleep through the night a little bit better.*

A few of the mothers also described how they had breastfed their child for hours at a time. This led them to believe that their baby was not getting enough milk, or that the milk was no longer enough to fill them up. In order to address this behaviour, these mothers felt the logical option was to feed them something more substantial.

Lack of confidence

Despite all of these cues, most mothers were not entirely convinced that their baby always knows when they are hungry. Some of the mothers reasoned that as their babies had always been given 'enough' (if not more than enough) food to keep them satisfied, they had never reached the point where they were actually 'hungry'. Others felt that their child only showed hunger signs when they knew they were 'supposed' to be eating because they had become so in tune with their routine.

Even if they were not 100 percent sure that their baby was hungry when the solids were first introduced, the fact that the child ate the solids that were offered, was seen as confirmation that they were at least 'ready for food'.

> *We recorded the first [time eating solids]. She jumped on the spoon, so it was like, "OK you're ready for solids!"*

One of the perceived difficulties in reading a baby's hunger cues was the fact that those same hunger signs could just be part of baby's general development and learning. For example:

- Do babies put things in their mouth because they are hungry, to examine the objects' texture and taste or do they simply put things in their mouth because they can?

  I found everything just wanted to go in the mouth. So in my mind it was like, of course, you want this steak in your mouth, you also want that pen, you also want like the kitty litter... you're keen for everything to get in there.

- Do they cry or grizzle because they are hungry or because they are wet, because they are grumpy or because they are bored?

  It's hard to tell what the grumpiness is. It's not any different from, I'm sleepy grumpy, or I've had a hard day grumpy. It's all the same. So it's hard to tell that that's what it is, to differentiate between them.

- Do they watch people eat and mimic the actions of eating because they want to be included in the activities going on around them?

  I think it's more of like a fascination, like what is Mum, what is Dad, what's that in their mouth kind of thing? Why can't I do that sort of thing? I want to give that a go, or I want to try to copy them. I don't know if it's so much of a hunger.

- If baby breastfeeds for long periods of time, is it because they are not getting enough nourishment or because they enjoy the close contact with their mother?

  I went to the doctors one time and told them that he was on the tit for like 2 hours one night and just was grizzling and everything. They were just like, oh my gosh, you're so silly. They're just comfort feeding at the moment. He's not actually drinking anything.

Satiety cues

As with the hunger cues, mothers were able to identify a range of possible satiety cues, the most common of which was the baby turning their face away from the food. Also commonly mentioned was baby pressing his or her lips closed, pushing the food away or spiting the food out of their mouths.

> *Yea, because he starts going, starts spitting it out and you're trying to scoop it all back in. He's like, turning his head, no I don't want it, get out!*

Others described how, when their babies had decided they had 'had enough', they would push the food away, throw it on the ground or 'draw' with it.

> *Yeah, my daughter chucks her food on the ground and that's when you know she's finished.*

However, again, they were not entirely convinced that their baby really knew when they were full or if they were showing satiety signs because they were bored, distracted or wanted something different to eat.

> *It's hard to tell when she's full, or not. Because we'll feed her and then she'll be like, she'll move her face away and then next minute you see her in the lounge eating with my mother-in-law. I'm like, what! Yea, so it's hard to tell with my one.*

A few of the mothers commented that their child will keep eating past the point of satiety because they did not know when to stop. A couple of these mothers said their child would keep eating until they were sick, while another said she could tell her daughter was full because her stomach was tight, yet she would still finish her own meal and then try to join in when the parents or other family members sat down to have their meals shortly afterwards.

Establishing a routine

As mentioned earlier, most had fed their baby on-demand from birth. However, with the introduction of solids their feeding approach had graduated into more of a set routine.

In this regard, the very first solids (either Watties baby food, pureed vegetables or fruit) were typically introduced at 'lunch' and/or 'dinner', with Farex for 'breakfast'. Regardless of the specific meal time that was chosen, this approach to introducing solids appears to be based on a more general assumption that food should be eaten to a particular schedule, as opposed to when the infant is actually hungry. While influenced to some extent by the child's sleeping routine and to a lesser extent, their hunger cues, the timing of meals was generally organised to fit in with the rest of the family's meal times.

As such, the majority of mothers confirmed their child's feeding routine is now based around three set mealtimes (breakfast, lunch and dinner). Having said this however, snacks, bottles and/or breast milk were generally provided in-between meal times if they suspected the child was hungry.

Although some had felt pressured to establish to a routine by other family members or their Well Child provider, most found a set routine was more convenient as it meant the mother was able to better plan her day, schedule other activities in around those meal times and prepare the rest of the family's food at the same time as the child's. In addition, the familiarity of a routine was also regarded as a source of comfort and security for the child.

Using a responsive approach

While mothers were not necessarily ignoring their baby's hunger and satiety cues, the fact that did not really know when baby was hungry or full, and the desire to establish a routine as soon as possible were preventing them from being truly responsive to those cues.

In this regard, mothers were asked to describe how they react if, when feeding their baby, the child shows signs they may be full, yet there is still food left on the plate. Most said they would try a few more times to make sure that they really were full before they would stop. Some said they would try a few more times with the same food and then try different food before they would stop, while a smaller number said they would persevere – especially if it was 'dinner time'.

> *I've found myself a couple times, like finish it, finish it! Then I hear my mum's voice in my head and when I used to get, "eat all of your food!" I grew up being a Greek family, not being able to leave stuff on the plate. I don't want to be that mum. I don't let him get out of the chair and go off and play, but we might break it up and then he gets re-interested in it.*

> *I always push dinner a little bit. I always kind of make her eat a little bit more, because it makes her sleep through the night. I'm not so fussed during the day. Dinner is the main one, make sure she's eaten it.*

Although some mothers did appear to be feeding their child using a more responsive approach, by focusing more on their child's hunger and satiety cues, these mothers were the exception rather than the rule.

> *My son knows when he wants to eat and when he doesn't. I don't like to force him because then he ends up just like blowing my eardrums to the hilt, so I just let him take care of that and give him something before bed.*

5.0 Who (or what) are first-time mothers' key influencers?

A brief summary of the findings from this section are as follows:

- The mothers in each group identified a range of different information sources and influencers that had helped or contributed to the way in which they introduced solids and established their current feeding approach. As evidenced below, there were some notable differences in this regard, based on the mothers' ethnicity and cultural background.

- The Māori mothers were most heavily influenced by their own mothers or mothers-in-law. Whilst they did not always agree with the advice these women had given them with regard to what they should be feeding their children, they generally rated them as a credible source of information. Although in some cases they chose not to follow their mother's advice, they had very little say in what their mothers (or grandmothers) chose to do themselves in this regard.

- The Pacific mothers were also strongly influenced by their mothers and mothers-in-law. Whilst they also had little say in what their mothers chose to feed their children (or when), the Pacific mothers were unlikely to go against their mothers advice themselves. When they did try to counter their mother's advice with a recommendation they had received from their Plunket nurse (for example), they were generally 'over-ruled'.

- On the other hand, the European mothers appeared much more independent in their choices and were more likely to enforce those choices on anyone else who had care of their child. Whilst they had also received advice from their mothers, these women had carried out their own research into what they thought would work best for their child. The European mothers were most likely to consult with other mothers of a similar age (e.g. through their 'coffee group') for advice on anything to do with childcare. Interestingly, the European mothers considered Their Well Child provider to be the 'least credible' source of information.

Well Child providers

When the mothers were asked to identify where (or from whom) they had received advice or guidance with regard to feeding their child and specifically with regard to the introduction of solids, most mentioned a chart they had received from their Well Child provider ('Watties Guide to Baby Feeding').

This chart is designed to be placed on the fridge for easy access and contains a list of 'signs baby is ready for food', such as:

- Baby is holding their head up well

- Baby is interested in watching you eat

- Baby still seems hungry after a milk feed.

- Baby opens their mouth when food/spoon approaches.

Feeding tips are also provided on this chart, as is advice on the type and texture of food that is appropriate to be given to the child as they develop. The chart suggests that the first solids are introduced at 'around six months, but not before four months'. The chart also provides some information on satiety cues.

While almost all of the mothers interviewed recalled receiving this chart from their Well Child provider, most appeared to have paid little attention to it. A few also mentioned having received a DVD from their Well Child nurse, but only two had watched it.

While the majority recalled the chart, relatively few mothers specifically mentioned having received advice directly from their Well Child provider with regard to when to start feeding their baby solids or in relation to specific hunger and satiety cues.

A small number of mothers reported having received contrary advice from their Well Child provider, which they chose to ignore.

> *The nurse said [the baby] could be waking more in the night because she needs more iron in her diet. So you could try giving her meat at like 5 months old. I was like, wow meat! But she meant blended up, like pureed meat.*

> *My [Well Child provider] said just give him a chop, or a steak to chew on. I was just like, uh, no. I wasn't too keen on that.*

Although the large majority (if not all mothers) had received some level of contact from their Well Child provider, most were not overly impressed by the service they provided, particularly in terms of providing individualised advice with regard to feeding. With the exception of the New Zealand-born Pacific mothers, the general consensus was that some Well Child providers were too rigid in their approach and provided more of a generic level of advice for all mothers. This was not well received by many mothers as they felt some providers were too 'by the book' and did not take into consideration the unique characteristics, wants and needs of each individual child.

Mothers' mothers and other women

Advice with regard to when and what to feed their child also came from the mothers' female relatives; in this regard their own mothers were identified as a key source of information as were their mothers-in-law and sisters (or sisters-in-law).

While the majority of mothers had received advice from their own mother, mother-in-law or 'mother figure', the extent to which they followed that advice varied. The degree of influence in this regard also varied based on the ethnicity of the mother. For example, the Pacific mothers were heavily influenced by their own mother's advice or instruction. This was evident amongst both the Island-born and the New Zealand-born mothers. In some cases the Pacific mothers reported having tried to go against their mother's advice, or to take their Well Child providers' advice over that of their mother, only to be 'over-ruled'.

> *My mum told me when to feed her and what to feed her. Every time I tried to listen to [my Well Child provider], my mum was like, "Does the nurse have five kids? No". So yeah, I just listened to my mum.*

The type of advice Pacific mothers reported having received from their mothers appeared to be mainly centred around recognising when their child was ready to eat solids as opposed to recognising specific hunger or satiety cues or deciding what to feed them.

> *Because my child is 8 months and she's still not sleeping through the night, they (my mum and the ladies at church) say it's because she's not full. I'm like, girl you're 12 kgs!*

With regard to when solids should be introduced, a few of the Pacific mothers appeared to have taken their guide from Watties. As the first stage Watties tins/jars state that they are appropriate for babies aged 4-6 months, these mothers automatically assumed that this meant their baby would be ready for solids by four months.

> *I just went by the can. It said 4 months, so I fed her at 4 months.*

Māori mothers also identified their own mothers or mothers-in-law as having a big influence in what and when their baby ate, especially if they were all living in the same household. While the Māori mothers were more likely than the Pacific mothers to choose to go against their mothers' advice if they did not agree with it, they still had little say in what or when their mothers chose to feed their babies when in their care.

> *They kind of, they don't give you information or anything, they just do it really, like nans and mums. My mother-in-law and my mum they just give him what they want to give him. They say, "Oh, we used to give you that, what are you worried about? You didn't turn out wrong!"*

As well as advising when they believed baby was hungry, the older female relatives of Māori mothers also had some very strong opinions as to the types of food they should be introduced to. There was some comment amongst Māori mothers of their older generation's view that babies should be introduced to as many different foods as possible, as early as possible so they would

become accustomed to different flavours and textures and not grow up to be 'fussy eaters'. In some cases, this meant that (contrary to the mother's wishes) the child's grandparents or other relatives had introduced the child to shell fish, fried food, spicy food and dairy within their first 5-6 months.

Conducting research and obtaining advice from other mothers of a similar age

In contrast, while those who were not Māori or Pacific also received advice on feeding from their female family members, they were the least likely to take that advice without first reviewing whatever other information they could find on that particular topic and making what they considered to be an informed decision. They were also less likely to allow other people to go against that decision.

This group tended to spend a lot more effort researching beyond their families (and Well Child providers) for information and advice, not only with regard to feeding, but in relation to childcare in general. In this regard, the European mothers were significantly more likely to have conducted extensive online research, read books and magazines and attended classes or workshops specifically relating to child care (i.e. PPE and PAFT classes). Others also mentioned Dorothy Waide (the 'baby whisperer'), who provides workshops, tutorials and personalised advice on childcare and the introduction of solids. Those who had met with Dorothy Waide or read one of her books were very much in favour of what they considered to be a relevant, useful and non-judgemental approach to child care.

> *I went to a baby whisperer, Dorothy Waide and she was brilliant. I trust her above, like again looking at that list, I love my mum, but I just some stuff, yea, I just think it's old school and Dorothy Waide, yea the baby whisperer I went to her workshop and I just wanted to cry because everything she said, I don't know, it just all clicked. She had such really I don't know, she's had like 20 years' experience with all different kinds of babies. She goes into people's homes and settles their babies. She tells people when to give their babies solids. Everything she said, for me, I don't know she gave such good advice and it wasn't forced advice, and it wasn't emotional advice like you get from your family. It was just what you needed to hear as a first time mum. There was some way that she delivered her workshop that made you feel really good and it wasn't forced information, it wasn't emotional.*

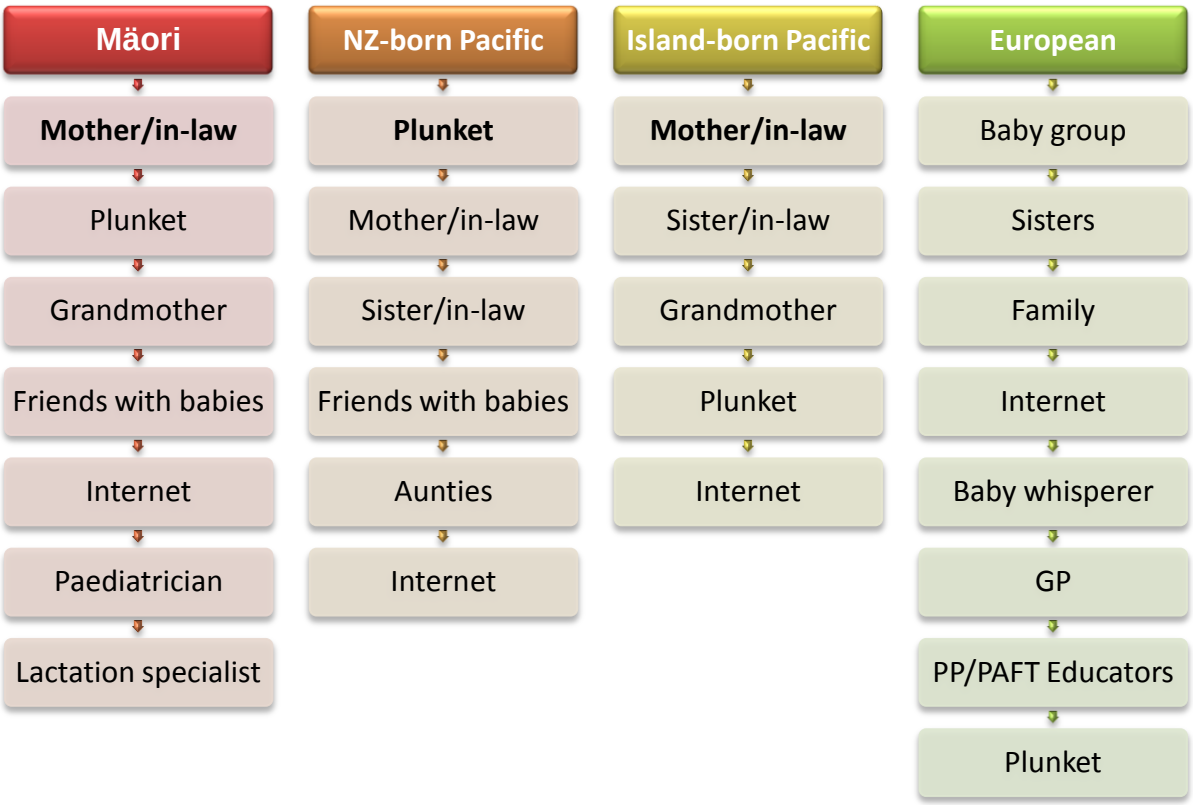
However, for many of these European mothers, the extensive research they had done in order to prepare for motherhood had also increased their anxiety as first-time-mothers, due the wide range of (often conflicting) advice to be found, particularly online.

Yet despite the confusion and apparent information overload, they were still reluctant to act on advice received from the 'older generation' (i.e. their mothers or in-laws, or even older Well Child nurses). If unsure of what action to take, this group generally drew on the experience of other mothers who were of a similar age to themselves. This was either through women from their coffee group or friends and relatives who also had young children as they felt their experiences were relevant and up-to-date. They also used various online forums (i.e. Huggies, Treasures, OhBaby!

and others through Facebook), but were wary of the larger overseas-based forums which were too diverse and judgemental.

Māori and Pacific mothers also drew on the experiences of other friends and family members (of their own generation) with children of their own, while those with relatives whose children were 'naughty or out of control', were used as an example of what not to do.

The chart below ranks the various information sources used by each of the groups of women interviewed, in terms of their perceived credibility. The sources in bold font represent those identified as the most credible by at least one half of the women in that particular group. Note that no specific source was identified to that extent by the European mothers.



6.0 Initial reactions and perceptions of the Responsive feeding approach

A brief summary of the findings from this section are as follows:

- Mothers' initial reaction to the responsive feeding approach was not particularly positive. In fact, most appeared quite dubious of the idea and struggled to think of any benefits, aside from the fact that the child would be happy because they would be fed whenever they wanted to be fed.

- Pacific mothers were the least receptive to the idea, mainly because it would disrupt their routine and was not something they could see their family members' supporting. In addition, because they were not convinced that their child always knows when they are full, they were concerned that the child would want to be fed 'all the time' and become obese. This was also a concern amongst the Māori mothers.

- The European mothers were also concerned about dropping their routine and having to rely on the baby to signal their own hunger and satiety cues. However, in their case, they were more concerned that the baby would not get 'enough' food.

- The fact that mothers, in general, were also not confident in their own ability to accurately read their child's hunger and satiety cues was also an issue.

- However, while the list of con's was clearly much longer than the list of perceived benefits, in each of the Māori and European groups at least one person identified that a key benefit of this approach was that it would help the child to develop healthy eating habits for the future (by teaching them to self-regulate their food intake). Where this point was raised and considered by the mothers present, they did become more receptive and open to the idea.

- In fact, when asked at the end of the discussion whether they would have considered using this approach had they heard about it earlier, most of the Māori and European mothers answered in the affirmative.

Reaction to the responsive approach

Towards the end of each focus group, after having discussed hunger and satiety cues and their own experiences with regard to feeding their baby, the responsive feeding approach was put to all of the mothers in order to gauge their reaction and their views.

The initial reaction to the responsive feeding approach was muted, with mothers quite dubious of the concept. However, whilst they could list many more con's than pro's with regard to this approach, by the end of the discussion, they were clearly becoming more receptive or open to the idea.

Of all of the mothers, only two had any prior knowledge or awareness of the responsive feeding approach. Both of these mothers were European and had come across the approach during their childcare research phase. Although they recognised that encouraging self-regulation could benefit children later in life, they were not quite ready to try this approach with their own children (one due to the child's medical complications).

Although none had intentionally tried the responsive approach, a small number of mothers did appear to be using a similar approach already. Although it was difficult to confirm this with any certainty, they mentioned that they fed their child when they were hungry (as opposed to feeding to a set routine) and that they would not force their child to finish a meal if they indicated they had had 'enough'.

While most of the other mothers also reported that they would not force their child to finish a meal, the fact that they were feeding their children to a set routine (not based on the child's hunger cues), suggests a more controlled approach to feeding.

Perceived benefits

When initially asked to list what they considered to be the pro's and con's associated with the responsive feeding approach, aside from the fact that this approach was likely to keep the baby happy because they would be giving them food when they wanted it, most mothers were at a loss as to what the benefits would be.

In fact, the New Zealand-born Pacific mothers were not able to identify any benefits associated with this approach.

However, as mentioned earlier, a very small number of the mothers interviewed were aware of the responsive feeding approach and that it aims to teach the child to self-regulate their food intake and adopt healthier eating habits for the future. A couple of the Māori mothers also suggested that the responsive feeding approach would encourage good eating habits by teaching them to eat when they are hungry and stop when they are full. When this particular aspect (of self-regulation) was raised, it was clear from their reaction (nods and murmurs of agreement) that they could see how this could be beneficial. A few also saw this as a continuation of the on-demand breast feeding approach they had used when their baby was younger.

Barriers to uptake

While some struggled to think of possible benefits or pro's associated with the responsive feeding approach, the con's or barriers were much easier to come by.

For Māori and Pacific mothers, the first barrier that came to mind was that a responsive approach would disrupt 'the routine'. Not only the baby's routine, but the mothers. As mentioned earlier, most mothers were feeding their baby to a set routine. The routine enabled the mother to organise and plan the baby's meals, their own meals, their housework and any other activities that punctuated their day. This was particularly important for those who were working.

Māori and Pacific mothers (in particular) reasoned that if they were not supposed to feed the baby until they indicated they were hungry, then this would likely throw everything else they had planned, out of sync (such as baby's bath time, the preparation and eating of the rest of the family's meals and baby's sleep time).

They were similarly concerned that if the baby suddenly decided they were hungry and the mother was unprepared, then by the time the food was ready, the child would be overly distressed.

> *I like being prepared when I know it's time for her to eat, so I have like everything ready. But if she just eats like, if she cries and I won't have anything ready, she'll just cry longer.*

> *I find my routine makes things so much easier. Because she knows when food is coming. She doesn't stress out. I don't stress out. I don't wait until she's upset and hungry. Because sometimes she won't eat if she's too upset, as well.*

A few of these mothers were also confused as to what food they would prepare for their baby if the meals were not organised around breakfast, lunch and dinner. For example, if baby's first hunger cues for the day were not apparent until 11am, should they prepare breakfast, lunch or a snack in response?

> *How would you do the meals though? Like if they're hungry in the morning it would be breakfast, right? If they were hungry again like, not long after breakfast, what would it be?*

Given the significant influence Māori and Pacific mothers' family members have on their child-rearing practices, they were also concerned about their family's reaction if they tried to introduce a response feeding approach. Their concern was not only with regard to the pressure their families might put them under to not use this approach, but also because the family would be unlikely to follow this type of approach.

In this regard, Māori and Pacific mothers also wondered how the approach would work (in terms of consistency), when the child went to day care, kōhanga or aoga amata as each of these were also seen to have their own structured feeding schedules.

While some of the Māori and Pacific mothers were not confident that babies really know when they are hungry or full and could therefore adequately self-regulate their food intake, this was identified as a major concern by the European mothers.

I think as a first time mum it's hard, even with all that advice and I've worked with children for a long time, as well. You don't know. You second guess yourself when it's your own child. And you think they, you know might be hungry, but what if it's something else? It's too hard. There's not enough confidence, personally, for me to do that.

For the Māori and Pacific mothers this led to a concern that their child would want to eat 'all the time' and therefore become obese. In contrast, the European mothers were more concerned that their child would not eat enough – or that it would be difficult to keep track of what the child had eaten during the day and whether they had received all of the nutrients they needed.

There was also much concern (amongst European mothers in particular) about the difficulties in accurately interpreting their child's hunger and satiety cues.

But at this young age, unless you have the information there for mums, if you've researched it properly and say, this is how to tell when your child is hungry, like a credible sign, it's just too difficult because they can't tell you. I just, I don't think I could do it. It would stress me out.

As first-time mothers, these women were already anxious about doing the 'right thing', which included making sure their child's dietary needs are met. Feeding baby to a routine provided them with a sense of security that their baby's food intake was under control and they know what to feed them and when. The thought of relinquishing this control to the baby, whom they were not convinced even knows when they are hungry or full, coupled with the possibility that the mother may miss or misinterpret the cues, clearly made them very uncomfortable.

I don't necessarily trust that she knows. Thinking about it, it sounds terrible, but I feel like sometimes she eats cause she's bored. Like I'm playing and actually so over this and then comes up to me and is like, oh snack, something? And I'm like, well you've just eaten a huge meal, are you really hungry, or are you bored?

[For some mums] it could be strictly routine as maybe like a safety net, because they feel like they're managing if they do that. So this might be quite unnerving if you don't feel supported or encouraged to do it.

7.0 Breaking down the barriers

To improve receptiveness towards the response feeding approach, mothers suggested HPA take the following suggestions into account:

- Provide proof/evidence that the responsive feeding approach actually works – both from a practical point of view and in terms of the long term benefits.
- Clearly explain what those benefits are.
- Promote the approach through various sources and ensure the message is consistent across the board.
- Provide clear information and advice on how to interpret hunger and satiety cues.
- Advise mothers about the approach and present it as an option, but do not tell them to use it.

Overcoming the barriers

All of the mothers interviewed were asked to identify what, if anything would make them more receptive to using a responsive feeding approach. The main suggestions were to provide proof that the approach is effective; clearly illustrate the benefits of using such an approach; provide a consistent message through a range of relevant sources; provide information and advice on how to interpret hunger and satiety cues and importantly, that the approach needs to be promoted as an option.

Mothers in general are quite sensitive about being told what to do as it makes them feel that their abilities as a mother are being questioned or judged. Therefore, the tone in which these types of messages are delivered is very important. Not only does the information need to be relevant, easy to understand and practical, it also needs to be non-judgemental.

> *[Need] to be encouraged and not to be told you know, you need to do it like this. This is how it's done, you know? Because if you know what's right for your own child, and someone tells you, "No, you should be doing it this way", it makes you agitated.*

Importantly, they also need reassurance or proof that the approach works, both in a practical sense and in terms of it being able to deliver positive short and long-term outcomes. Without proof, they are unlikely to 'gamble' with their child's health and wellbeing by trying an approach that goes against the security and familiarity of feeding their child to a set routine. It was also suggested that the approach be promoted as a continuation of the on-demand breastfeeding approach that most had practiced when baby was born.

Yea, I think the idea of like I said, that it follows on from the breastfeeding on demand, that you've always demand fed milk, it's the same with food. So if somebody had said that to me, if somebody had approached me and said, look this is what you've always done, why would you do this any different? I would have been like, that's so true. Because that's sensible for a first-time mother, yes.

As evidenced during the focus groups, mothers became noticeably more receptive to the responsive feeding approach when they understood what the potential benefits were. Therefore, it is important that these benefits are clearly illustrated as early as possible.

One of the key criticisms that emerged with regard to some Well Child providers was that their advice appeared too rigid and by 'the book'. As first time mothers, these women object to their child's uniqueness being overlooked and treated as if they are the same as any other. By promoting the responsive feeding approach as one that has not only been proven to be beneficial, but is based on their child's own (unique) needs and the way in which they express their hunger and satiety cues, it is likely to be more positively received.

Although there was some consistency across the groups in terms of which suggestions they felt would be most effective, there were also differences.

As the least convinced that the responsive feeding approach would work for them, the Pacific mothers provided few suggestions as to what would make it more appealing or accepted within their community. The Island-born Pacific mothers said they would need more information or advice as to how to interpret satiety cues and to ideally receive that information in person. One of the New Zealand-born Pacific mothers said they might have been more open to the idea if the Plunket nurse had encouraged it, while another mentioned the importance of recognising that each child is different or unique.

Information provision

The Māori and European mothers wanted proof that the approach works. In this regard, they want to be advised that this approach has benefits and may work for their child, but most importantly, they do not want to feel as if they are being told what to do.

I hate being told what to do. If I'm being told what to do I probably will do the opposite. But if it's advice you know and they're saying it nicely, then yeah of course, oh yes I'll give that a try.

The Māori mothers also provided additional suggestions as to how best to provide this information. Their suggestions in this regard including having someone explain it to them in person, as well as to provide a very simple pamphlet as a reference guide or reminder, and a website that they could use if they wanted additional information or more specific tips on hunger and satiety cues.

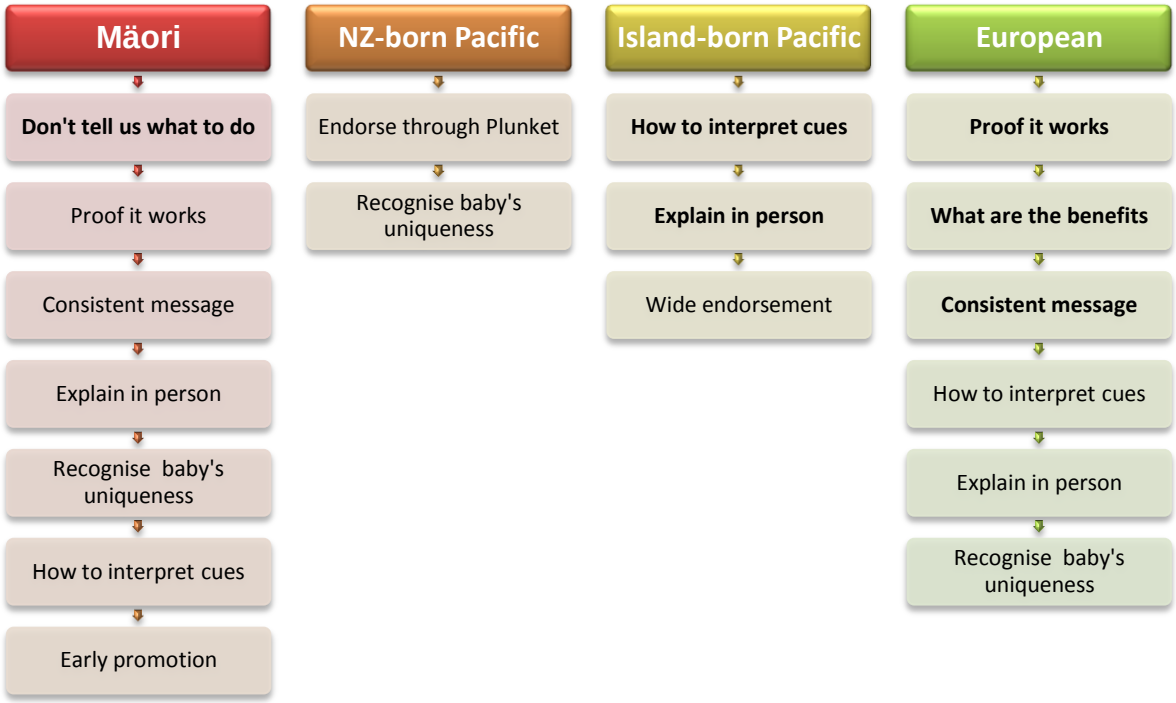
As highlighted by the European mothers in particular, there is a huge array of information and advice available not only in regard to feeding infants, but on raising young children in general. This information can not only be contradictory between sources, it also appears to change over time as each new 'fad' comes in. A frequent example provided in this regard, related to opinions and

recommendations as to whether babies should sleep on the backs, on their sides or on their stomachs. Bearing this in mind, mothers felt it was important that if the responsive feeding approach was to be promoted, messages needed to be consistent across the board. It also needs to be endorsed by a range of sources and providers; for example, Plunket, midwives, antenatal providers and other health professionals, as well as those who provide childcare courses, classes and seminars (i.e. PAFT and PP).

> *Yea, because some people you trust a little bit more than others and you value what they say. But if everyone is saying the same thing, then oh it must be good, it must be true.*

Increasing responsiveness

The figure below presents a summary of the factors that each group mentioned would help increase receptiveness to the responsive feeding approach. The factors in bold font are those which were mentioned by at least half of the women in that particular group. The fact that there is no bolding for the NZ-born Pacific column illustrates the fact that both of their suggestions were mentioned by less than half of the women in that group.



Appendix A – Discussion guide

DISCUSSION GUIDE

Health Promotion Agency (HPA)
Infant hunger and satiety cues (#4645)

Background:

After consulting with advisory groups comprising nutrition and physical activity experts from around New Zealand, the Nutrition and Physical Activity programme of the HPA has developed a work stream that involves working with key influencers on infant feeding. The programme's objective is to provide caregivers with the skills and knowledge to be responsive to their infants' hunger and satiety cues so that the child can grow up maintaining their natural ability to self-regulate their food intake. Evidence suggests that this responsive style of infant feeding is associated with healthier weights among children later in life, compared with less responsive feeding practices.

Research objectives:

The overall purpose and objective of this research is to conduct a qualitative study among New Zealand mothers that explores their perceptions and experiences relating to their infants' hunger and satiety cues and assesses their openness toward receiving messages that encourage responsive feeding.

The discussion guide:

This discussion guide will be used to focus and direct discussions with first time mothers of Maori, Pacific and other ethnicities in Auckland and the greater Wellington region.

More specifically, it will provide answers to the following questions:

- What are first time mothers' knowledge, beliefs, attitudes, and behaviours regarding their infant's hunger and satiety?
- How responsive are first time mothers to their infants' hunger and satiety cues?
- From where do they get information or advice on feeding their infants, including their infants' hunger and satiety cues? What advice is given and is it followed?
- Do any differing themes by ethnicity emerge relating to any of the above questions?
- How open would first time mothers be to receiving advice or encouragement on responsive feeding, and what would be the barriers and facilitators?

Prior to beginning the focus group discussion, participants will be handed a consent form that will also collect basic demographic information (e.g. age and ethnicity of mother, age of infant)

Introduction – Research New Zealand (10 min)

Objectives: To ensure the respondent is fully informed and understands how the interview will be conducted.

- Researcher to introduce themselves (mihi) and explain Research New Zealand's role in the research.
- Explain the purpose of the research:
  - To better understand the views and experiences of first time mothers with regard to feeding their infants.
- Reassure confidentiality (i.e. the Research Association Code of Practice), and explain that responses will be reported collectively and anonymously and will only be used for the purposes of the research (individuals will not be identifiable).
- Explain how the discussion group will be run:
  - The length of the discussion is approx.1.5 hours.
  - There are no right or wrong answers and they may not agree with each other about everything.
  - Ask for consent to record the focus group discussion and to provide HPA with the transcripts. Explain that the recording will be for reporting purposes so we can make sure we have correctly recalled what was discussed - reiterate confidentiality. Explain what transcripts are and inform them that we will double check at the end of the discussion to confirm they are happy for this information to be provided to the HPA.

Introductions (10 min)

Objective: To set the scene.

Ask participants to introduce themselves:

- First name
- Where they are from
- How old baby is and whether it's a boy or girl

Stage One: (20 mins)

Objective: To examine mothers' current behaviour and practices with regard to feeding their infant, particularly those which relate to their infant's hunger and satiety cues.

Explain at this point that most of the discussion will focus on the different approaches mothers have with regard to feeding. We're particularly interested in the period when your baby started eating solids. Reiterate that there are no right or wrong answers. As new mothers we are interested in their views and experiences.

- General discussion about <u>what, and how much</u> they feed their infant
  - <u>What</u> do they feed their baby?
    - What were the first solids that you gave your baby and about how old were they? What made you choose these particular foods?
    - What is/was their favourite food? Is there any particular food that they don't/didn't like to eat?
  - How do you decide <u>when</u> to feed your baby?
    - Does baby have a feeding <u>routine</u>? What is it, and how strictly is it followed? How important do you think having a feeding routine for your baby is? Do you ever feel pressure to get your baby into a routine? If yes, where does this pressure come from and what are you being told? How do you respond to that pressure?
    - How does your (or your family's) <u>schedule</u> influence feeding (eg set time of day or to fit in with the rest of the family's meal times, working mothers, etc).
    - How does your baby's <u>behaviour</u> influence feeding? (eg if they cry, if they're tired or sick etc. do they feed them to calm them down or help them get to sleep)

- General discussion about <u>being responsive to their infant's hunger and satiety cues</u>
  - How do you know when your baby is <u>hungry</u>?
  - Do you feel your baby **knows** when he/she is hungry?
    - If yes, how and when does your baby let you know that they are hungry?
    - If no, what makes you think that your baby doesn't know when he/she is hungry?
  - How do you know when your baby is <u>full</u>?
  - Do you feel your baby **knows** when he/she is full?
    - If yes, how and when does your baby let you know that he/she is full?
    - If no, what makes you think that your baby doesn't know when he/she is full?
  - Regardless of whether the infant thinks they are full, how do you decide that they've eaten 'enough'? (for example, if you're feeding baby a tin of baby food and they show signs that they're full, do continue feeding them until the tin is finished or do you stop even if there's still some left?)

Stage Two: (15 mins)

Objective: To explore who/what the key influencers are with regard to feeding

Encourage discussion on the following:

- How did you learn about how to feed your baby? Thinking specifically about knowing when, what and how to start feeding them solids. What/who are your key influencers? (eg personal experiences, advice from healthcare providers, family, friends, other mothers, internet, books etc) *List on whiteboard*
- What advice (good or bad), did you receive from/through the above sources? What advice, if any, did you receive with regards to knowing when your baby is hungry or full?
  - Rate the information sources/influencers in terms of their credibility – whose advice are they most likely to follow and why?

Stage Three: (30 mins)

Objective: To explore how open mothers would be to receiving advice or encouragement on responsive feeding and from whom.

Explain the Responsive feeding approach:

There are many different ways or approaches to feeding infants, especially when it comes to starting them on solids. They all have pros and cons, so there's no right way or wrong way, but today I want to talk to you about one particular way.

We've talked already about babies knowing whether they're hungry or full. One approach to feeding is to watch for signs or signals from your baby that show they are hungry or full – and then feeding them when they are hungry and stopping when they show that they are full, even if there's still some food left.

- Before we go on, I just want to check that everyone understands what we're talking about. Are there any questions about this, any confusion? (If yes, then ask what is confusing about it and respond accordingly).

- Have you heard of this approach before, or know of anyone that does this or has tried it? If yes, where/who? Is this something that you do yourself, or that you've tried in the past?

- Like I said, there are pro's and con's (good things and bad things) about any approach to feeding babies. Starting with the pro's, can you think of any benefits or good things about this particular approach? And what about the con's? *(Record on whiteboard)*.

- Is there anything in particular that might make it difficult for you to use this type of feeding approach? *Examples/prompts, if needed*:

    - Confidence that your baby can effectively communicate hunger and satiety cues (and that the caregiver recognise those cues)

    - Desire to 'clear the plate', ie finish the food that has been provided

    - Reaction/resistance from partner or other family members

    - Babysitters/other carers not following the same approach

    - Concerns about infant growing sufficiently or getting enough to eat/ the nutrients they need

- Is there anything that would make it <u>easier, or more likely</u> that you would use this type of feeding approach? *Examples/prompts, if needed*:
  - Support from partner/family members
  - More information/proof that this approach is beneficial/that it works
  - Advice/information on how to recognise hunger and satiety cues
  - Reassurance that your infant will get enough to eat/or that they won't eat too much
  - Reassurance from a health provider (or someone else who they trust) that this is a good approach
- Would you be (have been) more likely to consider this way of feeding, depending on <u>who</u> was giving the advice or encouragement?
  - If so, who would that be?
  - What about Plunket or Tamariki Ora or the midwife, etc?

Wrap up (5 min)

Conclusion

- Is there anything else you would like to share about feeding your baby?
- Explain that these group discussions will be used to help develop a programme to provide infant feeding advice. The programme's objective is to help parents recognise when their child is full and when they're hungry, and encourage them to respond to those signs to help the child develop healthy eating habits early on.
- Reiterate confidentiality and explain that the transcript will not identify any of the group's participants. Confirm that they are (still) happy for the transcript to be provided to the HPA.

Thanks and close.

Appendix B – Participant consent form

Health Promotion Agency

Focus groups with first-time mothers

August 2014

Thank you for agreeing to take part in tonight's focus group discussion. Your facilitator's name is Katrina Magill, she is a Research Director from Research New Zealand.

For administration purposes, please complete the questions below and hand this form back to the facilitator at the end of the focus group.

Your first name: ……

Your age: ……...

Your ethnicity: ……

Baby's age: ……..

Please be assured that this information and anything you say during the focus group discussion will remain confidential. Your name will not be attached to any of the findings or reporting of this research, which means no-one will be able to identify you as having taken part.

Your participation in this focus group discussion is completely voluntary, and you can choose to withdraw from the research at any stage.

With your permission, tonight's focus group will be audio recorded and a written transcript of the discussion will be provided to the Health Promotion Agency. The transcript will be reviewed first by Research NZ and the names of all participants will be removed to ensure your anonymity.

Please sign here to show that the information you have provided above is correct and that you are happy for the discussion to be recorded and a copy of the transcript provided to the Health Promotion Agency

Signed: ---------- Date: _____