

Oral Health in Preschoolers

Report commissioned by the Health Promotion Agency

August 2015

Project commissioned: May 2015

Final report received: August 2015

Provider: Kaitiaki Research and Evaluation

ISBN: 978-1-927303-62-7

Citation: Kaitiaki Research and Evaluation (2015). Oral Health in Preschoolers. Wellington: Health Promotion Agency.

Prepared for the Health Promotion Agency by:

Dr Michael Roguski, Natalie Gregory and Fleur McLaren (Kaitiaki Research and Evaluation)

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:

Dr Karen McBride-Henry

Health Promotion Agency

PO Box 2142

Wellington 6140

New Zealand

www.hpa.org.nz

research@hpa.org.nz

August 2015

COMMISSIONING CONTACT'S COMMENTS

The Health Promotion Agency (HPA) commission was managed by Dr Karen McBride-Henry (Principal Researcher), Dr Judy Li (Senior Researcher), and Sarah Dallas (Researcher). This project is part of HPA's work to support the Ministry of Health with the formative development of the Child Oral Health Promotion Initiative to improve oral health preventive behaviours and practices among preschool children.

The key aim of this new initiative is that families and whānau enjoy the benefits of improved oral health for themselves and their children through regular tooth brushing and early enrolment with, and routine attendance at, Community Oral Health Services.

This report provides the topline findings from the formative research with parents and caregivers. More in-depth analyses will be undertaken and disseminated by HPA's Research and Evaluation team. Along with this project, HPA has also conducted a review of current evidence and a resource stocktake, and talked to stakeholders on their experience, opinions, insights and resources on oral health promotion. Findings from these studies are also available from the HPA website (<http://www.hpa.org.nz/research-library/research-publications>).

The exploratory work HPA has undertaken will inform the development of the Child Oral Health Promotion Initiative and any future messaging and promotions.

1.1 REVIEW PROCESS

This report was reviewed internally by Dr Karen McBride-Henry, Dr Judy Li, and Sarah Dallas from HPA's Research and Evaluation Unit. It was not externally reviewed.

1.2 ACKNOWLEDGEMENTS

HPA would like to thank those respondents who took the time to participate in this research. Their responses will be used to inform future intervention and campaign development.

1.3 COPYRIGHT

The copyright owner of this publication is HPA. HPA permits the reproduction of material from this publication without prior notification, provided that fair representation is made of the material and HPA is acknowledged as the source.

1.4 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.

**Oral Health in Pre-schoolers
REPORT**

Prepared for the
Health Promotion Agency

by

Kaitiaki Research and Evaluation

Dr Michael Roguski, Natalie Gregory and Fleur
McLaren

August 2015

Contents

EXECUTIVE SUMMARY	iii
1 INTRODUCTION	1
2 METHOD.....	2
2.1 On-line survey	2
2.2 Focus groups	6
2.3 Analysis	9
2.4 Ethical considerations	10
3 SURVEY FINDINGS	11
3.1 Child's oral health status	11
3.2 Child's tooth brushing practices	12
3.3 Child's dental visit experience / enrolment	17
3.4 Knowledge and attitudes	20
3.5 Adult's oral health status and practices	26
4 FOCUS GROUP FINDINGS	27
4.1 Motivations associated with pre-school oral health care	27
4.2 Barriers to engaging in effective protective behaviour	30
4.3 Information Sources	50
5 CONCLUSION.....	52
6 APPENDIX 1: PARTICIPANTS' ANSWERS TO THE FOCUS GROUP QUIZ	57
7 APPENDIX 2: PRE-SCHOOL ORAL HEALTH SURVEY.....	59

Table and Figures

TABLE 1: SURVEY RESPONDENT CHARACTERISTICS	4
TABLE 2: PRE-SCHOOL CHILD CHARACTERISTICS (ABOUT WHOM THE RESPONDENT ANSWERED THE SURVEY QUESTIONS)	6
TABLE 3: FOCUS GROUPS BY ETHNICITY AND LOCATION	6
TABLE 4: FOCUS GROUP PARTICIPANT CHARACTERISTICS	7
TABLE 5: TIME OF THE DAY THAT PRE-SCHOOL CHILDREN REPORTEDLY BRUSH THEIR TEETH	15
TABLE 6: INFLUENCER FOR PARENTS AND CAREGIVERS IN DECIDING WHAT TOOTH PASTE TO BUY FOR THEIR PRE-SCHOOL CHILD	16
TABLE 7: PARENT AND CAREGIVER KNOWLEDGE OF PRE-SCHOOL ORAL HEALTH BEST-PRACTICE	20
TABLE 8: PARENT AND CAREGIVER ATTITUDES TOWARDS PRE-SCHOOL ORAL HEALTH	23
TABLE 9: PARENT AND CAREGIVER RATING OF HOW STRONGLY THEY FELT THEIR CHILD GAVE THEM A HARD TIME WHEN TRYING TO BRUSH THEIR TEETH	26
TABLE 10: DIFFICULTY ASSOCIATED WITH CHILD ENGAGING IN BRUSHING BY AGE. MEDIAN RESPONSES	42
TABLE 11: STRATEGIES TO COMBATING BRUSHING RESISTANCE	45
TABLE 12: FACTORS INFLUENCING LIKELIHOOD OF PRE-SCHOOL ORAL HEALTH ENGAGEMENT	55
FIGURE 1: THE HEALTH OF PRE-SCHOOL CHILDREN TEETH BY WHETHER THE CHILD HAD A FILLING OR NOT	12
FIGURE 2: PARENT AND CAREGIVER RESPONSE TO WHO USUALLY BRUSHES THE CHILD TEETH	13
FIGURE 3: PARENT AND CAREGIVER RESPONSE TO HOW THEY ASSISTED THEIR PRE-SCHOOL CHILD IN TOOTH BRUSHING	14
FIGURE 4: REGULARITY OF DAILY TOOTH BRUSHING FOR PRE-SCHOOL CHILDREN BY THE CHILD’S AGE	14
FIGURE 5: TYPE OF TOOTH PASTE USED FOR PRE-SCHOOL CHILDREN TEETH CLEANING	15
FIGURE 6: AGE OF FIRST DENTAL VISIT FOR PRE-SCHOOL CHILDREN	17
FIGURE 7: REASON FOR RESPONDENT’S FIRST PRE-SCHOOL CHILD’S DENTAL VISIT BY FIRST VS. SUBSEQUENT CHILD	18
FIGURE 8: RESPONDENTS’ REPORTED DIFFICULTY ACCESSING A DENTAL PROFESSIONAL BY CHILD’S AGE	19
FIGURE 9: INFORMATION SOURCES - WHEN THEIR CHILD SHOULD BEGIN SEEING A DENTAL PROFESSIONAL	22
FIGURE 10: INFORMATION SOURCES - HOW TO CLEAN YOUR CHILD’S TEETH	22

FIGURE 11: PARENT AND CAREGIVER RATING OF HOW IMPORTANT IT IS FOR CHILDREN TO USE AGE-APPROPRIATE TOOTHPASTE24

FIGURE 12: PARENT AND CAREGIVER RATING OF WHETHER CAVITIES OR HOLES IN BABY TEETH DO NOT NEED TO BE FILLED BY CHILD’S AGE25

FIGURE 13: PARENT AND CAREGIVER RATING OF WHETHER THERE IS A RELATIONSHIP BETWEEN THE HEALTH OF BABY TEETH AND ADULT TEETH BY CHILD’S AGE25

EXECUTIVE SUMMARY

The Health Promotion Agency (HPA) commissioned an on-line survey and a series of focus groups to inform the Ministry of Health's scoping and development of new pre-school oral health initiatives, initiatives that will promote and improve oral health preventive behaviours and practices amongst children under five years of age.

The quantitative component of the research assessed parents' and caregivers' knowledge, attitudes and behaviours associated with pre-school oral health and provided an opportunity to compare and contrast responses against a range of socio-demographic variables. In contrast, the qualitative component explored parents' and caregivers' motivations and barriers to engaging in effective oral health preventative behaviours among pre-schoolers.

In total 1056 participated in the survey and 107 parents and caregivers participated in 15 focus groups.

Survey on pre-school oral health care

The on-line survey questioned parents and caregivers of pre-school children (between four months to four years and 11 months old) about their knowledge and attitudes towards their pre-school child's oral health care.

Child oral health status and tooth brushing practice

Responses to questions about practice were positive – with a large number of respondents reporting their child had good oral health, brushed twice a day and had been to the dentist at a young age. However there seems to be confusion from respondents about child tooth brushing practices including at what age children should start brushing, who should be brushing children's teeth and under what type of supervision, as well as what type of toothpaste is most appropriate.

Findings from this survey show a promising level of practice around pre-school child dental health. Four out of five children started brushing under the age of one year old (77%) with 58% brushing twice a day and an additional 36% brushing once a day. The majority of the time this brushing was assisted by the adult who brushed the child's teeth for them (86%).

There was a low level of knowledge about what toothpaste to use with only 19% of respondent's children using fluoridated toothpaste and nearly a quarter of children using baby milk toothpaste – contrary to Ministry of Health guidelines. The confusion seemed to be driven by marketing with 58% of respondents choosing a toothpaste for their child based on a brand they trust and 49% who choosing a toothpaste that matched the child's age.

Child's dental visit experience and enrolment

Enrolment in the Community Oral Health Service was high with 83% of children enrolled, although 10% did not know if their child was enrolled or not. Dental visitation was high with 84% of children having been to see a dental professional in the last year. The main reason for this visit was for a check up. And respondents were in high agreement that it was easy or somewhat easy to get to a dental

professional (92%). Eighty-eight per cent of respondents also felt comfortable asking their health care provider questions about their child's teeth.

Knowledge and attitudes

Positive attitudes to the care of children's oral health were very high across a range of factors with almost all respondents agreeing that keeping their child's primary teeth healthy is important (97%) and that their child benefits from having their teeth cleaned (97%). Nine out of 10 respondents felt child dental visits are as important as regular medical check-ups.

However there were some concerning attitudes and lack of knowledge around the relationship between the health of baby teeth and adult teeth, whether children should have sweet things in a bottle to make them happier and whether cavities need to be filled.

There was confusion over the importance of using age-appropriate toothpaste, with 60% of respondents agreeing that it is important to use age appropriate toothpaste, contrary to Ministry of Health guidelines that states one toothpaste can be used for the whole household. There was also mixed response from participants on agreement to the statement "My child gives me a hard time when I try to brush his / her teeth". Forty-two per cent of respondents disagreed with the statement while 35% of respondents agreed with the statement. One in five people reported that they neither agreed nor disagreed (20%).

Focus groups

Focus group participants were questioned about motivations associated with pre-school oral health care, the various barriers that they have encountered, amelioration strategies and information sources.

Motivations

The majority of participants afforded children's oral health care with a high level of importance and identified a variety of motivations that underpin this commitment.

Motivation 1: Physical appearance

The importance of physical appearance was commonly cited as a motivation for ensuring participants' children have good oral health care. Initially physical appearance was raised in terms of cosmetic appearance, such as "*having a nice smile*", "*looking beautiful*" or simply "*looking good*". Participants later qualified these statements with a desire for their children to avoid negative social impacts of poor oral health, namely low self-esteem and school bullying.

Motivation 2: Personal hygiene

The importance of personal hygiene was also identified as an important motivation so that children could avoid social stigma, bullying and social ostracism. Personal hygiene was also discussed as important as it underscores the basic foundations of wellbeing. Of interest, in regards to developing a campaign response, Pacifica predominantly referred to the importance of personal hygiene, as a primary motivation, when compared to other ethnic groups.

Motivation 3: Prevention

The importance of prevention was common across focus groups and was raised on multiple levels. Firstly, in the short-term oral hygiene was linked to children's avoidance of painful dental procedures and an assurance that children do not experience the same dental issues, and associated pain, as their parents and caregivers.

Next, prevention was discussed in regards to longer-term considerations and the need to reduce children's risk of dental complications in adulthood. This was especially discussed in reference to the expense associated with dental intervention. Essentially childhood was regarded as the optimal time for children to develop good oral hygiene habits, and therefore, avoid the expense of future dental intervention.

Some participants also discussed how common it is for them to feel judged on the basis of their parenting and it was common for words such as "guilt" to be used to refer to their parental anxiety. Within this context, prevention was viewed as important because the participants in question wanted to avoid any future parenting-related judgement. Notably, New Zealand European participants most commonly reported parental guilt and associated anxiety.

Motivation 4: Maintaining family tradition

Those who had experienced good oral health reported wanting their children to have the same experiences. This motivation was linked to a sense of pride and maintaining a family tradition.

Barriers to engaging in effective protective behaviour

Eight primary barriers to engaging in effective pre-school oral health were identified.

Barrier 1: Beliefs, attitudes, knowledge and the extended family

A number of beliefs and attitudes were identified that impacted on peoples' approaches to their children's oral health.

1. Pre-school oral hygiene was undervalued by some participants because of a second chance discourse. The discourse minimises the importance of pre-school oral hygiene, because of a belief that the onset of the adult teeth will remedy any dental issues experienced in early childhood, such as yellow staining and cavities.
2. Some parents and caregivers openly described the lack of priority they afforded dental care was attributable to their "laziness". In these cases, the enforcement of pre-schoolers' oral hygiene was at best episodic. In the majority of these situations, the responsibility for oral health care was placed on the child and the parent and caregiver only intervened when there was an overt hygiene infraction, such as offensive breath. Supervision at best entailed the parent and caregiver telling the child to brush their teeth. This occurred from approximately two years of age and generally did not involve in-person supervision or assistance.
3. Some participants reported a belief that there is no need to engage in pre-school oral health care when breastfeeding as the antibodies contained in the breast milk provide a sufficient level of protection. Of interest, and while there is a need to

determine the prevalence of this belief, only Māori and Pacifica raised breast milk antibodies as a form of oral hygiene protection.

4. Dental care was generally described as the sole responsibility of parents and caregivers and was not viewed as the responsibility of the wider family. In this sense the non-guardians were positioned as “enjoying” the younger children, often to the detriment of dietary and oral health routines. Parents and caregivers expressed frustration, anger and often powerless when grandparents and other family members abandoned oral health and dietary routines. This tension was most commonly discussed in reference to grandparents and ex-partners but also arose in respect to family caregivers who effectively encouraged poor dietary practices in the spirit of fun and / or reward. Familial non-adherence led to a number of extreme oral health issues, resulting in tooth extraction and dental problems in adolescence. Further, the disruption to the oral health and dietary routine resulted in stress for parents and caregivers as reinstating routine was generally met with the child’s resistance.
5. The low priority afforded pre-school oral health care was sometimes attributed to a lack of knowledge.

Barrier 2: Difficulties accessing pre-school oral health services

Pre-schoolers’ early access and sustained engagement in oral health services was reportedly compromised by a series of systemic inconsistencies, a low level of awareness of Ministry of Health recommendations and physical difficulties accessing services.

Barrier 3: Advertising and a sense of exploitation

The majority of participants had low levels of knowledge about when to start brushing their child's teeth and that low fluoridated toothpaste or junior toothpastes are not recommended. Similarly, the majority of participants did not know that they should not ask their child to rinse after brushing, a recommendation that countered participants’ own childhood practice and current practices.

Fluoridated toothpastes and the recommendation of one toothpaste for the whole family created significant discussion and framed participants’ confusion over which toothpastes they should purchase for their children. Two areas of confusion arose in these discussions. First, participants were confused by the recommendation as they were able to buy baby milk toothpaste in supermarkets and they had received low fluoridated toothpaste from Plunket. Second, participants commonly described anger at having been captured by toothpaste marketing, assuming that child labelled toothpastes, by their very existence, were the most healthy options for their children. This was reinforced by some toothpastes that labelled their packaging with specific age bands.

Anger was also directed at health authorities as toothpastes were believed to be endorsed or approved by government. This level of anger generally arose in more rural, low income areas where families had made financial sacrifices to be able to purchase child branded toothpastes because they felt that they were led to believe that the toothpaste were specially formulated for their children’s well-being.

Barrier 3: Product-related barriers

A number of product related barriers were identified. First, ten to 15% of children were reported to have an aversion of mint / spicy toothpastes which resulted in a refusal to use adult toothpaste which were reported to be primarily mint flavoured. Next, those on low incomes found toothpastes expensive. This was particularly the case for those who assumed children's toothpastes were better for their children and beneficiaries. Both groups communicated anger and dismay at learning that children's toothpastes are not a requirement.

Importantly, while cost was a pivotal issue for those on low household incomes, there was a general lack of understanding about whether cheaper toothpastes are as effective as more expensive brands. Importantly, because of a distrust of cheaper options, some participants had opted for the more expensive alternatives, despite this resulting in a financial burden.

Barrier 4: Diet and affordability of healthy options

Common across all focus groups, participants stressed diet and oral hygiene are so closely related that any oral hygiene campaign should either run concurrently with sugar free / healthy eating or that the two issues should be presented simultaneously.

The close link between diet and oral hygiene was especially relevant to those with limited income. On one level those living in poorer households reported having few options but to purchase affordable foods, generally equated with exceptionally high sugar and fat content.

Barrier 5: Dental professionals' training and interpersonal behaviour

The importance of pre-school children having positive experiences when interacting with dental professionals was raised in approximately half of the focus groups. Essentially, participants acknowledged that positive experiences would facilitate the child engaging with oral health services in the near future and would increase the likelihood of good oral health and engagement in adulthood.

While all participants had recollections of negative childhood dental experiences, for instance commonly referring to the dental nurse as residing in the "*Murder House*", it was with concern that some dental professionals were reported to lack either interpersonal awareness or age appropriate interpersonal skills when dealing with pre-school children. Examples included not making the child comfortable, scaring and failing to engage the child by insisting they open their mouth and failing to understand that wearing dental masks can frighten and intimidate children.

Barrier 5: Behavioural issues

Children's age was directly linked to either ease or difficulty participants encountered in attempting to engage children in oral health routines.



Age	Issues
One year	<ul style="list-style-type: none"> ▪ Few difficulties were encountered around one year's of age. ▪ A low level of resistance was traced to parents' and caregivers' giving less emphasis to actual brushing the child's teeth and more emphasis placed on early and non-pressured exposure to toothbrushes. ▪ Process facilitated by: <ul style="list-style-type: none"> – children encouraged to become familiar with toothbrushes – making brushing a form of play – making brushing experience "fun". – role modelling. ▪ Participants generally uncertain about the importance of actual brushing at this stage versus a focus on making sure the child is exposed and familiar to the idea of brushing. ▪ Toothpaste aversion a problem.
Two years	<ul style="list-style-type: none"> ▪ Increased difficulties associated with child's increased desire for independence, having reached the 'Terrible Twos'. In other situations the child was described as easily distracted. ▪ Child's oral hygiene often sacrificed so the family can meet time commitments (such as taking the child(ren) to day care and kōhanga). ▪ Some participants noted that a break in routine had a detrimental effect and could reinforce resistance whereas other parents opted for making sure their children only brush their teeth before going to bed at night. ▪ Toothpaste aversion a problem.
Three years	<ul style="list-style-type: none"> ▪ Less problems at this age and oral hygiene commonly described as having become part of the child's routine. ▪ High adherence likely if routine had been established early. ▪ Common for strong desire for independence but child lacks dexterity to brush back teeth. Children therefore need active supervision. ▪ Those with children not engaging traced difficulties to a lack of routine and the child being easily distracted. ▪ Toothpaste aversion a problem.
Four years	<ul style="list-style-type: none"> ▪ Resistance generally decreased. ▪ Problems only related to fatigue and distraction. ▪ Routine a problem, difficulty managing home and work commitments. ▪ While morning brushing was reported as having generally become an entrenched behaviour, evening brushing routines were often not adhered to because of the child's fatigue.

Of concern, approximately 20% of parents and caregivers reported having forcibly brushed their child's teeth. Importantly, accounts of forcing children ranged from the ages of one to four.

Health promotion opportunities

Changing attitudes and beliefs

1. Opportunities exist to combat various myths that preclude parents and caregivers prioritising pre-school oral health care.
2. Develop targeted messages for external social network partners to ensure all parties understand the importance of pre-school oral health, the continuation of dental health, that oral health is the responsibility of all whānau members and the essential role of diet in maintaining oral health. In particular:
 - Family members understanding the consequences of poor diet and oral health
 - Provide family members with alternative gift ideas (rather than sugar based products).

Improving systems

3. Review existing reminder mechanisms (such as the Wellness Book, National Immunisation Database) and to determine how dental enrolment and subsequent reminders can be best implemented without increasing burden on parents and caregivers
4. Clarify and promote the age of children's first and subsequent oral health visits.
5. Review access related barriers and ways to reduce waiting times.

Target families

6. Develop targeted messages for external social network partners to ensure all parties understand the importance of pre-school oral health, the continuation of dental health, that oral health is the responsibility of all whānau members and the essential role of diet in maintaining oral health.
7. Ensure family members understand the consequences of poor diet and oral health.

Supporting parents and caregivers

8. Highlight children's developmental needs against their capabilities.
9. Clarify oral health expectations against what is developmentally appropriate.
10. Clarify to what extent is it necessary to brush a child's teeth who is one year old and under?
11. Promote behavioural intervention strategies to reinforce toothbrushing (and avoid forcing children).
12. Marketing
13. Clarify which toothpastes meet the Ministry of Health recommendations and promote accordingly.
14. Review current toothpaste advertising and ensure that it meets legal requirements and safeguards consumer rights.
15. Actively promote the Ministry of Health's recommendation that one fluoridated toothpaste can be used for the whole family.



Product development

16. Support the development of an affordable, fluoridated taste-neutral toothpaste that can be used for the whole family.

Campaign development

17. Target first parents as the research shows they most likely to have more limited knowledge about pre-school oral health care.
18. Diet and oral hygiene are intricately interwoven and any pre-school oral health campaign needs include diet as a primary feature.

1 INTRODUCTION

The Ministry of Health intends to develop a new initiative and campaign that would promote and improve oral health preventive behaviours and practices among pre-schoolers (children under the aged of under five years) in New Zealand. To assist with the development, the Health Promotion Agency (HPA) has collated national and international evidence on components and characteristics of effective pre-school oral health promotion initiatives and campaigns and sought New Zealand based research to fill a number of information gaps around pre-schoolers' oral health practice in New Zealand¹.

To this end Kaitiaki Research and Evaluation was commissioned to carry out a mixed methods research study involving parents / guardians / caregivers of pre-school children:

- a national on-line survey; and,
- 15 focus groups in five locations New Zealand locations.

The two research streams provide an evidence base to inform the development of the new pre-school oral health initiative / campaign. The on-line survey assesses parents' and caregivers' knowledge, attitudes and behaviours associated with pre-school oral health and provides an opportunity to compare and contrast responses against a range of socio-demographic variables. In contrast, the focus groups are an exploration of parents' and caregivers' motivations and barriers to engaging in effective oral health preventative behaviours among pre-schoolers. Particular emphasis is placed on understanding peoples' experiences in relation to socio-economic and cultural contexts and how these contexts impact on oral health attitudes and behaviours. Given this emphasis, the focus groups provided an excellent opportunity to hear from often marginalised communities about approaches to oral health that they believed would most benefit them.

¹ Dallas, S., Li, J., Kruse, D., & McBride-Henry, K., (2015). A Literature Review on Oral Health in Preschoolers. Wellington: Health Promotion Agency Research and Evaluation Unit. Accessed from: <http://www.hpa.org.nz/sites/default/files/Literature%20review%20oral%20health.pdf>.

2 METHOD

The research employed a combination of an on-line survey and focus group methodology.

2.1 On-line survey

Questionnaire

The survey was developed by the Health Promotion Agency (HPA) and adopted a range of measures from previous surveys on oral health including the Ministry of Health 2009 Oral Health Survey² and a study undertaken by Graham-Montaque (2012)³. A number of new questions were developed by HPA to meet the unique need of the study.

The survey was initially tested on ten staff from HPA and minor changes were made to the wording and the order of some of the questions to improve clarity and flow. The survey was then piloted with 56 parents and caregivers (recruited through ConsumerLink) and no further amendments to the survey were required. The final questionnaire is included in Appendix 2.

Recruitment

Respondents were recruited through ConsumerLink that manages the Fly Buys Panel with access to over 250,000 New Zealanders.

The survey was sent out to a sample of ConsumerLink panel members on the 18 June 2015, with an aim of over-sampling Māori and Pacifica panel members. Potential respondents were given one week to complete the survey. During this time they were sent two reminders to take part.

The survey was administered on-line via SurveyGizmo, and took participants approximately ten minutes to complete. ConsumerLink sent the survey to panel members in 'waves' until 1,000 surveys were completed. When responses slowed, ConsumerLink sent the survey out to more of its members and also sent reminders to those they had previously contacted.

Participants

All potential respondents were screened for eligibility to take part in the survey. To be eligible to take part, they must:

- be aged 18 years and over; and,
- have a child aged between 4 months and 4 years 11 months.

² Ministry of Health (2009). New Zealand Oral Health Survey Child Questionnaire. Wellington: Ministry of Health. Accessed from: <http://www.health.govt.nz/publication/methodology-report-2009-new-zealand-oral-health-survey>.

³ Graham-Montaque, R (2012). The impact of maternal influences on early childhood dental caries. VCU Theses and Dissertations. Paper 2753.

Where the respondents had more than one pre-school child between the age of four months and five years old, they were asked to answer the rest of the survey about the child who had their birthday most recently.

The expected sample for the survey was 1,000 participants, however, it was agreed with HPA that the 56 ConsumerLink pilot participant responses be included in the final dataset. The decision to include the pilot participants was made as the 56 pilot participants were sourced from a random sample of ConsumerLink panel members and no changes were required to the survey following the pilot. Therefore the final sample size was 1,056 respondents.

Some questions were answered by sub-groups of these parents / guardians / caregivers, the number of respondents for those questions are less than 1,056 (a note will be made where this is relevant). Other questions (such as ethnicity) allowed the respondent to select as many options as apply, therefore some variables add to more than 1,056.

Some variables had a large number of response categories. For analysis categories with small numbers of respondents were combined to ensure large enough numbers for testing, for example the 19 categories for income were combined into four categories to provide large enough numbers for analysis.

Demographic information about the adults

This section provides a description of the 1,056 parents / guardians / caregivers who completed the survey. The Table 1 provides characteristics of these 1,056 parents / guardians / caregivers.

Of note, the majority of respondents were the biological parent (95%). Most respondents were female (87%) while only 13% were male. The majority of respondents identified as New Zealand European (79%) with seven per cent of respondents identifying as Māori, and only two per cent as Pacifica. Thirteen per cent of respondents were recorded as 'other' ethnicity.

Table 1: Survey Respondent Characteristics

Parent/Caregiver Characteristic	n	%
Gender		
Female	918	87%
Male	138	13%
Age		
18 – 34 years	485	46%
35 years and over	571	54%
Ethnicity (prioritised)⁴		
Māori	76	7%
Pacifica	16	2%
NZ European	830	79%
Other	134	13%
Employment		
Working in paid employment – full time	396	38%
Working in paid employment – part time	258	24%
Homemaker	355	34%
Other – Student, Beneficiary, Retired, looking for a job	43	4%
Don't Know	4	>1%
Household income		
\$0 – \$50,000	115	11%
\$50,001 – \$70,000	202	19%
\$70,001 – \$120,000	403	38%
\$120,001 or more	233	22%
Don't Know	103	10%
Qualification		
No Qualification	23	2%
Secondary School	281	27%
Trade, Professional Qualification, Undergraduate diploma	254	24%
Degree	305	29%
Postgraduate diploma, Postgraduate degree	189	18%
Don't Know	4	>1%

⁴ Ethnicity was prioritised into four categories: those who identified as Māori were grouped first, followed by Pacifica groups, then New Zealand European and, finally 'other'.

Table 1: Survey Respondent Characteristics Continued

<i>Number of people in each age group who usually live in the household</i>		
<i>Age</i>	<i>Number of people⁵(n)</i>	<i>%</i>
0 – 4 years old	1,050	99%
5 – 7 years old	305	29%
8 – 12 years old	23	2%
13 – 14 years old	5	1%
15 – 16 years old	4	>1%
17 years old	3	>1%
18 years and over	1,025	97%
<i>Total number of people living in the household</i>		
1 ⁶ – 2 people	53	5%
3 people	335	32%
4 people	476	45%
5 people	151	14%
6 – 9 people ⁷	41	4%
<i>Relationship to the child</i>		
Biological parent	1,003	95%
Foster parent	3	>1%
Adoptive parent, Guardian Mother's/father's partner or spouse	35	3%
Grandparent, Aunt	15	1%

Demographic information about children

The parents / guardians / caregivers were asked how many pre-school children between the ages of four months and four years and 11 months under their regular care. Nearly two-thirds of respondents had only one child (61%), 36% had two children, three per cent had three children and three respondents had four or more children.

For respondents who had more than one child, they were asked to answer the rest of the survey about the child who had their birthday most recently. The following table provides characteristics of this child.

Fifty-per cent of respondents answered the survey about a female child (and the other half about a male child. Thirteen per cent were Māori, three per cent were Pacifica, 77% were New Zealand European and eight per cent were 'other'.

⁵ Respondents could select as many groups as applied.

⁶ Includes one participant who said no one lived in the house.

⁷ Thirty-three respondents had 6 people in the household, three had 7 people in the household, one had 8 people in the household and four had 9 people in the household.

The 1,006 respondents who were the biological or foster parents to the pre-school child were asked if the child was their first born or not. Just over half of these children were the respondents first born (53%).

Table 2: Pre-school Child Characteristics (about whom the respondent answered the survey questions)

Child Characteristic	n	%
Gender		
Female	529	50%
Male	527	50%
Age of child		
4 months – 11 months	93	9%
1 year old	227	22%
2 years old	262	25%
3 years old	278	26%
4 years old	196	19%
Child's ethnicity (prioritised)⁸		
Māori	138	13%
Pacifica	31	3%
NZ European	808	77%
Other	79	8%
First child of the respondent (n=1006)⁹		
Yes	532	53%
No	474	47%

2.2 Focus groups

A total of 15 focus groups were facilitated in five locations with a 107 participants. Diverse participation was achieved by structuring focus groups by ethnicity and by recruiting participants from diverse locations. As a consequence six focus groups were carried out with Māori and Pacifica respectively and three focus groups with New Zealand European. Focus groups were carried out in five locations: Auckland, Christchurch, Gisborne, Lower Hutt, Porirua, Tawa, Waikanae, Whangārei and a small village in the Far North).

Table 3: Focus Groups by Ethnicity and Location

Ethnicity	Locations				
	Wellington	Tairāwhiti	Christchurch	Northland	Auckland
Māori	2 focus groups	1 focus group	1 focus group	2 focus groups	-

⁸ Ethnicity was prioritised into four categories: those who identified as Māori were grouped first, followed by Pacifica groups, then New Zealand European and, finally 'other'.

⁹ Only those who were the biological parent or foster parent answered this question (n=1006).

Pacifica	2 focus groups	-	-	1 focus group	3 focus groups
New Zealand European	2 focus groups	-	1 focus group	-	-

Participants

The majority of participants were women (77%) and ages ranged between 18 and 65 with a median age of 31. Household income ranged between \$4,999 and \$250,000 with a median household income of \$40,000.

Table 4: Focus Group Participant Characteristics

Characteristics of Participant's	n	%
<i>Gender</i>		
Female	82	77%
Male	25	23%
<i>Ethnicity</i>		
Māori	51	48%
Pacifica	35	33%
New Zealand European	21	20%
<i>Number of children in household</i>		
1	21	20%
2	30	28%
3	24	22%
4	12	11%
5	6	6%
6 or more	14	13%
<i>Household income</i>		
\$4,999 - \$20,000	33	31%
\$21,000 - \$40,000	32	30%
\$41,000 - \$60,000	9	8%
\$61,000 - \$80,000	13	12%
\$81,000 - \$100,000	6	6%
\$100,000 plus	14	13%

Note: Some percentages have been rounded and may not equal 100%.

Recruitment

Participants were recruited through various community connectors who were provided with information about the study. To be eligible to participate, people need to be:

- parents and caregivers of a least one pre-school child between the ages of 6 months and four years 11 months old;
- 16 years old or over; and,

- the person responsible for the daily care routine of the pre-schooler/s.
- A koha of \$50.00 was given to each participant.

Composition and structure

Despite best efforts to restrict focus groups to between six and eight participants actual focus group numbers ranged between five and 13 participants, with an average focus group membership of seven participants. Two groups exceeded the ideal maximum of eight because local kaumātua and kuia choose, and were welcomed, to be part of the discussion.

Following a discussion of the study's purpose, ethical issues and gaining participants' consent, the focus groups were facilitated according to a semi-structured interview schedule. Focus groups lasted between 1.5 and 2 hours. With consent, each of the focus groups were audio recorded.

2.3 Analysis

Quantitative analysis

The survey questionnaire was split into seven sections:

1. Basic demographics about the child;
2. Child's oral health status;
3. Child's tooth brushing practices;
4. Child's dental visit experience / enrolment in the Community Oral Health Services (COHS);
5. Knowledge of and attitudes towards oral health;
6. Adult participant's oral health status and oral care practices; and
7. Basic demographics about the adult participant.

The majority of the survey contained closed-ended questions. Descriptive analyses were produced for the survey data (simple frequencies counts and percentages).

Cross-tabs were produced to compare responses for the following variables:

- age, gender and ethnicity of the child;
- if the child was the respondents first or subsequent child¹⁰;
- if the child had ever brushed his/her teeth; and,
- if the child had seen a dental professional in the last 12 months or not.

Responses to some variables were collapsed to ensure that there were large enough numbers of respondents distributed across categories to enable appropriate and meaningful statistical analysis. These groupings were agreed to in consultation with HPA and informed by the literature to ensure logical cut-off points were selected.

For the child's ethnicity, respondents could select as many options as applicable. For analysis the child's ethnicity variable was dichotomised into Māori and non-Māori, where those who identified as Māori were counted first and any respondent who did not identify as Māori were placed in the non-Māori category.

¹⁰ This question was only asked of respondents who were the biological parent or foster parent (base: n=1,006).

A series of chi-squared tests were performed to identify any significant differences among variables. Chi-square tests are inappropriate if any expected frequency is less than one or if the expected frequency is less than five in more than 20% of cells (i.e. in any of the variable comparisons). Only significant differences are reported.

It is important to point out that this sample was not representative of the New Zealand population. In particular there was an under-representation for certain age groups, ethnicities, income bands and levels of education. Therefore caution should be made when reading the results as they may not be generalizable to the New Zealand population.

Qualitative analysis

A grounded theory approach to data collection, coding and analysis was employed. As such, a process of constant comparative analysis was used throughout the lifespan of the research which meant comparing different perspectives:

- within and between focus groups;
- according to ethnicity; and,
- on the basis of location.

Through this process emerging findings were consistently tested to determine the extent to which they are common across participants. In practice this meant that codes were created within an analysis framework. Throughout the fieldwork, information was defined and categorised through a continual review of interviews and fieldwork notes. As a result, emerging patterns were continually tested through the interview as well as the exploration of new questions that arose in the preceding interviews. This process of constant comparative analysis also provides an opportunity to explore, at greater depth, reasons underlying emerging patterns. Quotes are used to illustrate the various codes/themes that emerged.

2.4 Ethical considerations

A research ethics application was submitted to and approved by the New Zealand Ethics Committee on 5 June 2015 (New Zealand Ethics Committee reference number 2015#23). The ethics application outlined the purpose of the research, its context, and drew attention to particular areas of sensitivity. The application also outlined the on-line survey and focus group interview questions, procedures for fully informing those being asked to take part in the research, the provision of participant consent and the storage of confidential information.

3 SURVEY FINDINGS

The aim of the on-line survey was to gather quantitative data on the knowledge, attitudes and behaviours of parents and caregivers on the oral health of pre-school children. A total of 1,056 respondents completed the survey. This chapter provides the analysis from this survey.

3.1 Child's oral health status

All respondents (n=1,056) were asked how many teeth their pre-school child had. Most children had five teeth or more (91%). Five per cent of children had one to four teeth and five per cent of children had no teeth. Of the 50 children with no teeth:

- 72% were 4 months – 6 months old;
- 26% were 7 months – 11 months old; and,
- 2% were 1 year old.

Of the 1,006 children who had one or more teeth, respondents were asked to rate the health of the child's teeth or mouth. Over half reported their child having 'excellent' teeth or mouth (54%), 36% rated their child's oral health as 'very good' and nine per cent rated their oral health as 'good'. Only three respondents reported 'poor' health of their child's teeth or mouth (>1%).

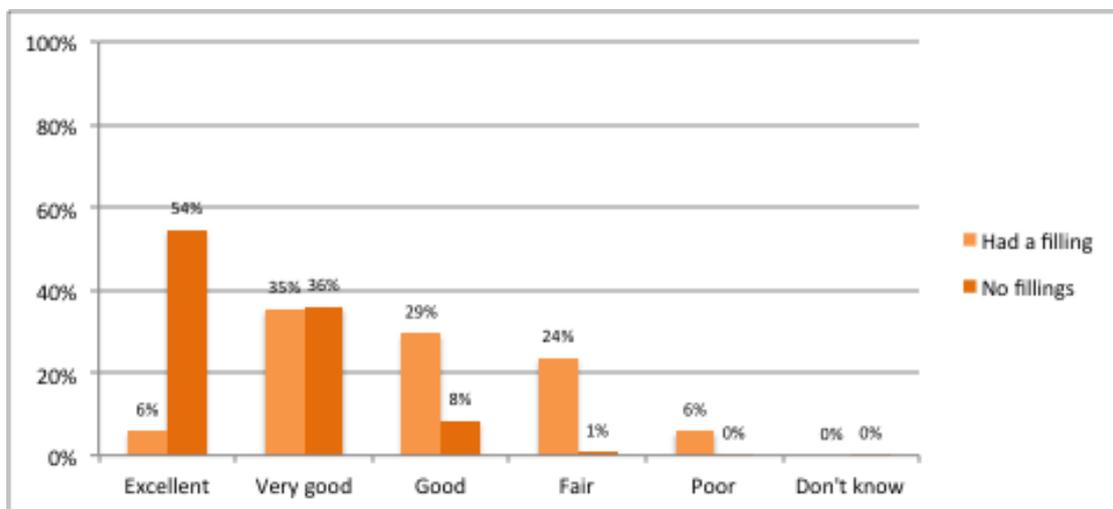
Of the 1,006 children who had one or more teeth, 17 had a filling (2%). Of these 17 children:

- three were aged two years old;
- six were aged three years old; and,
- eight were aged four years old.

Six respondents reported that their child had a tooth removed because of tooth decay or an abscess or infection. Interestingly, one of the six respondents had rated the health of their child's teeth or mouth as 'excellent', four of the six rated it as 'very good' and one rated their oral health as 'good'.

The children of the 12 respondents who rated the health of their child's oral health as 'fair', and the three who rated their child's oral health as 'poor' had not had teeth removed. Only four of the 17 respondents whose child had a filling rated their child's health as 'fair' (24%) and one with a filling rated their health as 'poor' (6%), While 12 of the 17 respondents whose child had a filling rating their child's oral health and 'good' to 'excellent' (71%).

Figure 1: The Health Of Pre-School Children Teeth By Whether The Child Had A Filling Or Not



3.2 Child's tooth brushing practices

Of the 1,006 children who had one or more teeth, nearly all had their teeth cleaned by a toothbrush since they got teeth (98%). Only 15 respondents said 'no' (1%) and one said 'don't know'.

The 16 respondents who answered 'no' or 'don't know' were asked if the child had used any other tool to clean his/her teeth. Only one respondent answered 'yes' and reported that the child had used "a chew toy for teeth".

The 16 respondents were also asked the reason their child did not have their own toothbrush, and the responses were:

- the child only just got teeth (n=6);
- the child 'did not need one' (n=5);
- the respondent was waiting for Plunket to visit and provide advice on when and how to brush (n=2);
- the respondent had a toothbrush in the play box for their child to get used to before they really started brushing (n=2);
- the respondent had a toothbrush they would start using soon (n=1); and
- the respondent did not know why (n=1).

The cost of a toothbrush was included as a response option but this was not selected by any of the respondents.

The 990 respondents who had a child with teeth and had ever used a brush were asked about the age the child started brushing, who brushes the child's teeth, how the respondent assisted the child's brushing, how often the child brushed their teeth and when they brushed. The next sections describe these 990 respondents responses.

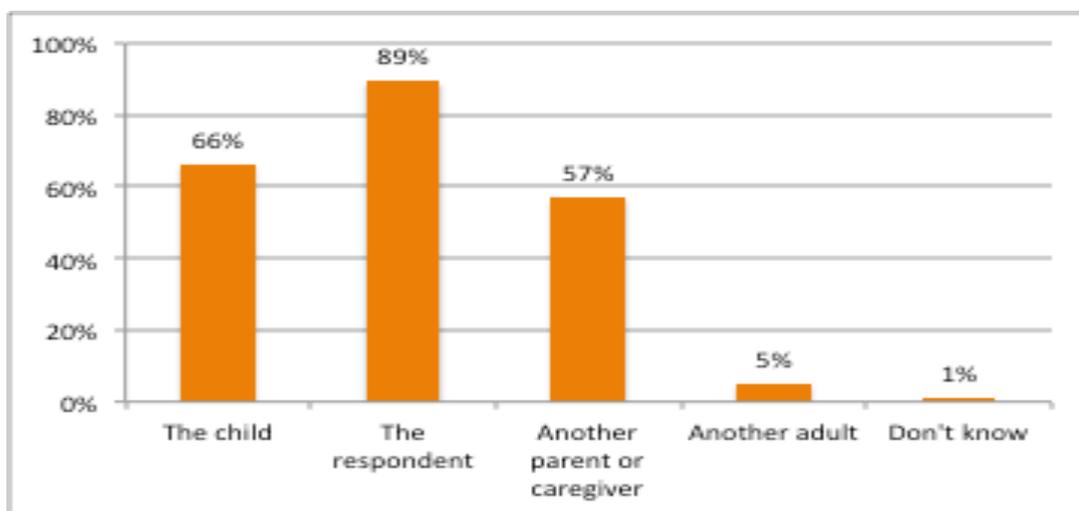
Respondents (n=990) were asked if their child currently had a toothbrush. Nearly all respondents said their child currently had their own toothbrush (99.8%), with two respondents reporting that their child shared a toothbrush with another person.

One of the two respondents who reported their children shared a brush said that they had only just started brushing their child's teeth in the last seven days (child was aged 12-months) and the other respondent reported that a toothbrush was shared because their 20 month old wanted to use his older brother's brush (the older brother was the child being reported on who was four years old).

The Ministry of Health recommends that children start brushing as soon as their first teeth appear. In the survey, parents and caregivers were not specifically asked whether their child complied with this recommendation. However, information was sought on age (in years) that the child first started brushing. It was found that among those who had at least one tooth and had used a brush or other tool (n=990), around two-thirds reported that their child was less than one year old when they started brushing (77%). However, nearly one-in-five started when their child was one year old (19%), and three per cent of respondents reported that their child was two years old. Finally, three respondents reported having started when the child was three years old. One person did not know.

The 990 respondents were asked, "Who usually brushes their child's teeth?" Respondents were able to select as many options that applied. Figure 2 shows that the most common response was that the respondent was the main person who brushed the child's teeth (89%). Next, 66% reported it was the child and 57% reported that it was another parent or caregiver. Five per cent of respondents said it was 'another adult'. One per cent of respondents said it was 'another adult'.

Figure 2: Parent and Caregiver Response to Who Usually Brushes the Child Teeth

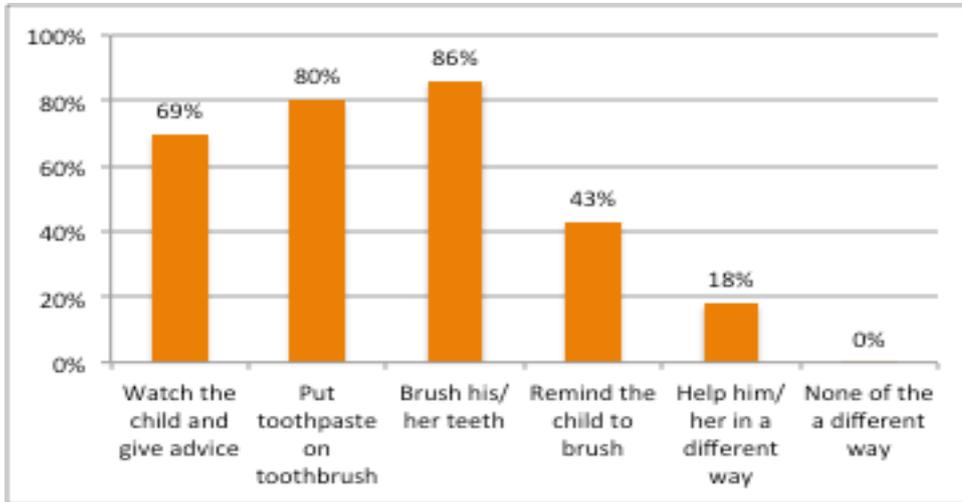


Where the child was the one who 'usually brushed their teeth' over half were between three and four years old (55%). Just over a quarter were two years old (28%), 17% were only one year old and five were between four and 11 months old (1%).

The 990 respondents were asked how they assisted their pre-school child in tooth brushing. Figure 3 shows that 86% of respondents reported that they would brush the child's teeth, 80% of respondents would put toothpaste on the brush, 69% of the

respondents would watch the child and give them advice, 43% would remind the child to brush and 18% would help in a different way.

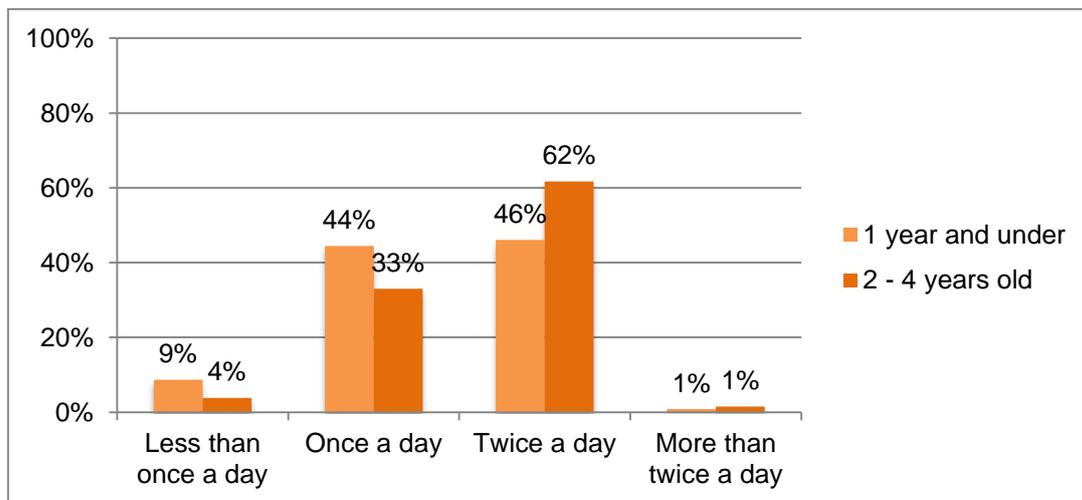
Figure 3: Parent and Caregiver Response to How They Assisted Their Pre-school Child In Tooth Brushing



The 990 respondents who had a child with teeth and had used a brush were also asked how often their child brushed their teeth. Just over half of the respondents said their child's teeth were brushed 'twice a day' (58%). Just over a third of respondents' reported their child brushed 'once a day' (36%), five per cent said 'less than once a day' and 13 respondents said their child brushed 'more than twice a day'.

There was a significant difference by age of the child ($p < 0.0005$). Those children aged between two-to-four years old were more likely to brush twice a day while those with children one year and under were more likely to brush once a day or less (see Figure 4).

Figure 4: Regularity Of Daily Tooth Brushing For Pre-School Children By The Child's Age



The 990 respondents were then asked when their child brushed their teeth (see Table 5). Respondents were able to select as many options that applied. While the

majority of children reportedly brushed their teeth immediately before bed (69%), over two-thirds of children brushed after breakfast (68%).

Table 5: Time of the Day That Pre-School Children Reportedly Brush Their Teeth

When are your child's teeth usually brushed?	n	%
Before breakfast	62	6%
After breakfast	676	68%
After lunch	19	2%
After dinner	230	23%
Immediately before bed	686	69%
At other times	30	3%

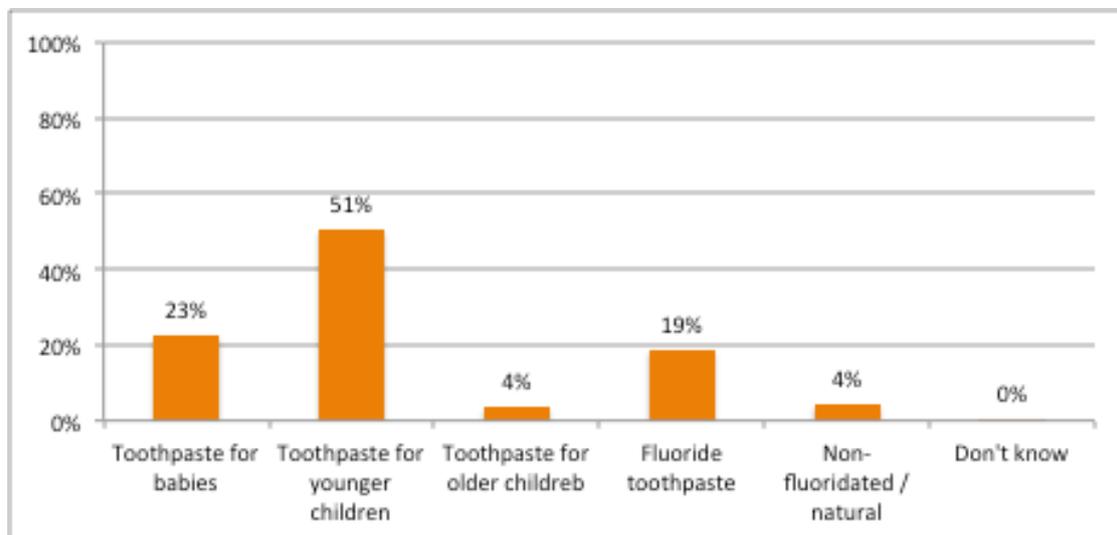
Ninety-six per cent of the 990 respondents reported their child always used toothpaste. Another four per cent of respondents reported their child used toothpaste 'often / sometimes / occasionally' while only six respondents reported their child never used toothpaste (1%).

The 984 respondents who reported their child used some toothpaste were asked what types of toothpaste they use. Respondents were only able to select one option.

The Ministry of Health recommendation for toothpaste is that there can be one toothpaste for the whole household and that regular strength fluoride toothpaste should be used for all family members (not low fluoride baby or junior paste). Therefore it was important to find out whether regular strength fluoride toothpaste is being used by pre-school children.

Figure 5 shows that contrary to the Ministry of Health's recommendations, only 19% respondents said their child used regular strength fluoride toothpaste. Just over one-in-five respondents said their child used toothpaste for babies (23%). For the remaining respondents, just over half said they used 'toothpaste for younger children' (51%), 19% used 'fluoride toothpaste', four per cent used 'toothpaste for older children' and four per cent used 'non-fluoridated / natural toothpaste'. Two respondents said they 'did not know' what toothpaste was used.

Figure 5: Type Of Toothpaste Used For Pre-School Children Teeth Cleaning



For those who used toothpaste for babies 65% decided to use the toothpaste because it was 'a brand they trusted' and 73% said they decided on toothpaste that 'matched their child's age'. This finding suggest that marketing and packaging information are causing confusion for parents when it comes to selecting the right toothpaste for their pre-school children, particularly for babies.

Not surprisingly, there was a significant difference in toothpaste use according to age ($p<0.0005$) where those with younger children were more likely to use baby toothpaste. There was also a significant difference if the child was first or subsequent child ($p=0.018$)¹¹, where those who were responding about their first child were more likely to use a toothpaste for babies or younger children while respondents who were responding about a subsequent child were more likely to use a fluoride toothpaste.

All respondents who reported their child used some toothpaste were asked what they looked for when deciding on toothpaste for their child. Respondents could choose as many options as applied. Table 6 shows the biggest influence for choosing toothpaste was if it was a 'brand they trusted' (58%). As mentioned previously, there was also a large number of respondents who chose a toothpaste when it 'matched the child's age' (49%). It is noted that this toothpaste is not recommended by the Ministry of Health.

Table 6: Influencer For Parents And Caregivers In Deciding What Toothpaste To Buy For Their Pre-School Child

When choosing toothpaste for your child, what do you typically look for? ¹²	n	%
A brand I trust	574	58%
Matches my child's age	481	49%
A taste my child likes	246	25%
Cheaper price / discounted	176	18%
Contains low levels of fluoride	153	16%
A cartoon character or picture my child likes	131	13%
To have one toothpaste for the whole family	119	12%
Other reasons	105	11%
Contains no fluoride	41	4%
I am not responsible for choosing toothpaste for my child	10	1%

Of the 984 respondents who reported their child used some toothpaste over half reported that their child used a 'smear of toothpaste' on their brush (54%), while 43% said their child used 'a pea-sized amount of toothpaste' and three per cent said their child used a 'full brush' of toothpaste.

Only 20% of the 984 respondents reported 'spitting only'. Nearly half of respondents said their child 'just swallows' the toothpaste (46%), one in five rinse and spit (20%) and nine per cent 'rinse and swallow'.

¹¹ This question was only asked of respondents who were the biological parent or foster parent (base: n=1,006).

¹² Respondents could select as many options as applied to them therefore total per cent is more than 100%.

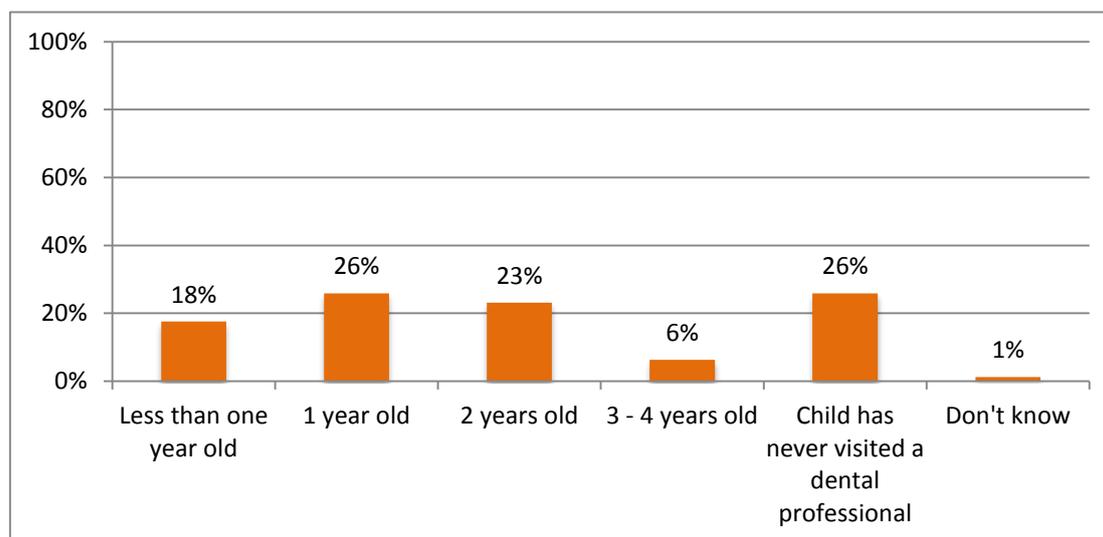
3.3 Child's dental visit experience / enrolment

All respondents (n=1,056) were asked a series of question about dental enrolments and their children's experience of dental visits.

Respondents reported that 73% of children had visited a dentist while 26% had never been to the dentist. One per cent of respondents did not know if the child had been to the dentist.

Figure 6 shows the age of the child when he/she had his/her first dentist visit. Sixty-seven per cent of the children went to the dentist for the first time when they were under the age of three years old, with 44% was one year or less. When comparing the proportion of respondents who had been to a dentist, it is found that children under 2 years old were less likely than those two-to-four years old to have been to dentist ($p<0.0005$). There was also a significant difference between those children who were first or subsequent children with a subsequent child being more likely to have visited a dental professional under the age of one year old ($p=.017$)¹³.

Figure 6: Age of First Dental Visit for Pre-school Children



Of the 273 respondents who said their child had never been to the dentist:

- 12% children were between four and six months;
- 12% children were between seven and 11 months;
- 42% children were one year old;
- 25% children were two years old;
- 7% children were three years old; and
- 2% children were four years old.

The 770 respondents whose child had been to the dentist were asked for the reason for their first visit. Over two-thirds had been for a check up (69%). The next most

¹³ This question was only asked of respondents who were the biological parent or foster parent (base: n=1,006).

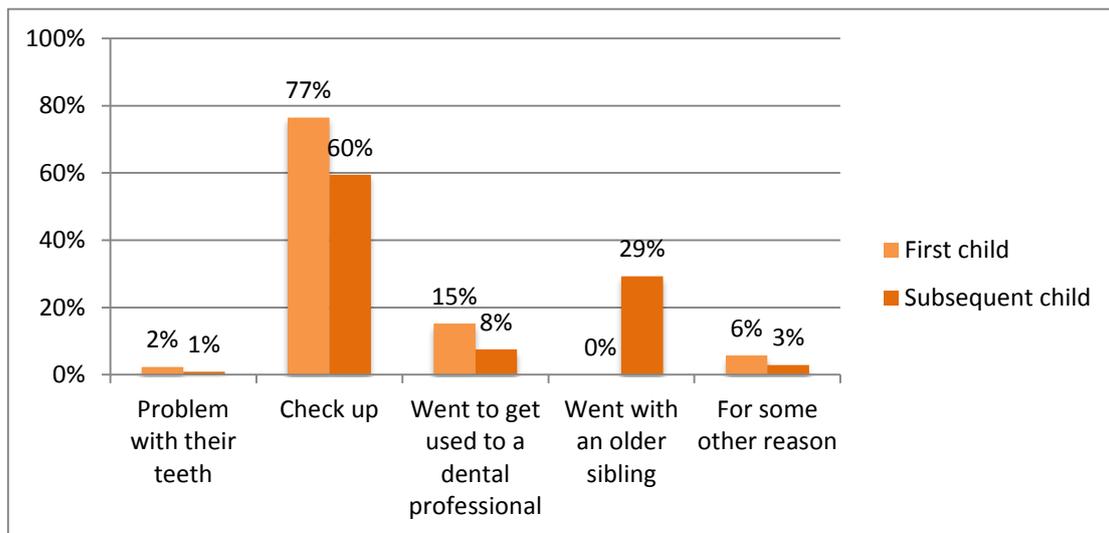
common response was that the child had gone when an older sibling had been to the dentist (14%). Twelve per cent of respondents took their child to get them used to going to a dental profession. Only two per cent went because their child had a problem with their teeth. Four per cent of respondents went for 'other reasons'.

Of the 14 respondents who went to the dentist because the child had problems with their teeth:

- one was one year old;
- three were two years old;
- five were three years old; and,
- five were four years old.

There was a significant difference between respondents who were responding to survey about their first child versus those responding about a subsequent child where a subsequent child was more likely to have visited a dental professional when an older sibling went ($p < 0.0005$)¹⁴. Figure 7 shows the reason for their pre-school check up compared to whether the child was the first child or a subsequent child.¹⁵

Figure 7: Reason for Respondent's First Pre-school Child's Dental Visit By First vs. Subsequent Child



Respondents were asked how long it had been since their child's last dental visit (for any reason). The majority answered 'within the past 12 months (84%)'. Fifteen per cent had visited over a year ago, while eight respondents 'did not know' (1%).

There was a significant difference for the age of the child ($p = .002$) where children one year and under were more likely to have been to see a dental professional in the last 12 months and those two-to-four years were more likely to have seen a dental professional over 1 year ago.

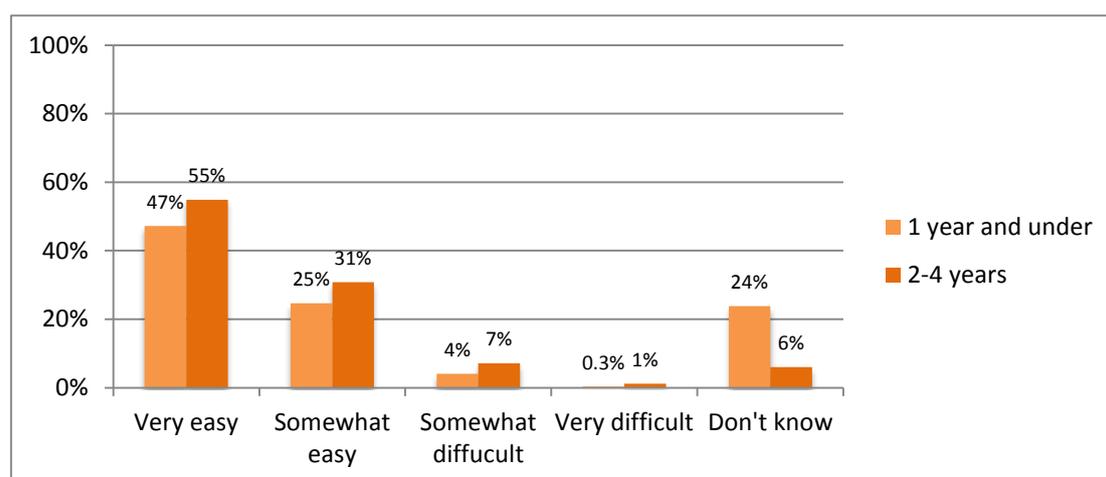
¹⁴ This question was only asked of respondents who were the biological parent or foster parent (base: n=1,006).

The 770 respondents whose child had been to the dentist were asked for the reason for their most recent visit. Most visits were for a check-up (92%) while two per cent of children went because of problem with their teeth, two per cent went for dental treatment recommended after their check up, less than one per cent went for dental treatment under general anaesthetic in hospital and four per cent went for some other reason.

Nearly two-thirds of the 770 respondents whose child had been to the dentist felt it was very easy to get to the dental professional (61%). Thirty-one per cent felt it was somewhat easy, six per cent felt it was difficult and one per cent felt it was very difficult. One per cent of respondents did not know.

Figure 8 shows the difficulty of getting to a dental profession according to their child's age. There was a significant difference in how easy it is to get to a dental professional for the age of the child with respondents with children one year and under responding that they 'don't know' ($p < 0.0005$). Respondents with a first child were significantly more likely to find it 'somewhat difficult' to access a dental professional while those with a subsequent child were significantly more likely to report accessing a dental professional as 'easy' or 'somewhat easy' ($p < 0.0005$)¹⁶.

Figure 8: Respondents' Reported Difficulty Accessing a Dental Professional By Child's Age



The 1,006 respondents whose child had at least one tooth were asked if their child was enrolled in Community Oral Health Services (COHS). While the majority of respondents said 'yes' (83%) one-in-ten respondents did not know (10%).

There was a significant difference in enrolment for the age of the child ($p < 0.0005$) with respondents with a child aged two-to-four years old being significantly more likely to be enrolled in COHS. Respondents with a subsequent child were more likely to have their child enrolled in COHS than those who were responding about a first child ($p = .036$)¹⁷.

¹⁶ This question was only asked of respondents who were the biological parent or foster parent (base: n=1,006).

¹⁷ This question was only asked of respondents who were the biological parent or foster parent (base: n=1,006).

3.4 Knowledge and attitudes

All respondents (n=1,056) were asked a series of questions to measure their knowledge about pre-school dental check up and cleaning practices. The four statements asked were ‘to the best of your knowledge, at what age do you think....’:

1. children can have their first free dental check-up with the Community Oral Health Service (also known as COHS or School Dental Service);
2. children should begin seeing a dental professional;
3. children should begin to have their teeth brushed every day; and,
4. children are able to brush their teeth on their own.

Overall knowledge was mixed across the four statements, which suggests varying degrees of knowledge about what is age appropriate oral health practice.

Table 7: Parent and Caregiver Knowledge of Pre-school Oral Health Best-Practice

Knowledge	Less than 1 year old	1 year old	2 years old	3 years old	4 - 5 years old	6 - 7 years old	8 years or older
	%	%	%	%	%	%	%
Children can have their first dental check-up with the Community Health Service	30%	31%	29%	5%	4%	>1%	>1%
Children should begin seeing a dental professional	21%	39%	29%	6%	5%	1%	1%
Children should begin to have their teeth brushed every day	74%	21%	4%	1%	>1%	0%	0%
Children are able to brush their own teeth on their own	1%	5%	16%	19%	27%	21%	12%

Respondents indicated confusion about when a child ‘can’ have their first check up. Table 7 shows that 30% indicated it was when the child was less than a year old, 31% at one year old and 29% when they were two years old. Nine per cent thought that the first check up was when the child was aged three years or more. Ministry of Health recommendations suggest that regular dental visits are vital from an early age, with entitlement to enrol a child in their local COHS from birth.

There was a significant difference in knowledge of when a child can have their first dental visit for age of child ($p = .004$) where respondents with children one year and under were significantly more likely to say a first check up should be when the child is younger than one year old while those with children two-to-four years old were more likely to respond that a child can have their first check up at the age of one year or older.

Ministry of Health recommendations for when children should have their first dental visit differ by ethnicity, decile and migrant status. It is recommended that those from

low decile areas, Māori, Pacifica and new migrant children have their first visit by the age of one year with all other demographics having a dental visit before three years of age. Findings from this survey show there was confusion from respondents as to when a child 'should' begin seeing a dental professional with approximately one fifth (21%) of respondents selecting less than one year old, 39% selecting one year old and 29% selecting two years old. Twelve per cent answered that three years or older was when this should happen.

There was a significant difference in knowledge of when a child should begin seeing a dental professional for child age ($p = .023$) with those with children one year and under being more likely to agree that a child should start seeing a dental professional when they are aged 1 year or less while those with a child aged two to four years old were more likely to respond that the first dental visit should be when the child is aged 2 or 3 years old.

Table 7 shows that most respondents identified that their child should begin having their teeth brushed when they are less than the age of one (74%). This is consistent with Health recommendations that suggest that parents and caregivers start brushing their pre-schoolers teeth as soon as they appear through the gums, usually around six months of age.

Ministry of Health guidelines suggest that children need help with teeth brushing until they are about five years old (when they can hold a pencil and write) and that children should be supervised until the age of eight years old. Table 7 shows that respondents had a low-level of knowledge around what was appropriate with most respondents agreeing that a child could brush their teeth on their own when they were anywhere between two years old and between six and seven years of age (82%). Only 12% of respondents recorded that eight years or older was the most appropriate age to do this. Of note, six per cent of respondents indicated that a child could brush on their own at one year of age or less.

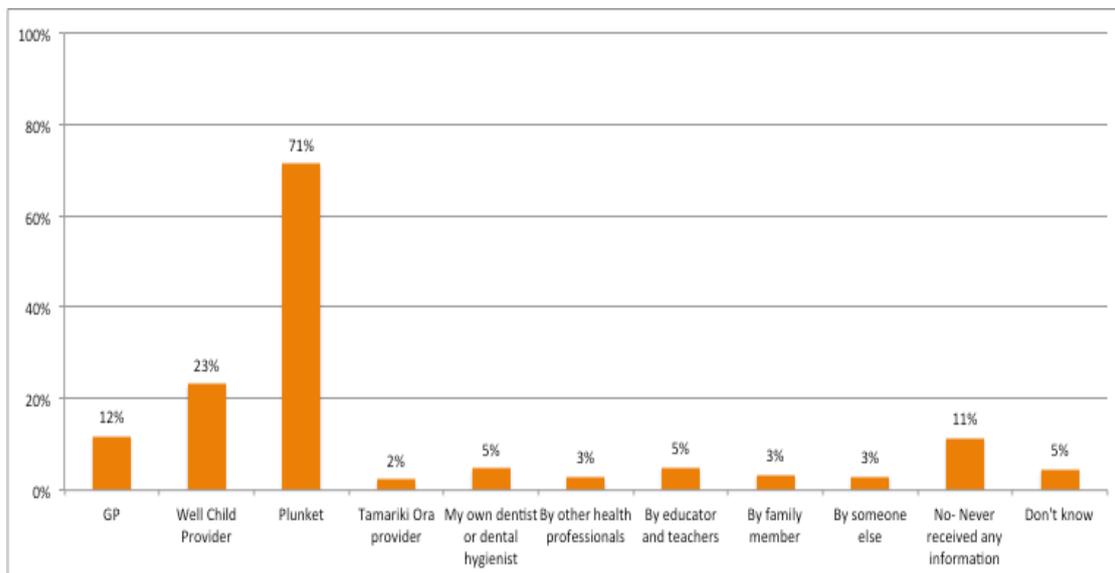
There was a significant difference in knowledge for age of child ($p < 0.0005$) where those with a child one year and under were more likely to agree that a child can brush on their own from one year or less. Likewise those whose were responding about a first child were more likely to agree that a child could brush on their own when aged one year or less ($p < 0.0005$).

a) Information

Respondent were asked if they had ever been told or received information on when their child should begin seeing a dental professional (they could select as many options as applied). Figure 9 shows the per cent of respondents who selected the different options from where they received information on when their child should begin seeing a dental professional.

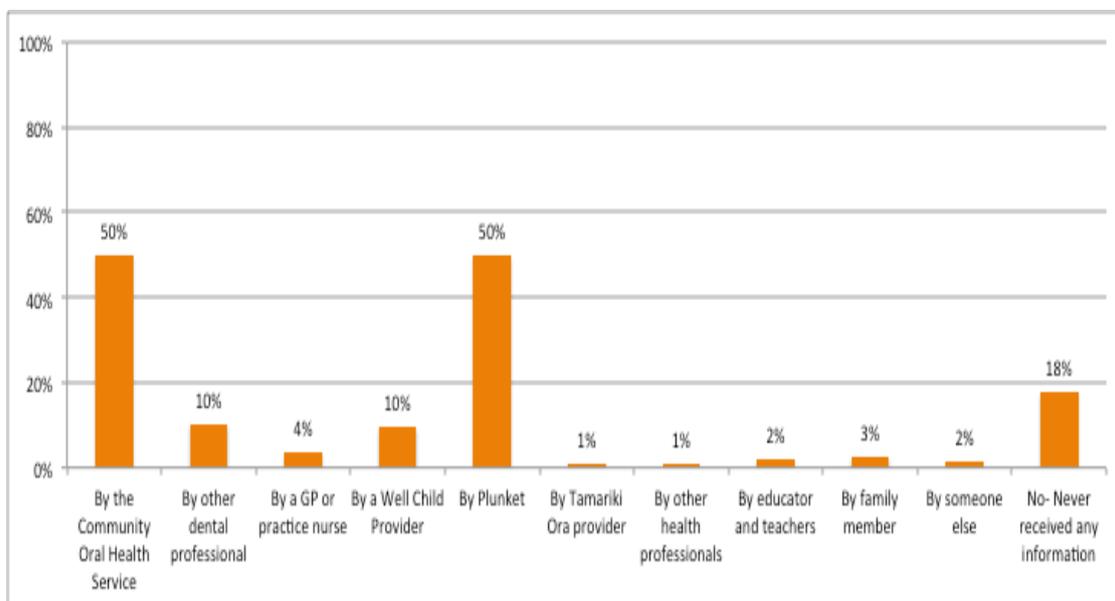
Most respondents reported that Plunket was where they received information on seeing a dental professional (71%). The next most common source of information was from a Well Child provider (23%) followed by the respondent's GP (12%). One-in-ten respondents said they had never received any information (11%).

Figure 9: Information Sources - When Their Child Should Begin Seeing a Dental Professional



When asked if they had ever been told or received information on how to clean your child's teeth the most common places were from the Community Oral Health Service (50%) and / or from Plunket (50%). However, nearly one-in-five respondents had never received any information on how to clean their child's teeth. Figure 10 shows the per cent of respondents who selected the different options from where they received information on how to clean their child's teeth.

Figure 10: Information Sources - How To Clean Your Child's Teeth



b) Attitudes to pre-school oral health

Respondents were asked to rate their agreement on a series of attitudinal statements. Respondents were given a six-point scale with the possible response options of:

1. Strongly disagree;
2. Disagree;
3. Neither agree or disagree;
4. Agree;
5. Strongly agree; and,
6. Don't know.

To assess overall agreement with each statement and to allow for analysis the six categories were collapsed into four with 'strongly disagree' and 'disagree' combined into and 'agree' and 'strongly agree' combined.

Table 8: Parent and Caregiver Attitudes Towards Pre-school Oral Health

Attitudes	Strongly disagree / disagree	Neither agree or disagree	Strongly agree / agree	Don't know
	%	%	%	%
S1. I feel comfortable asking my health care provider questions regarding my child's teeth.	4%	7%	88%	1%
S2. Keeping my child's primary teeth (the child's first set of teeth) healthy is important to me.	2%	1%	97%	0%
S3. My child will benefit from having his / her teeth brushed.	2%	1%	97%	0%
S4. Regular dental visits for my child are as important as regular medical check-ups.	4%	5%	92%	>1%
S5. It is important for children to use age-appropriate toothpaste.	20%	17%	60%	4%
S6. I would give something sweet in my child's bottle, sippy cup or dummy to make him / her happier.	87%	8%	5%	>1%
S7. Cavities or holes in baby teeth do not need to be filled.	71%	8%	3%	17%
S8. There is no relationship between the health of baby teeth and adult teeth.	80%	7%	5%	8%
Q9. My child gives me a hard time when I try to brush his / her teeth. ¹⁸	42%	20%	35%	3%

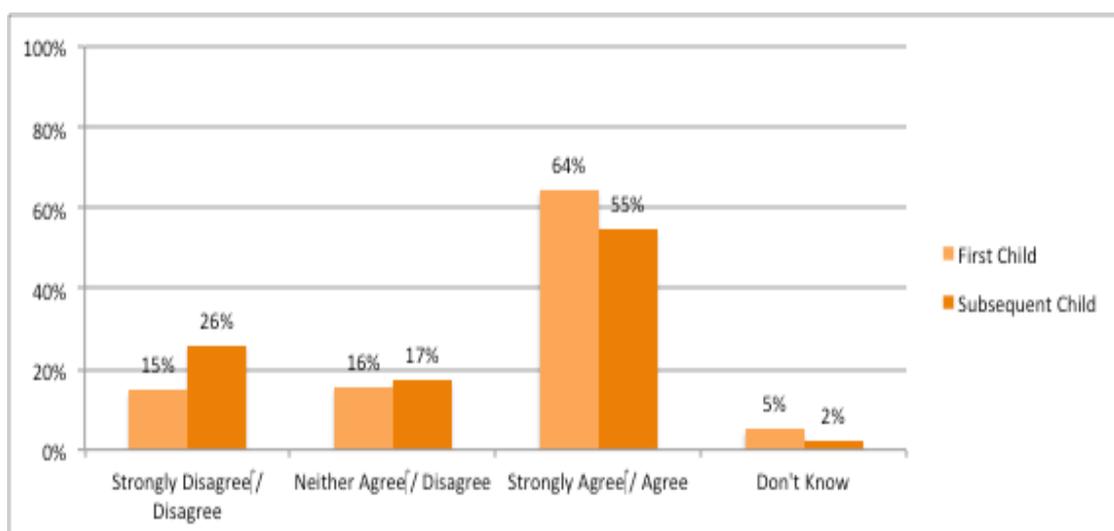
¹⁸ Twenty-seven respondents said they had never tried to brush their child's teeth (3%) and did not answer this question.

Table 8 shows that for statement one to four agreement was consistently high with only a small percentage of respondents disagreeing. Almost all respondents agreed that they feel comfortable asking a health care provider questions regarding their child's teeth (88%), keeping their child's primary teeth healthy is important (97%) and that their child benefits from having their teeth cleaned (97%).

However there was a more varied response to statement five which asked about the importance of using age-appropriate toothpaste. Response to this question indicates that there was a high level of confusion about what is appropriate, with 60% of respondents agreeing that it is important to use age appropriate toothpaste, contrary to Ministry of Health guidelines that state one toothpaste can be used for the whole household and for it to be fluoride-based.

There was a significant difference in attitudes for those whose were responding about a first child were more likely to agree that a child should use age-appropriate toothpaste while those who were reporting about a subsequent child were more likely to disagree with the statement ($p < 0.0005$)¹⁹.

Figure 11: Parent and Caregiver Rating of How Important It Is For Children To Use Age-Appropriate Toothpaste

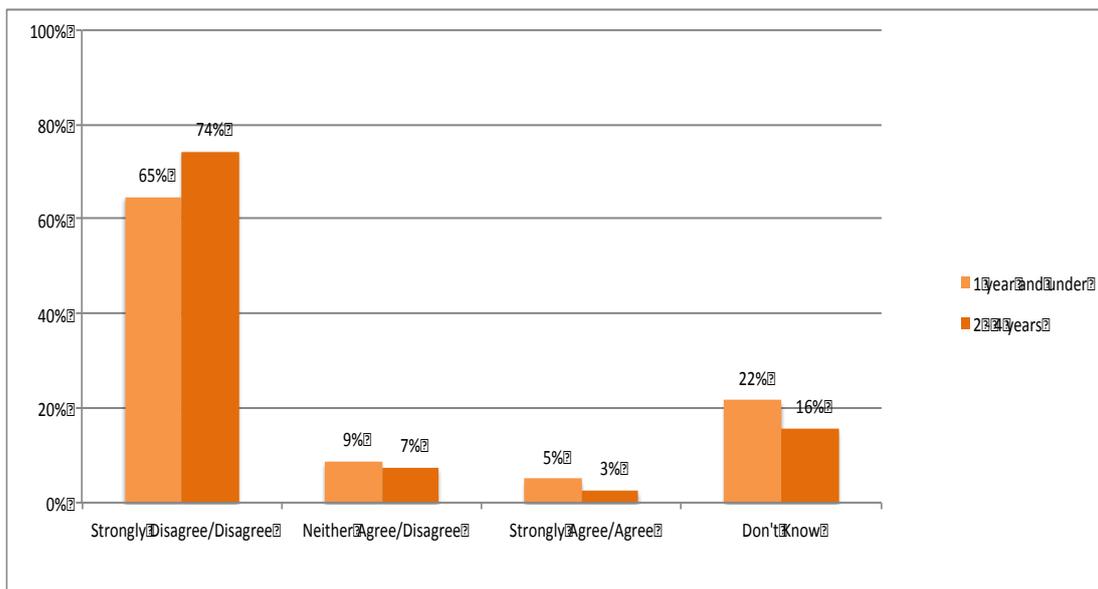


Statements six to eight were rated consistently as strongly agree / disagree, but there were some respondents who seemed to lack knowledge in this area. Firstly, although most respondents (87%) disagreed that they'd put something sweet in my child's bottle, sippy cup or dummy to make him / her happier 13% 'neither agreed or disagree' or 'agreed'.

Similarly, 71% of respondents did agree that cavities or holes in baby teeth need to be filled but one-in-five respondents disagreed or did not know. There was a significant difference in attitudes by the age of the child ($p = 0.008$) where respondents with a child aged two-to-four years old were more likely to disagree with the statement and those with a child one year and under more likely to say they didn't know.

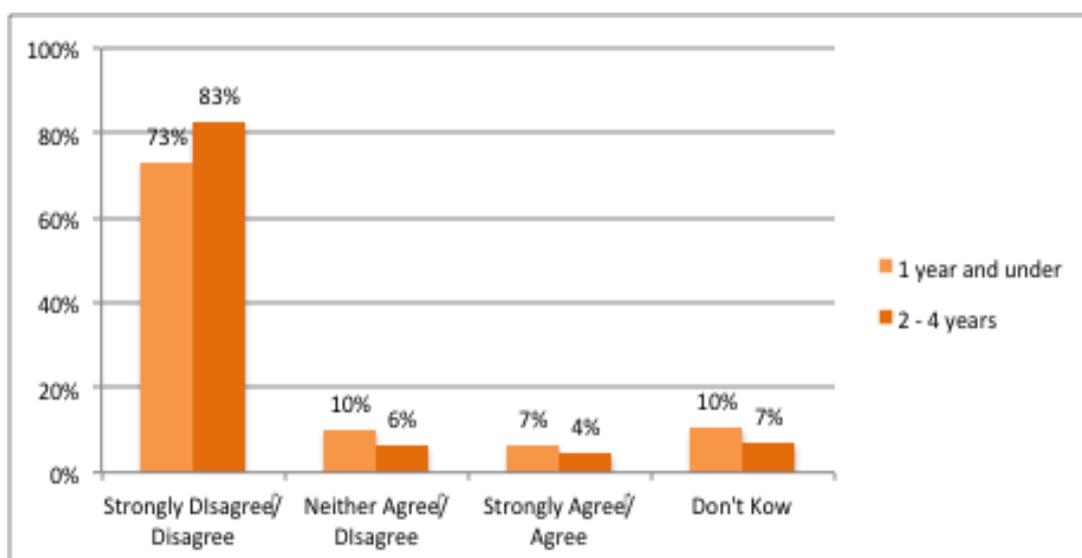
¹⁹ This question was only asked of respondents who were the biological parent or foster parent (base: n=1,006).

Figure 12: Parent and Caregiver Rating of Whether Cavities or Holes In Baby Teeth Do Not Need To Be Filled By Child's Age



Likewise, while the majority (80%) of respondents agreed that there is a relationship between the health of baby teeth and adult teeth, 13% either disagreed or did not know. There was a significant difference in attitudes by the child's age ($p=0.006$) where respondents with a child aged two-to-four years old were more likely to disagree with the statement and those with a child one year and under who were more likely to say they 'neither agree nor disagree'.

Figure 13: Parent and Caregiver Rating of Whether There Is A Relationship Between the Health Of Baby Teeth And Adult Teeth by Child's Age



Statement nine elicited a mixed response. The majority of participants either strongly disagreed / disagreed (42%) with the statement: "My child gives me a hard time when I try to brush his / her teeth" and 35% strongly agreed / agreed with the statement. One in five people reported that they neither agreed nor disagreed (20%).

Table 9 describes the directionality for the significant variables regarding statement nine. There was a significant difference for this statement for age of child ($p < 0.0005$) and gender of the child ($p = 0.035$).

Table 9: Parent and Caregiver Rating of How Strongly They Felt Their Child Gave Them A Hard Time When Trying To Brush Their Teeth

Q9. My child gives me a hard time when I try to brush his / her teeth. ²⁰	Categories	Significance	Comment
Gender of the child	Boy Girl	$p = 0.035$	Respondents were more likely to agree that teeth cleaning was harder if their child was a boy.
Age of child	Under 2 years old 2 – 4 years old	$p < 0.0005$	Respondents were more likely to agree that teeth cleaning was harder if their child was under 2 years old.

3.5 Adult’s oral health status and practices

The adult respondents were asked a series of questions to assess their own oral health status and practices.

All respondents indicated they had seen a dental professional at some point in time with 45% reporting that they had visited a dental professional in the last 12 months and 44% having been between 12 months and five years ago. Twelve per cent had not been to see a dental professional in over five years.

Among those who had natural teeth ($n=1,047$), the majority brushed more than once a day (72%). A quarter of respondents brushed once a day (25%) and three per cent respondents brushed less than once a day.

²⁰ Twenty-seven respondents said they had never tried to brush their child’s teeth (3%) and did not answer this question.

4 FOCUS GROUP FINDINGS

While the focus group research was exploratory three core areas of exploration guided the focus group sessions. These areas included the motivations underpinning participants' commitment to their child's oral health care, barriers to engaging in effective oral health care provision and the various sources of oral health-related information accessed by participants. This section addresses the conversations around these motivations.

4.1 Motivations associated with pre-school oral health care

The majority of participants afforded children's oral health care with a high level of importance and identified a variety of motivations that underpin this commitment. Because participants typically shared multiple motivations the following should be treated as thematic groupings only. It should also be noted that the various motivations have not been ordered according to frequency of discussion.

Physical appearance

The importance of physical appearance was commonly cited as a motivation for ensuring participants' children have good oral health care.

I want my daughter to have a great smile. It's about a look and not having lots of fillings in her mouth. (Female, New Zealand European, Christchurch)

Initially physical appearance was raised in terms of cosmetic appearance, such as "having a nice smile", "looking beautiful" or simply "looking good". Participants later qualified these statements with a desire for their children to avoid negative social impacts of poor oral health, namely low self-esteem and school bullying.

My brother had really ugly teeth and he was bullied at school. (Māori woman, Christchurch)

When I was little I was a bully and I would pick on kids with crooked teeth. My boy has really bad teeth and he's getting braces because I don't want him to be picked on. (Māori female, Gisborne)

When I was younger I didn't brush my teeth and I had really yellow teeth and I would go to school and people would point it out. So I don't want my daughter to have that. (Pacifica female, Auckland)

It is about appearance, if they have nice smile then it helps with confidence. So I want my girls to have good self-esteem. (Pacifica female, Auckland)

I would hate them to experience the bullying and low self-esteem. (Pacifica male, Auckland)

When I young I had a tooth growing in the wrong direction. It came out the top of my gum and it felt ugly. I would hold my hand over my face. I didn't want people to notice me. It really affected my self-esteem. (Pacifica female, Auckland)

Personal hygiene

The importance of personal hygiene was also identified as an important motivation so that children could avoid social stigma, bullying and social ostracism.

I don't want them to be the smelly kid at school. (Māori female, Gisborne)

I don't want them to be shamed. Back in the day we used to tell other kids that they had bad breath and make fun of them. I don't want them to get picked on. (Māori male, Whangārei)

Personal hygiene was also discussed as important as it underscores the basic foundations of wellbeing. Of interest, in regards to developing a campaign response, Pacifica predominantly referred to the importance of personal hygiene, as a primary motivation, when compared to other ethnic groups.

It's part of personal hygiene. (Pacifica female, Auckland)

Brushing teeth is part of personal hygiene for me and my three children. Wash face, wash teeth. With my kids it's a bit of a mission but I do it twice a day. (Pacifica female, Whangārei)

It's part of healthy living. . .making sure children brush their teeth everyday. . . looks after their gums and teeth. (Pacifica female, Auckland)

Prevention

The importance of prevention was common across focus groups and was raised on multiple levels. Firstly, in the short-term oral hygiene was linked to children's avoidance of painful dental procedures and an assurance that children do not experience the same dental issues, and associated pain, as their parents and caregivers.

I don't want my children to suffer what I am going through. The pain. (Pacifica female, Auckland)

It is important I make my kids brush everyday. My oldest son had a filling and it hurt and I didn't want him to be in pain. It was heart breaking. He was sore. I don't want that again. (Māori female, Wellington Region)

My teeth. My teeth are shocking. I have no back teeth. I had heaps of lollies. I lived with toothaches and I don't want my children to go through that. (Māori female, Christchurch)

You don't want them to have their teeth ripped out by pliers. (New Zealand European, female, Christchurch)

I have always had quite bad teeth. I don't want Ben to have to deal with drilling and fillings and things like that. (New Zealand European, female, Christchurch)

I had complete freedom when I was little and no one made sure I brushed. I don't think I was even taught to properly brush my teeth. So I ended up having a lot of teeth pulled out and I don't want them [her children] to have the same experience as me. (Māori female, Gisborne)

Next, prevention was discussed in regards to longer-term considerations and the need to reduce children's risk of dental complications in adulthood. This was

especially discussed in reference to the expense associated with dental intervention. Essentially childhood was regarded as the optimal time for children to develop good oral hygiene habits, and therefore, avoid the expense of future dental intervention.

So it is good to start a good habit when they are young; it saves so much money in the future. (New Zealand European female, Wellington region)

Not to pay big dentist bills. It costs money. Prevention is better. (Māori female, Christchurch)

It is expensive to get teeth seen to when they are older... it is really hard. (Pacifica female, Whangārei)

The money. The cost of going to the dentist. If you don't look after it now then when you are past 18 there is no more free dentist. (Pacifica female, Wellington Region)

Money and health wise so that they won't go to the dentist. Holes, money wise it is too expensive. (Pacifica female, Whangārei)

Some participants also discussed how common it is for them to feel judged on the basis of their parenting and it was common for words such as “guilt” to be used to refer to their parental anxiety. Within this context, prevention was viewed as important because the participants in question wanted to avoid any future parenting-related judgement. Notably, New Zealand European participants most commonly reported parental guilt and associated anxiety.

It's our responsibility. I would feel awful if my children had yellow teeth. (New Zealand European female, Wellington Region)

Guilt tripping myself. Knowing it is my responsibility. (New Zealand European female, Wellington Region)

You don't want your child to have ugly teeth when it is your fault. (New Zealand European female, Wellington Region)

Maintaining family tradition

Those who had experienced good oral health reported wanting their children to have the same experiences. This motivation was linked to a sense of pride and maintaining a family tradition.

I have good teeth and I want my kids to have good teeth. (Māori female, Christchurch)

4.2 Barriers to engaging in effective protective behaviour

Eight primary barriers to engaging in effective pre-school oral health arose through the 15 focus group discussions. Each of these barriers is discussed in turn below.

Beliefs, attitudes, knowledge and the extended family

A number of beliefs and attitudes were identified that impacted on peoples' approaches to their children's oral health. Effectively these beliefs and attitudes are barriers to effective protective oral health behaviour.

a) Second chance discourse

Pre-school oral hygiene was undervalued by some participants because of a second chance discourse. The discourse minimises the importance of pre-school oral hygiene, because of a belief that the onset of the adult teeth will remedy any dental issues experienced in early childhood, such as yellow staining and cavities.

I'm more fussy about the second set. Not so fussed about the first. Now she is bigger she has to brush her teeth properly. It's her routine and her responsibility because that is the only set you have. I don't think those [baby] one's are so important. (New Zealand European female, Wellington Region)

It's more of a worry when it comes to the second teeth. That's where our energy will go. (Māori female, Far North)

They're [parents] told, "Its just baby teeth. They will grow new ones." Like they can wait and look after adult teeth when they come through. No routine, no pressure from parents to brush their teeth. They think hygiene is just about the body, not the teeth. (Māori male, Wellington Region)

b) Lack of priority

Some parents and caregivers openly described the lack of priority they placed on dental care.

It's not that important. It takes too much time... I guess I'm just lazy. (Māori male, Wellington Region)

In these cases, the enforcement of pre-schoolers' oral hygiene was at best episodic.

Its not really part of the kids routine. They don't do it everyday. The older one will get the urge and do it himself. (Māori male, Wellington Region)

I tell my youngest [three years of age] to brush his teeth and he says nah. The only time he does it is when he's in the shower with me, which isn't very often. He brushes maybe once a week. (Māori female, Wellington Region)

In the majority of these situations, the responsibility for oral health care was placed on the child and the parent and caregiver only intervened when there was an overt hygiene infraction, such as offensive breath. Supervision at best entailed the parent and caregiver telling the child to brush their teeth. This occurred from approximately two years of age and generally did not involve in-person supervision or assistance. This limited understanding of supervision reflects participants' quiz responses to the question five (35% incorrectly answering this question) and provides an indication for

the need to showcase how parents can best actively supervise their children's oral hygiene regimes.

I make them brush when I'm aware of how bad their hygiene is, when their breath smells. (Māori female, Wellington Region)

When they smile and they have clean teeth then you know they are clean. (Pacifica female, Auckland)

c) Breastfeeding

Some participants reported a belief that there is no need to engage in pre-school oral health care when breastfeeding as the antibodies contained in the breast milk provide a sufficient level of protection. Of interest, and while there is a need to determine the prevalence of this belief, only Māori and Pacifica raised breast milk antibodies as a form of oral hygiene protection.

I don't need to worry about cleaning his teeth if I am breastfeeding. (Māori female Christchurch)

d) The enjoyment discourse

Dental care was generally described as the sole responsibility of parents and caregivers and was not viewed as the responsibility of the wider family.

My niece, well she is only one year's old. I'm only the aunty. It's not my problem. (Māori female, Wellington Region)

In this sense the non-guardians were positioned as "enjoying" the younger children, often to the detriment of dietary and oral health routines. Parents and caregivers expressed frustration, anger and often powerless when grandparents and other family members abandoned oral health and dietary routines. This tension was most commonly discussed in reference to grandparents and ex-partners but also arose in respect to family caregivers who effectively encouraged poor dietary practices in the spirit of fun and / or reward.

It's not my job to teach my mokopuna to brush their teeth. That is your job. My job is to enjoy my mokopuna. (Māori male, Whangārei)

My father is one of those grandparents that give the kids what they want. If they want a fizzy drink he gives them one... Black current drinks... you know all the things they aren't allowed at home. When I've raised it with him it's like, "Well it's not my kid. I'm the grandparent". (Māori female, Gisborne)

He is like, "I can give these kids back to you at the end of the day. Let me enjoy them. When you were kids I had no choice; we didn't have any money. Now I can treat them well." (Māori female, Gisborne)

I am a single mum. I have a cousin who looks after my daughter on the weekends. I know for a fact that she doesn't brush her teeth like I brush her teeth. But what can I do. . ? I hope the week's routine has the best impact. "Did you brush your teeth?" and she goes, "No, yeah Aunty naughty aye?" (Pacifica female, Auckland)

Familial non-adherence led to a number of extreme oral health issues, resulting in tooth extraction and dental problems in adolescence.

His grandparents were giving him lollies and Ribena sippy drinks from McDonald's... and there were those fizz lollies... But the thing is, by the time I realised five of his teeth had become rotten and needed to be pulled out. (Māori female, Whangārei)

Further, the disruption to the oral health and dietary routine resulted in stress for parents and caregivers as reinstating routine was generally met with the child's resistance. While the level of stress differed by location and ethnicity it is of interest that Māori focus group participants in Whangārei and Gisborne stated that wider family members' non-adherence to established routines created an extremely high level of frustration for them (median of 8 on a 10-point frustration scale, where 1 indicates no frustration and 10 represents extreme frustration).

I give them a 10 out of 10, it like a losing battle with them. I can honestly say that parenting is amazing without them [grandparents]. (Māori female Whangārei)

My children's grandparents have juice for the kids. It's great that they look like the good guys but every time the kids come back it is a real battle... (Māori female, Gisborne)

"But Nana gives me juice!" And then there is a tantrum. (Māori female Gisborne)

The majority of participants had either unsuccessfully challenged the family members in question or were confused about the best strategies to employ. The majority of respondents, and especially Māori, stressed that they found it extremely difficult to raise the issue with their parents as previous experience had resulted in no changed behaviour.

It's your parents. What can you say? You know how hard it is to raise issues with our old ones. (Māori male, Whangārei)

When I raised it with my dad he goes, "This is my house. I have lived to 80 years and I can do what I like in my house [laughter]". (Māori female, Whangārei)

My parents just ignored everything I said, "When it comes to Nana and Poppa you don't get a say." [All in the group laugh and agree]. So instead of making a big deal out of it, it is scrub, scrub, scrub as soon as she comes home. (Māori male, Whangārei)

One participant had successfully established boundaries with the wider whānau but this had resulted in a strained relationship.

I said to my parents and my husband's parents, "If you have my children then you have my children will my rules. These are my values and if you don't agree you can see them for five minutes only." The grandparents don't like it but they are on board now. (Māori female, Gisborne)

e) Lack of knowledge

Aside from belief systems and attitudes that underpin the degree of focus placed on oral health care, the low priority afforded pre-school oral health care was attributed to a lack of knowledge.

I had a lack of information when I was young. I was 21 and I couldn't afford powdered milk and I was told that if you can't afford milk powder put one teaspoon of condensed milk in bottle and fill it up with water. So I did this. At the

same time I was giving her lollies. Like if she cried continuously I would go, here you go and give her a lolly. Or I would give her a bottle of fizzy, it was always easier to give what is not healthy and sweets at the age. But then, by the age of five she had to have her two front teeth removed. I thought the best way to love my baby is by giving. (Pacifica female, Auckland)

Health promotion opportunity

19. Opportunities exist to combat various myths that preclude parents and caregivers prioritising pre-school oral health care.
20. Develop targeted messages for external social network partners to ensure all parties understand the importance of pre-school oral health, the continuation of dental health, that oral health is the responsibility of all whānau members and the essential role of diet in maintaining oral health. In particular:

- Family members understanding the consequences of poor diet and oral health

Grandparents need to know what spoiling someone rotten really means. If they understand that then they might be less likely to give the kids terrible sugary drinks and food. (Māori female, Gisborne)

- Provide family members with alternative gift ideas (rather than sugar based products)

If you want to spoil my children then buy them a board game. (Māori female Whangārei)

Difficulties accessing pre-school oral health services

Pre-schoolers' early access and sustained engagement in oral health services was reportedly compromised by a series of systemic inconsistencies, a low level of awareness of Ministry of Health recommendations and physical difficulties accessing services.

a) Enrolment

In the majority of focus groups, participants there was mixed levels of awareness about the Ministry of Health's recommendation for a child to be enrolled in a local Community Oral Service at birth. While the majority of Pacifica (92%) agreed, less than half of New Zealand European (42%) and only 41% of Māori were aware.

I never knew that a child had to see someone before school. (New Zealand European, female, Wellington Region)

While a large proportion of participants had no knowledge of the recommended enrolment age, other participants had received conflicting messages from health professionals. Specifically, age requirements for the child's first appointment and follow-up appointment timeframes. Confusion over the process was discussed on many levels, for instance 10 (9%) participants reported having completed the Bee Healthy dental application approximately one and a half years ago but had not received any acknowledgement or notification. This created a degree of frustration as the parents were trying to adhere to Ministry of Health guidelines, but felt compromised by a lack of system responsiveness. In other situations, participants were confused about the role of Plunket, midwives and Tamariki Ora in enrolling

children. In some cases referrals were made immediately after the first home visit (resulting in parents and caregivers receiving appointment phone calls) however, in other situations none of the above agencies had an overt role and parents and caregivers had made appointments with Bee Healthy directly.

I didn't get called and I found info and rang/enrolled myself. Then my son got to nearly three and I followed up. (New Zealand European female, Wellington Region)

In the main, participants agreed that the process was confusing and resulted in children either missing their pre-school dental check or having their first appointment later than recommended.

Even the age they're supposed to go isn't clear, you're [to participant in the focus group] saying two years old but I didn't get the call until he was three. (Maori female, Christchurch)

I was told by Plunket not to enrol until my child was two years old. (New Zealand European, female, Wellington Region)

It's not easy to get information. Plunket said wait until she's two to enrol and I don't know where to go or what to do. I will look it up but if you're not a parent who's proactive then how do you find out this info? (New Zealand European female, Wellington Region)

Of those who were aware of the on-birth enrolment recommendation, their child's enrolment had been facilitated by a Plunket nurse, midwife or hauora service, having provided the guardian with an enrolment form and then submitted the form on the mother's behalf.

After my second child I got forms and was told to sign it. (Māori female, Gisborne)

I had been told to. I was involved with a Plunket group before I left. She [Plunket nurse] briefly mentioned it. (Māori female, Gisborne)

It was a good incentive for me when they send out stuff for free. (Māori female, Gisborne)

Of note, on few occasions had the enrolment occurred at birth and was more likely to have occurred around one year of age. Needless to say, the role of Plunket, midwives and hauora services assisting with the enrolment process was highly valued as it removed parental burden.

They refer you and then the people [dental professional] just ring... (New Zealand European female, Christchurch)

It's probably a good thing because if you enrol them early [babies] you will get the cues to know when to go. (Māori female, Gisborne)

For the remaining participants, enrolment had either occurred on an ad hoc basis or their child was yet to be enrolled.

b) Sustained engagement

While enrolment in an oral health care service was reported to have occurred randomly, participants also discussed challenges associated with sustained engagement with oral healthcare services. This was discussed on two levels. First,

transitory families and those who have had negative experiences with pre-school health agencies were identified as most likely to fall through the cracks and either miss out or respond to reminder notifications. Effectively, moving locations meant that the ability for oral health care providers to follow-up with pre-school children was difficult, if not impossible, if no forwarding information was provided. It was also unclear whether new addresses were communicated to the relevant district health board.

Reminder letters are easy to get lost. I have had kids who have moved from up North and they get lost. (Māori female, Christchurch)

At the second level, a number of participants found accessing oral health services difficult. Common across all discussions were waiting times, difficulties accessing oral health services, located away from day care facilities, and within prescribed hours.

My kids go to school in Newtown and I have to go across to another school to get to the dentist. So it's running around Wellington trying to find a dentist. And there's a waiting list. I had a two week wait when my daughter's teeth were sore, then they told her to come back in a couple of weeks. Then they put a filling in it, then after three hours I got told to go to the hospital. Three weeks is too long when they are in pain. (Māori female, Wellington Region)

I had a three-month wait up there (in Whangārei). In the end I had to take her to Kaitaia and then I had to go back. It's a long drive. (Māori, female, Wellington Region)

It's the wait time. He had a sore tooth and we had to wait a week. By then it impacted on the next tooth. When it's that sensitive he had to go to the bigger dentist. (Māori, female, Wellington Region)

Nah I had an appointment with mine [dental professional] last week and they didn't do anything he just needs to brush more. (Māori, female, Wellington Region)

It's not like back in the day when you had a dentist in every school. (Māori, female, Wellington Region)

Participants were asked how they thought enrolment and access to services could be improved. Suggestions included incorporating oral health enrolment and timeframes in the Plunket's Wellness book, the provision of fridge magnets, utilising the National Immunisation Database to ensure that all new borns are automatically enrolled in an oral health care service. Finally, participants stressed that any developed mechanism should not increase burden on parents and caregivers.

You get good info on food and immunisation et cetera in Plunket books. It would be good if there was something on teeth and what to use, when to go to dentist. Like the immunisation chart. (New Zealand European female, Wellington Region)

Most parents don't know that they need to register. They should link it to the child's NIH number. That way, if they move the reminders can follow them. (Māori female, Christchurch)

I am here as a mother and a grandmother, but I am also work in health promotion, and what we could do is place more emphasis on registering the pepe when they are new born, when they are zero. Often there isn't an emphasis because people think it isn't important because they [children] don't have any teeth. So next thing we know the registration form hasn't come in and the child gets enrolled really late. (Māori female, Far North)

Systems related opportunities

1. Review existing reminder mechanisms (such as the Wellness Book, National Immunisation Database) and to determine how dental enrolment and subsequent reminders can be best implemented without increasing burden on parents and caregivers .
2. Clarify and promote the age of children's first and subsequent oral health visits.
3. Review access related barriers and ways to reduce waiting times.

Advertising and a sense of exploitation

Specific applied oral health questions were included in the focus group quiz. Of the 107 focus group participants, the majority of participants had low levels of knowledge about when to start brushing their child's teeth and that low fluoridated toothpaste or junior toothpastes are not recommended (32% and 17% correctly answering each respective question). Similarly, the majority of participants did not know that they should not ask their child to rinse after brushing, a recommendation that countered participants' own childhood and current practices (36% answering the question correctly).

Fluoridated toothpastes and the recommendation of one toothpaste for the whole family created significant discussion and framed participants' confusion over which toothpastes they should purchase for their children.

Two areas of confusion arose in these discussions. First, participants were confused by the recommendation as they were able to buy baby milk toothpaste in supermarkets and they had received low fluoridated toothpaste from Plunket.

So why do they provide low fluoride toothpastes. That's what Plunket gives me. (Māori female, Far North)

It's in the supermarket so you assume that it's ok. (New Zealand European female, Wellington Region)

Why do they even sell it [baby toothpaste]? You see it so you trust it. (New Zealand European female, Wellington Region)

Why do they create them? If you aren't meant to use them then why do they create them. (Māori female, Far North)

Second, participants commonly described anger at having been captured by toothpaste marketing, assuming that child labelled toothpastes, by their very existence, were the most healthy options for their children. This was reinforced by some toothpastes that labelled their packaging with specific age bands.

You go down the biscuit isle and you think that it is marketing but you go down the toothpaste isle and you think it is somehow approved health. (New Zealand European, female, Christchurch)

I am feeling like a sucker. I also bought Macleans 'my first toothpaste'. (Māori female, Gisborne)

It is all about the bottom dollar and it is about making them money. They have Dora because it is pink and sparkly. It is targeted. They have all these different toothpastes from the same company but it is about them making money... (Māori female, Gisborne)

Control the marketing. We need something like, "This is good for the whole family... from toddler to 60". (Māori male, Gisborne)

Anger was also directed at health authorities as toothpastes were believed to be endorsed or approved by government. This level of anger generally arose in more rural, low income areas where families had made financial sacrifices to be able to purchase child branded toothpastes because they felt that they were led to believe that the toothpaste were specially formulated for their children's well being. The following excerpt, while echoing many participants' views, should be read in the context of a grandmother raising three children on an income of approximately \$18,000 per annum.

To me it's not fair that government allows that to happen. Why would the government allow us to spend the little money we have on products that aren't recommended for us? That's just not on. We aren't told the right information. You just get everything that you see. Everything is great packaging with smiley little babies on the labels. (Māori grandmother, Far North)

Health promotion opportunity

Clarify which toothpastes meet the Ministry of Health recommendations and promote accordingly.

Review current toothpaste advertising and ensure that it meets legal requirements and safe guards consumer rights.

Product-related barriers

A number of product related barriers were identified. These included toothpaste aversions, the unaffordability of toothpastes and a lack of assurance that the cheaper options provide an appropriate level of care for the whānau.

a) Taste – leading to an aversion to toothpaste

Participants were generally surprised to learn of the Ministry of Health's recommendation that families have one toothpaste for the whole family. For many participants, however, purchasing one toothpaste was problematic as between ten and 15 per cent of participants reported having a child with an aversion to mint / spicy flavoured toothpastes, resulting in a refusal to use adult toothpastes which were reported to be primarily mint flavoured.

My three year old doesn't like mint anything. There are very few toothpastes without mint. There are ones for young kids with milk teeth. I have spent hours looking for one. Even the bubble gums ones have a slightly mint taste. (New Zealand European female, Wellington Region)

When it is too hot and really strong and he won't brush his teeth (Māori female, Gisborne)

My children don't like any of the adult toothpastes. They find it too spicy. If I make them use the adult toothpaste they refuse to brush their teeth. (Māori female, Gisborne)

Because of difficulties finding adult toothpastes that children would use many parents and caregivers had opted for children's toothpastes. However, for those on limited budgets purchasing children's toothpastes was cost prohibitive and children were encouraged to brush only (without toothpaste).

I know you are meant to use normal toothpaste on kids. . But my daughter hates adult toothpaste. So I bought her Dora, she is a girly girl. I did it just to get her brushing. (Māori female, Gisborne)

I don't buy the children's toothpaste because it is low fluoride I buy it because it is not as strong. (Māori female, Whangārei)

She hates toothpaste. It's the taste. She hates it. It is too hot for her so I don't give her toothpaste I just give her the toothbrush. (Māori female, Far North)

Health promotion opportunity

1. Actively promote the Ministry of Health's recommendation that one fluoridated toothpaste can be used for the whole family.
2. Support the development of an affordable, fluoridated taste-neutral toothpaste that can be used for the whole family

b) Affordability

Participants were questioned whether the costs associated with oral hygiene were a barrier to pre-school oral health. Understandably, participants were divided according to household income whereas those with a household income of approximately \$80,000 or more, stated that purchasing toothpaste was not cost prohibitive. In contrast, people on low incomes, and especially those with multiple children, described toothpastes as expensive. This was particularly the case for those who assumed children's toothpastes were better for their children and beneficiaries. Both groups communicated anger and dismay at learning that children's toothpastes are not a requirement.

The biggest barrier that I have, because I'm on the Benefit, is how far does the money go. I categorise things as: "That's really important" and "That is important but maybe next week". It all goes on the list but if it doesn't make it on the top 10 then I just don't buy it. And that is why I am really hoha to find out here about children's toothpaste. Believing I am doing the best for my children and then I find out that it is a waste of money. Because toothpaste is not cheap. So now it's

like, "Well that was a waste of money. I could have used that money for something important". (Māori grandmother, Far North)

Importantly, while cost was a pivotal issue for those on low household incomes, there was a general lack of understanding about whether cheaper toothpastes are as effective as more expensive brands. Importantly, because of a distrust of cheaper options, some participants had opted for the more expensive alternatives, despite this resulting in a financial burden.

I wouldn't trust the one dollar brand for fluoride... (Pacifica female, Whangārei)

I always buy the cheap toothpaste but don't know whether I'm buying the good stuff. Whether or not it's good enough for their teeth. Or if I buy the expensive stuff is it doing what the cheap stuff does. If you go and buy bread you know the budget bread is the same as the expensive stuff but the toothpaste has things like longer cavity protection or three colours or calcium. It's confusing to know what is good. (Pacifica female, Wellington Region)

I started using Colgate, at once stage it got expensive so went the other way and got cheap stuff, but not knowing if they are as good. (Pacifica female, Wellington Region)

For the majority of participants, and particularly those on lower incomes, toothbrushes were reportedly affordable due to the relative ease of buying cheap brushes in bulk.

At Pak'nSAVE they have two packs for five dollars so it's not really an issue. (Pacifica female, Wellington Region)

Rather than the cost of toothbrushes per se pressure from children requesting particular toothbrushes, such as Spiderman, created some concern about cost. In these instances, parents and caregivers described wanting to reinforce children's desire to brush but were compromised by the cost.

You can get a \$20 princess brush, but you can buy one for a dollar at Pak'nSAVE. (New Zealand European female, Wellington Region)

It's no problem 'cause I buy the cheaper stuff. It becomes a problem when the kids want an electric toothbrush. (Pacifica female, Wellington Region)

No problem with cost but once they see something new they want it, so I say what would Jesus do, they all say they like Dora. They [marketing companies] put them at eye level for the kids. She likes brushing if she had a Dora one, now it's Frozen. (Pacifica female, Wellington Region)

It is an issue when they want the ones with the toys. It's marketing. (Māori, female, Wellington Region)

Product Related Questions

1. Are cheaper toothpastes as effective as more expensive options?
2. What type of toothbrush are best to use?
3. If hard toothbrushes are not recommended then why are they sold?

Health promotion opportunity

Opportunities exist for promotion of toothpaste effectiveness and the degree to which products

meet approved standards.

Diet and affordability of healthy options

Common across all focus groups, participants stressed that pre-school oral hygiene should be viewed in association with diet. Essentially, diet and oral hygiene are so closely related that any oral hygiene campaign should either run concurrently with sugar free / healthy eating or that the two issues should be presented simultaneously.

The close link between diet and oral hygiene was especially relevant to those with limited income. On one level those living in poorer households reported having few options but to purchase affordable foods which generally equated to foods with exceptionally high sugar and fat content.

You can go to a supermarket and fruit and veges are really expensive... you can buy a packet of chips for a dollar but not a bag of apples. Most green things are very expensive. (Māori female, Christchurch)

It is much cheaper to eat unhealthy. (Māori female, Christchurch)

Across each of the groups, the unaffordability of milk in comparison to products such as soda raised considerable consternation. The price difference was viewed as an anathema although participants also realised that their purchasing behaviour had been caught in a cycle of need over healthy choices.

Pak'nSAVE had a big sale on at the moment, nine cents for a bottle of 1.5 fizzy. (Māori female, Christchurch)

Even without the normal sales 1.5 litre of fizzy drink is cheaper than milk. (Māori male, Far North)

On a second level, participants in each focus group took issue with supermarket product placement; products positioned to entice children and adult buyers to choose unhealthy / high sugar options.

You walk into New World and in the last aisle are the lollies and fizzy drinks... just one big aisle of crap... (New Zealand European female, Christchurch)

Finally, discussions by a group of participants' indicated entrenched poverty whereby the interrelationship of diet and oral health was inextricably linked. This was most commonly raised in reference to ways to satiate children's hunger through the use of sweets, as the most affordable option.

Families give their kids \$2 because they can't afford food. With \$2 the kids can go to the supermarket and they can get a litre of fizzy for 99 cents and still have a dollar left over to buy lollies... it takes away the hunger and tides them over. (Māori female, Gisborne)

Health promotion opportunity

Diet and oral hygiene are intricately interwoven and any pre-school oral health campaign needs include diet as a primary feature.

Dental professionals' training and interpersonal behaviour

The importance of pre-school children having positive experiences when interacting with dental professionals was raised in approximately half of the focus groups. Essentially, participants acknowledged that positive experiences would facilitate the child engaging with oral health services in the near future and would increase the likelihood of good oral health and engagement in adulthood.

It is important that our moko have good experiences so that they want to go back. (Māori female, Far North)

They [dental professionals] need to make it comfortable for the kids. (Māori female Christchurch)

Their first experience needs to be perfect. (New Zealand European female, Wellington Region)

While all participants had recollections of negative childhood dental experiences, for instance commonly referring to the dental nurse as residing in the “Murder House”, it was with concern that some dental professionals were reported to lack either interpersonal awareness or age appropriate interpersonal skills when dealing with pre-school children. Examples included not making the child comfortable, scaring and failing to engage the child by insisting they open their mouth and failing to understand that wearing dental masks can frighten and intimidate children.

I hate the dentist. It's really hard not to project that on to my son. I think if you have your own fears you can't project them. And it depends on the nurse. She greeted him with her mask on and that was a bit scary. (New Zealand European female, Wellington Region)

The dentists, as a profession, have no people skills. When you go to a dentist you sit in a seat, lay back and open your mouth. They are just in and do their thing. (Māori female, Gisborne)

I ask for females because I find they are not as ruthless as males. (Māori female, Gisborne)

You are not going to get a two-year-old to voluntarily open your mouth when they [the dentist] has a mask and is holding a scary instrument. (Māori female, Gisborne)

It is acknowledged, in the main, many participants had positive experiences with dental professionals, even if the visits were not seen as overly successful by the parent and caregiver.

In Johnsonville there was parking and a nice building and nurse was good. I just have no idea when to go again. I may have been told but I don't remember. (New Zealand European female, Wellington Region)

I took my two-year-old and she wouldn't open her mouth so that was a waste of time but the dentist said it was more about getting them used to going to the dentist. (New Zealand European female, Wellington Region)

I think, for the majority of kids, it is about just getting used to it but I work with kids in a day care centre who have terrible teeth so they do need the pre school checks. (New Zealand European female, Wellington Region)

Health promotion opportunity

Ensure dental professionals have a proven in-depth understanding of how to interact with pre-

school children.

Behavioural issues

Children's age was directly linked to either ease or difficulty participants encountered in attempting to engage children in oral health routines. Child development discussions naturally developed from participants being asked to rate how difficult it was to engage their child in oral health practices, at each age, on a scale (where 1 represents "No problems with brushing and oral care" and 10 represented "Extreme resistance, tantrums and refusal"). Framing the discussion according to chronology elicited a rich array of information specific to each age group (see Table 10 for median responses for each year).

Table 10: Difficulty Associated with Child Engaging in Brushing by Age. Median Responses

Age	Median
1 year	2
2 years	6.5
3 years	3
4 years	2

a) One year of age

Few difficulties were encountered around one year's of age (a median of 2 on a 10-point scale).

A low level of resistance was traced to parents' and caregivers' giving less emphasis to actual brushing the child's teeth and more emphasis placed on early and non-pressured exposure to toothbrushes. This process was facilitated by a children being encouraged to become familiar with toothbrushes, such as using the toothbrushes as a form of play. In addition, participants across all focus groups, discussed the importance of reinforcement through singing to the child while brushing teeth. As such, those who encountered little resistance often described the experience as "fun" or as a "novelty".

At one [year] my kids thought it was fun brushing their teeth. It was a bit of a novelty. (New Zealand European, female, Wellington Region)

At one they just want to play. A good way is to play around with them and play along. They end up doing it anyway. (Pacifica female, Wellington Region)

The babies, we make it a big deal by singing and making it fun. (Māori female, Whangārei)

We didn't have dramas. We made every experience about being fun. (Māori, female, Whangārei)

I had no problems with my kids. I just made it [toothbrushing] more fun for them. When they see that its fun then it becomes part of a routine for them. (Pacifica female, Wellington Region)

Engaging in oral health routines was also traced to the importance of the child's exposure to those who modelled oral health behaviours and routines, namely parents and caregivers and older siblings. Of interest, while parents and caregivers modelling requisite behaviours was viewed as invaluable, participants unanimously agreed that the one year old's willingness to attempt to brush was greatly reinforced when older siblings were engaged in oral health care routines.

Because I enjoy brushing my teeth and she watches. (Māori female, Whangārei)

Culture for me... even in the toothbrush it is tēina tuākana . . my older ones are in with the youngest ones. (Māori female, Gisborne)

Siblings can help the younger ones see them and they become their role models. (Māori female, Wellington Region)

It's the preparation... it's kind of like, we are going to buy a new toothbrushes... I have four children and the youngest one sees the other two. So there is an empowerment process at one. So there is an ability to point to the toothbrush and toothpaste. (Māori female, Whangārei)

In the main, participants communicated a lack of certainty about the importance of actual brushing at this stage versus a focus on making sure the child is exposed and familiar to the idea of brushing. In this regard, many participants indicated that the Ministry of Health's recommendation (Start brushing baby's teeth as soon as they appear through the gums, usually around six months of age) would negate efforts to make oral health nonthreatening and fun.

Lack of resonance with the recommendation also inspired discussions amongst Maori and Pacifica about the invasiveness of a foreign object (toothbrush) being placed in a young child's mouth whereas some Maori and Pacifica stated a preference for flannels or cloths to gently clean the child's teeth and gums. This practice was however, noted as being excluded from the Ministry's guidelines and led to some level of confusion.

And I think it does hurt when you brush for them. You're building trust and then causing pain. (New Zealand European female, Wellington)

He was difficult with his mouth shut and moving his head. So we would restrain him too and he would scream so that made it easier 'cause at least his mouth was open – I think it was 'cause he didn't like the feeling of someone else brushing. He brushed ours once and it wasn't nice at all and I think sometimes we were quite rough. (New Zealand European female, Wellington)

b) Two years of age

By two years of age participants commonly described an increase in difficulties associated with getting their child to engage with oral health care (from a median of 2 to 6.5). These difficulties were most commonly attributed to the child's increased desire for independence, having reached the 'Terrible Twos'. In other situations the child was described as easily distracted.

They put their foot down, throw themselves on the ground and have a tanti [tantrum]. (New Zealand European female, Wellington Region)

Kids trying to get independence, they want to do it themselves and they do a really bad job and I would try and help but at that age they want to do things

themselves. They wont let you get in there and help them. Even if you show them with your own teeth. (Pacifica female, Wellington Region)

Reminding and telling them... They know how to brush their teeth but they want to go to school "Now!" Or it is about them being distracted or wanting to do other things. (Māori female, Whangārei)

The Terrible Twos. They just don't want to do it because they want to have control. (New Zealand European female, Wellington Region)

It was a mixture of control and stubbornness but you still have to step in and do it for them. She just hated me stepping in [laughter]. (New Zealand European female, Wellington Region)

Parents and caregivers found the two-year-old behavioural issues, including being easily distracted, challenging and often stressful and teeth brushing was often sacrificed so the family could meet time commitments, such as taking the child(ren) to day care and kōhanga. While understandable, some participants noted that this break in routine had a detrimental effect as it could reinforce resistance whereas other parents opted for making sure their children only brush their teeth before going to bed at night.

She gets so side tracked in the morning. She wakes up late and she starts day care at nine so if she doesn't want to brush her teeth then I don't make her. (Māori female, Gisborne)

They know the routine but just getting them in the bathroom and brushing their teeth before school can be hard because they want to play or do other things. (Māori female, Whangārei)

As soon as they are mobile and have an opinion it can mean a tantrum. So if you need to head out the door, like going to kindy, then you need to miss it [brushing their teeth]. (New Zealand European female, Wellington Region)

On the whole evening brushing was found to be easier to enforce as it was a more relaxed routine and there was time to ensure that children brushed before bed. However for some, evening routines were reported as problematic as by two years of age children were acutely aware that brushing was followed by having to go to bed, a sequence of events that led to some degree of opposition and bartering.

At night-time it was a bit of a problem getting her into the bathroom to brush her teeth because she knew that it would be straight to bed afterwards. (New Zealand European female, Christchurch)

It was also at two-years of age that some children were identified with learning needs. Learning needs compounded behavioural difficulties characteristic of the age, as the children in question were not able to appropriately communicate their wishes. Difficulty communicating resulted in the children experiencing a high degree of frustration which made brushing challenging.

The language barrier. My daughter was premature and so it was a nightmare. She couldn't communicate. (New Zealand European female, Wellington Region)

Mine also has a language barrier and she gets frustrated. They get it [understand] with age. I had to work with a lot of developmental teams. I was seeing a speech therapist. I would have pictures on the wall and she would point to what she wanted. (New Zealand European female, Wellington Region)

Participants shared a number of oral health engagement strategies. In the main, many of these strategies are a continuation of the techniques used with younger

children. Notably, the use of incentives and strict boundary setting are new to the discussion.

Table 11: Strategies to Combating Brushing Resistance

Strategies	Context
Adherence to routine	<p><i>Keeping the routine. . . so it is preventive. (Maori female, Whangārei)</i></p> <p><i>It's part of bedtime routine. We are too busy in the morning so we do it at night. That way it happens at least once a day. (Māori female, Wellington Region)</i></p>
Role modelling	<p><i>I brush my teeth with her. (Pacifica female, Whangārei)</i></p> <p><i>Brushing your teeth yourself shows them that this is what they have to do... (Pacifica female, Whangārei)</i></p> <p><i>We brush our teeth together. (Māori female, Wellington Region)</i></p>
Provision of rewards for tooth brushing. Rewards included star charts, the child being allowed to select a preferred toothbrush and verbal reinforcement	<p><i>I made her a sticker chart. One of the goals on there is "brush my teeth." She loves to brush her teeth when she gets a sticker. (New Zealand European female, Christchurch)</i></p> <p><i>She likes a reward. (New Zealand European female, Wellington Region)</i></p>
Making brushing teeth fun. This was generally achieved through singing	<p><i>Singing and brushing, making up a song. (Make it fun) distract them from what they are doing. (Pacifica female, Wellington Region)</i></p> <p><i>When she was one I would sing to her when I was toilet training her. It relaxed her. I would do the same was around 1, I would start singing to her when she brushed. (Māori female, Wellington Region)</i></p>
Incentives differed from rewards outlined above in that the selection of a preferred toothbrush occurred to encourage brushing	<p><i>I let them pick their toothbrushes. (New Zealand European female, Christchurch)</i></p> <p><i>Even their toothpaste. There is a little bit of a selection for the younger kids. (Pacifica female, Whangārei)</i></p>
A variety of boundary setting behaviours. This strategy raised some concern and is discussed below.	<p><i>I just told her off, held her down and did it myself. (Pacifica female, Auckland)</i></p> <p><i>I held her down and forced him to do. (Pacifica female, Whangārei)</i></p> <p><i>We put him in a headlock. Praise and all that doesn't work so we just have to battle. (New Zealand European female, Wellington)</i></p>

Of concern, approximately 20% of parents and caregivers reported having forcibly brushed their child's teeth. Importantly, accounts of forcing children ranged from the ages of one to four.

My girl is two. I make her. I hold her down and force her. I scrap her tongue [laughter] but, like I said, she will appreciate it when she is older. (Pacifica female, Auckland)

I do it myself. Because if don't do it myself she won't have clean teeth. I have to force her because when I put the toothbrush in her mouth she will take it out and chuck it. (Pacifica female, Auckland)

She doesn't like brushing like her teeth and I have to force her... (Pacifica female, Whangārei)

He was resistant and I had to make him. (Māori female, Whangārei)

These accounts raise a number of health promotion opportunities. First, in hindsight a number of participants regretted forcing their children to brush as it had resulted in the children developing an aversion to toothbrushes and oral health care in general.

My daughter would not open her mouth. We bought the sparkling toothpaste, the fairy toothpaste but it didn't help. And then we began to force it. I really regret it. Every time I would hold the toothbrush she would run. Because we run a busy lives, we need to get out the door so in the end it just didn't happen. It was really difficult until I bought her the princess electric toothbrush. She loves that and we haven't had a problem since. (Māori female, Whangārei)

Next, there is an opportunity to explore appropriate behavioural intervention techniques that could assist parents and caregivers with their child's oral health routine. Participants who had regretted forcibly holding their child down to brush their teeth suggested the need for the promotion of positive reinforcement techniques.

You don't want to burst their bubble, you can tell them off too much. Like you don't want them to have a bad experience but it's a mess in the bathroom after. You clean it up and give them a star for trying even if they get the toothpaste somewhere else on their body. It's about encouraging them to do it even if its not perfect. (Pacifica female, Wellington Region)

c) Three years of age

At three years of age the majority of the children's resistance to brushing their teeth had decreased. For many children oral hygiene had become a part of their daily routine.

By three it was part of their routine, if they didn't do it then they'd say, "Mum we haven't brushed our teeth". (Māori female, Wellington Region)

For the remaining participants, the decreased rating was associated with a general adherence characterised by episodes of resistance (the median drama response falling slightly from a median of 6.5 to 3). In this sense, many of the children were regarded as reflecting "terrible twos" behaviour. Further, 20 children were reported to have become totally resistant to brushing because of an aversion to mint flavoured toothpaste.

I knew enough to say they didn't like mint. I told him to suck it up. But he was really resistant and is still. (New Zealand European female, Wellington Region)

In the main, however, parents and caregivers attributed problems associated with brushing were to a combination of 'laziness', 'a lack of interest' and a desire for independence. While a sense of independence was viewed positively, independent children often lacked the knowledge and dexterity to brush their back teeth and parents' and caregivers' attempts to encourage back brushing were generally met with a combination of stubbornness or impertinence.

When he was three, he was still wanting to do it himself, but he was less likely to have a tantrum if I tried to help. (New Zealand European female, Wellington Region)

At three he was just lazy and I would really need to encourage or bribe him. (New Zealand European female, Wellington Region)

She was wanting to do it herself. She wanted to be independent. She would get really frustrated when I explained that she needed to do her back teeth as well. (New Zealand European female, Wellington Region)

Compliance strategies were again discussed for the age group. Participants viewed the use of a Macleans Nurdle Time tooth brushing app as the most successful behavioural modification technique. A number of children who had been extremely resistant to brushing were now happily engaged in a twice-daily brushing routines.

It was all about her doing it all by herself. She felt independent and she would even choose her toothbrush. (New Zealand European female, Wellington Region)

Mine was excited because of the app. (New Zealand European female, Wellington Region)

In addition, one participant related that when her three year old saw his older sibling's milk teeth fall out he became dedicated to brushing. Finally, all participants agreed that positive reinforcement and role modelling was important.

My boy is three now. My husband gets up in the morning to go to work so he copies dad. Dad washes teeth and has a shower and he watches dad. (New Zealand European female, Wellington Region)

d) Four years of age

At four years of age the majority of the children's resistance to brushing their teeth had decreased (the median had fallen from 6 to 3 on a 10-point scale). Rather than direct opposition to brushing, participants related that the difficulties associated with brushing were related to fatigue and distraction.

There is not a problem every time he brushes. You can have a good week and then next week there is a problem. There were also other factors... like being tired or sick. (New Zealand European female, Wellington Region)

While morning brushing was reported as having generally become an entrenched behaviour, evening brushing routines were often not adhered to because of the child's fatigue.

At night-time she doesn't want to [brush her teeth]. She will just climb straight into her bed. In the mornings she is not too fussed. She just does it. (New Zealand European female, Wellington Region)

Before bed, if they are overtired, they are resistant. (New Zealand European female, Wellington Region)

Problems with some children being easily distracted was also identified as a barrier. This was especially discussed in relation to children with learning disabilities.

I think with my kids they're just forgetful. They know what to do. They just forget. You ask them if they have brushed and they're like, "Nah". (Māori female, Whangārei)

She doesn't focus. She has a bit of a learning disability and she gets distracted. Some days are worse than others. It is about making the time to make her focus. But it's often hard. (New Zealand European female, Wellington Region)

The most common barrier, however, were reports of not having sufficient time in the mornings to ensure the child(ren) have brushed their teeth. Similar to reports from parents at age two, participants commonly discussed difficulties managing home and work commitments, within which dental hygiene was often sacrificed. Again it was common for participants to report ensuring that children's teeth are brushed in the evening only.

For us its time and you're trying to get them leave so if its not a priority like getting dressed and having breakfast then it doesn't happen. (New Zealand European female, Wellington Region)

They don't do it on purpose (forget to brush their teeth) it's just the rush. It just gets lost in the busyness of the morning. The evenings are better you have a routine and its more in the routine – dinner, bit of TV, brush before bed. (Māori female, Whangārei)

Everyone is more relaxed (in the evenings). They have their shower and brush then. Mornings are the hardest. It's just the morning rush. (Māori female, Wellington Region)

While parents and caregivers reported engaging in positive reinforcement, compliance was achieved through the implementation of routines.

Having routines has helped. She has a list of things she has to do and she gets a reward when she has finished her list. (New Zealand European female, Wellington Region)

In addition, participants described being able to explain the importance of brushing to their four year olds.

I didn't find it too much of a problem because I have bad teeth and I explained what they need to do to not have teeth like mine. (New Zealand European female, Wellington Region)

By four there were no problems. They're a bit older and they can talk more and you can negotiate. By then they have it sussed and are going to kindy and they know they get up in the morning, have a shower, brush their teeth and have breakfast. (Māori female, Wellington Region)

Health promotion opportunity

Opportunities exist to:

- highlight children's developmental needs against their capabilities.
- clarify oral health expectations against what is developmentally appropriate.
- clarify to what extent is it necessary to brush a child's teeth who is one year old and under?
- promote behavioural intervention strategies to reinforce toothbrushing (and avoid forcing children).



4.3 Information Sources

Participants appeared to be split into two primary groups in terms of where they learnt about pre-school oral health. Those who scored highly in terms of the pre-school oral health quiz indicated a high locus of control which was directly linked to a high level of motivation to actively access oral health information. Further, this group of participants indicated that their extensive social networks played an important role in accessing information. These networks included regular engagement with adult dental services, a network of parents from whom they shared information, a close and positive relationship with Plunket, a midwife or other health related service and they were more likely to have older children who enrolled in either kōhanga, kindergarten or school. Effectively, these networks indicated a high level of social cohesiveness which afforded opportunities to receive and share up-to-date information.

In the short-term, participants with a high degree of social cohesiveness, reported that Plunket or their midwife was their primary source of pre-school oral health information. In the Far North Tamaraki Ora were cited as playing an integral role for Māori. In the longer-term, this groups' friends and social network was cited as the primary information source.

Those who tended to score poorly on the pre-school oral health quiz contrasted the first group on most dimensions. Effectively, this meant a lack of social networks and especially a dearth of networks where the sharing of parenting information was common. In addition, this group tended to be younger than the first, with many of the those who scored poorly reporting: an approximate of 20-years or younger, household incomes well below the national average, little limited understanding of diet and dental care and a low motivation to seek out information. Linked to the lack of health-related knowledge were reports of distrust or a minimisation of health recommendations, being more likely to take advice from a trusted individual.

It is too early don't worry about it [enrolling child at birth] because they don't have teeth. (Māori female, Christchurch)

I don't believe a lot of the things [health promotion messages] they put out there. Like the flu vaccine. . we did not have that when we were younger. I just don't believe it... (Kaumātua, Far North)

There were also some indications that, because of a lack of trust in state interventions, participants were reticence to share personal information with authorities.

When people have babies they get inundated with forms. Some of the people are sceptical and don't want people knowing their business. (Māori female, Gisborne)

There is mistrust because they might get the kids taken off them. So there is a cultural aspect, a lack of understanding, that is missing when engaging with families. (Māori female, Gisborne)

A number of indications of a lower locus of control were also identified and manifested in a likelihood to not access an oral health services and a lack of interest in securing the most up-to-date information available on parenting.

You get all this information from Plunket... but you don't want to read that stuff. (Māori female, Gisborne)

Many also reported feeling overwhelmed when provided with print information and administrative requirements following the birth of their child.

Every time they visit you get so much information. When they are born you get wads of stuff. Sometimes it gets lost in translation. (Māori female, Gisborne)

You get chucked this paperwork but not explained how to use it. (Māori female, Gisborne)

The midwife, Waipareia and hospital. They have all the same information. (Māori female, Gisborne)

I get sick of filling out forms. I got a letter in the mail [from a dental professional] to bring the children in for a visit. (Māori female, Gisborne)

Finally, a number of participants in question reported having had negative experiences with infant / child related healthcare organisations.

I don't think some of them care... here's a form. The Turanga Health nurse was passionate about hauora. Every pamphlet there was a huge whakapapa. (Māori female, Gisborne)

It's about culture... you get staff who just want to be paid and are not passionate. If you pay people peanuts and then they only deliver peanuts to our people. It is not their priority. (Māori female, Gisborne)

I never got forms. I didn't know anything about enrolling baby for teeth and that. I had no information. No nothing. My Plunket nurse was useless. (Māori female, Gisborne)

Health promotion opportunity

Opportunities exist to design health promotion campaigns to account for those with low levels of social cohesiveness and low locus of control.

5 CONCLUSION

The combination of an on-line survey and focus group data complement precious findings and provides an evidence base to guide new pre-school oral health initiatives and campaigns.

Survey responses and the focus group findings often diverged. In part the divergence may be attributed to efforts made in the fieldwork to access often marginalised populations so their experiences could be included in the study. Similarities were however found on some issues.

Survey respondents and focus group participants shared a common confusion over what age a child should start brushing. Next, there was a low level of knowledge about what toothpaste to use with only 19% of survey respondents' children using fluoridated toothpaste and nearly a quarter (23%) of children using baby milk toothpaste. This is contrary to Ministry of Health recommendations. The confusion could be driven by packaging information with 58% of respondents choosing their child's toothpaste based on a brand they trust and 49% choosing a toothpaste that matched their child's age. The attitude question also indicates that there was a high level of confusion about what type of toothpaste is appropriate for their pre-school child, with 60% of respondents agreeing that it is important to use age appropriate toothpaste. Similar levels of confusion were reported in the focus groups. Participants reported that they had purposely chosen child's toothpaste because of marketed age bands, and that they had been led to believe that child branded toothpastes were specially formulated for their children's well being. Importantly, between ten and 15% of focus group participants reported having chosen a child's toothpaste because their child had an aversion to mint / spicy flavoured toothpastes. This led to a refusal to use adult toothpastes that were reported to be primarily mint flavoured.

While findings from the survey indicated a promising level of oral hygiene practice amongst pre-school child dental health the qualitative findings indicate that some of the survey responses should be treated with caution. For instance, while four out of five children were reported to have started brushing under the age of one year old (77%) the focus group findings indicate that 'brushing' may have been misinterpreted by survey respondents as the majority of focus group participants stressed that at one year old priority was given to exposing children to items such as toothbrushes and making sure 'brushing' was fun rather than effective. In this sense, while a toothbrush may have been used there was little priority placed on brushing per se. The degree to which brushing actually occurs warrants future exploration.

Though different COHS enrolment questions were asked of survey and focus group participants, there is a strong indication that the two populations had different experiences. For instance, the majority of survey respondents' children were reportedly enrolled (83%) in a COHS and 10% stated that they did not know. In contrast, focus group participants reported mixed levels of awareness about the Ministry of Health recommendation for a child to be enrolled in a local COHS at birth. While the majority of Pacifica (92%) indicated awareness just under half of New Zealand European (42%) and 41% of Māori were aware of this recommendation.

Common between the survey and focus group participants was confusion and a lack of knowledge about when children should have their first and subsequent dental visits. According to Ministry of Health guidelines, children from low decile areas, Māori, Pacifica and new migrant children should have their first visit by one year of age with all other demographic groups having a dental visit before three years of age. Findings from the survey however indicate a level of confusion with 21% of respondents selecting less than one year of age, 39% one-year-old and 29% two-years-old. Thirteen per cent answered that three years or older was when this should happen.

Respondents reported a high level of dental visitation with 84% of children having been to see a dental professional in the last year. The main reason for this visit was for a check up. In addition, respondents strongly agreed that it was easy or somewhat easy to get to a dental professional (92%). This finding contrasts with the accounts shared in the focus groups who reported accessing oral health services as difficult. Specific access-related difficulties included extended waiting times, difficulties accessing oral health services because of their location and prescribed hours of operation.

Survey respondents reported high levels of positive attitudes to the care of children's oral health with almost all respondents agreeing that keeping their child's primary teeth healthy is important (97%) and that their child benefits from having their teeth cleaned (97%). This high rate of importance differs from focus group responses where it was not uncommon for a second chance discourse to be cited. A discourse that minimises the importance of pre-school oral hygiene because of a belief that the onset of the adult teeth will remedy any dental issues experienced in early childhood, such as yellow staining and cavities.

Survey respondents reported some concerning attitudes and areas of lack of knowledge. Firstly, while the majority (80%) agreed that there is a relationship between the health of baby teeth and adult teeth, 13% either disagreed or did not know. Similarly, 71% agreed that cavities or holes in baby teeth need to be filled but 20% disagreed or did not know. These figures indicate that there is a health promotion opportunity to raise pre-school oral health knowledge.

Next, considerable confusion over the age at which a child should brush their teeth and who should be brushing children's teeth was elicited from survey and focus group responses. First, 88 % could brush their teeth on their own when they were anywhere between one year or less and between six and seven years of age. Of interest, six per cent agreed that a child of one year or less could brush their teeth on their own, 16% at two years of age, 18% at three and 27% between the ages of four and five. This is in contrast to Ministry of Health recommendations that suggest children need help with teeth brushing until they are about five years old (when they can hold a pencil and write) and that children should be supervised until the age of eight years old. Next, both survey responses and focus group interviews found strong indications that supervision of pre-school oral health practices is not occurring actively. Of the 990 respondents who had a child with teeth and had used a brush or other tool the respondent or another caregiver were reported to be the main person who brushed the child's teeth (66% and 57% respectively) and 66% reported it was the child. Where the child was the one who 'usually brushed their teeth' over half

were between three and four years old (55%). Just over a quarter were two years old (28%), 17% were only one year old and five were between four and 11 months old (1%). Similarly, focus group data indicates that parents and caregivers were often inclined to tell the child to brush their teeth but are not necessarily present during the actual brushing.

The majority of survey respondents reported that they received the majority of their dental health related information from Plunket (71%). The next most common source of information was from a Well Child provider (23%) followed by the respondent's GP (12%). One-in-ten respondents said they had never received any information (11%). Of interest, disparate needs were identified as an outcome of the focus groups. In this regard participants, differed in terms of such dimensions as locus of control and social cohesion which, if low in each variable generally increased the likelihood that participants were not afforded opportunities to receive parental and health-related information. This likelihood appears to increase in the event that the individual is younger (with many of the those who scored poorly on the oral health knowledge quiz aged approximately 20 years or younger) and a household income well below the national average.

Finally, in regards to supervision and possible behavioural issues associated with oral hygiene, just over one-third of survey respondents (35%) agreed with the statement: "My child gives me a hard time when I try to brush his / her teeth". While respondents were not given an opportunity to describe what they meant by 'hard time' it appears that there is an opportunity for health promotion regarding possible behavioural interventions to support guardians to encourage oral hygiene practices. This is especially important in light of the focus group findings where approximately 20% of parents' and caregivers' reported having forcibly brushed their child's teeth, accounts ranging from the ages of one to four. Specifically, there is an opportunity to explore appropriate behavioural intervention techniques that could assist parents and caregivers with their child's oral health routine. Participants who had regretted forcibly holding their child down to brush their teeth suggested the need for the promotion of positive reinforcement techniques.

To inform a wider health promotion response, a series of protective and risk factors have been identified, arising from the focus group interviews. These factors contextualise the various parents' and caregivers' experiences and provide some explanation for why some children are more likely to be enrolled than others. The factors also provide areas of possible focus for health promotion interventions and can inform the development of a systems, organisational and wider campaign response. Please note, factors have been grouped according to the following dimensions: social cohesion; state involvement; locus of control; developmental considerations; socio-economic considerations; population density and organisational barriers (see Table 12).

Table 12: Factors Influencing Likelihood of Pre-school Oral Health Engagement

Dimensions	Protective Factors	Risk Factors
Social cohesion leading to information sharing	Regular engagement with adult dental services.	Parents and caregivers not in receipt of dental care.
	Social network is conducive to learning from other parents and caregivers. The sharing of parenting-related information was a central purpose or occurred naturally because of the group's composition.	Social network comprises little informed sharing of parenting information between members.
	A close and positive relationship with Plunket, midwifery, Tamariki Ora services or other relevant service.	No or limited relationship with Plunket, midwifery and /or tamariki ora or other relevant services.
	Older children enrolled in kōhanga, kindergarten or school.	No older children enrolled in kōhanga, kindergarten or school.
State involvement	Parents and caregivers have ensured children are enrolled in relevant databases.	Reluctance to share personal information because of a fear of state intervention.
Locus of control	A higher locus of control which was reflected in a likelihood to actively seek information on parenting and / or children's health.	Those who indicated a lower locus of control were more likely to report low levels of health related knowledge and were more likely to not access an oral health service or actively seek information on parenting and / or children's health. Further, there was a lack of interest in gaining the most up to date information available on parenting. Many of these participants reported feeling overwhelmed when provided with print information. Similarly, some participants stated feeling overwhelmed with administrative requirements following the birth of their child /children.
	An understanding of diet and dental care.	Limited understanding of diet and dental care and low motivation to seek out information.
	Critically evaluate health recommendations in light of available research.	Distrust or minimise health recommendations. Rather, there was some indication that those with a high degree of distrust were more willing to take advice from a trusted individual.
	Holding pre-school dental care as a priority	Lack of knowledge about oral health and best practice as it applies to parenting.
Developmental considerations	Aged approximately 30 years old when first child born	Children born to parents before or around 20 years of age

Socio-economic considerations	Median household income or higher with an average of two children	Household income well below national median and multiple children and people living in the household.
Organisational barriers	Positive experiences with infant / child related healthcare organisations.	Negative experiences with infant / child related healthcare organisations.

6 APPENDIX 1: PARTICIPANTS' ANSWERS TO THE FOCUS GROUP QUIZ

Each focus group began with an open forum quiz where participants were asked whether they agreed or disagreed with a series of statements derived from the Ministry of Health pre-school oral health recommendations. The quiz was developed to provide a basis for discussion but the results are useful in indicating participants' levels of knowledge about pre-school oral health which turn informs possible campaign responses.

The quiz indicated a high level of knowledge about oral harm associated with children's consumption of fruit juice (question 8) and the importance of parents' and caregivers' role modelling in teaching children appropriate oral hygiene (question 6).

Knowledge was low, across all ethnic groups, about when to start brushing the child's teeth (question 2) and the level of fluoride recommended for baby or junior toothpastes (question 3). The remaining questions resulted in a varied level of correct answers, with no one ethnic group consistently scoring higher than the others. For instance, all Māori and Pacifica correctly answered the question about children sharing toothbrushes whereas 32% New Zealand European answered incorrectly. In contrast, the majority of Pacifica (92%) agreed that it is recommended that a child is enrolled in a local Community Oral Service at birth, compared to just under half of New Zealand European (42%) and 41% of Māori participants.

	Q1 It is recommended that you enroll your child at birth in your local Community Oral Service			
	Yes [®]	%	No	%
New Zealand European	8	42%	11	58%
Māori	21	41%	30	59%
Pacifica	34	92%	3	8%
	Q2 You should not start brushing your baby's teeth as soon as they appear through the gums			
	Yes	%	No [®]	%
New Zealand European	14	74%	5	26%
Māori	34	67%	17	33%
Pacifica	25	68%	12	32%
	Q3 Low fluoride baby or junior toothpastes are recommended			
	Yes	%	No [®]	%
New Zealand European	15	79%	4	21%
Māori	37	73%	14	27%
Pacifica	33	89%	4	11%

	Q4 You should always ask your child to rinse after brushing their teeth			
	Y	%	No [®]	%
New Zealand European	11	58%	8	42%
Māori	20	39%	31	61%
Pacifica	29	78%	8	22%
	Q5 You will need to supervise and help with your child's tooth brushing until they are about eight years old.			
	Yes [®]	%	No	%
New Zealand European	17	89%	2	11%
Māori	22	43%	29	57%
Pacifica	28	76%	9	24%
	Q6 Your child will learn most about how to clean their teeth by copying you.			
	Yes [®]	%	No	%
New Zealand European	18	95%	1	5%
Māori	48	94%	3	6%
Pacifica	35	95%	2	5%
	Q7 It is okay for your children to share toothbrushes.			
	Yes	%	No [®]	%
New Zealand European	6	32%	13	68%
Māori	0	0%	51	100%
Pacifica	0	0%	37	100%
	Q8 Juice is the best drink for your child's teeth.			
	Y	%	No [®]	%
New Zealand European	0	0%	19	100%
Māori	0	0%	51	100%
Pacifica	0	0%	37	100%

7 APPENDIX 2: PRE-SCHOOL ORAL HEALTH SURVEY

Introduction

Consumer Link, on behalf of the Health Promotion Agency (HPA), would like to invite parents and caregivers of pre-schoolers aged four months to four years and 11 months old to complete the following on-line survey. The survey aims to gather vital information about the oral health of pre-school children. The findings of this important research will inform the development of a new initiative and campaign that would promote and improve oral health preventive behaviours and practices among pre-schoolers in New Zealand.

The survey takes around 10-15 minutes to complete. Please know that your participation is VOLUNTARY. The data is anonymous meaning that no one will know what you said. You can complete the survey over one or more sessions. If you need a break, just click on the save survey bar at the top of the screen and provide your email details when prompted. A link will be sent to you via email and when you're ready to continue, simply click on the link to return to where you left off - don't worry - you won't have to start over if you save the survey and come back to it.

All participants who fully complete the survey will have the chance to go into the draw to win one of three \$200 Visa Prezzy Cards. *

I agree to take part in this survey

Screening questions

S1. Which of these age groups do you belong to? *

Under 15 years of age

15 - 17 years of age

18 - 24 years of age

25 - 34 years of age

35 - 44 years of age

45 - 54 years of age

55 years of age or over

IF ANSWER UNDER 15 YEARS OF AGE OR 15 – 17 YEARS OF AGE DISQUALIFIED

S2. This survey contains questions about pre-school children. Do you provide regular care or guardianship to any children between the age of 4 months and 4 years 11 months?*

Yes

No

IF ANSWER NO DISQUALIFIED

Section 1 – Basic demographic information about children

You are eligible to take part in this survey. Thank you for agreeing to participate. We value your help. This survey contains questions about the oral health of your child, your child's dental visits and how their teeth are cared for at home. There are no right or wrong answers, so please choose the option that best describes your own situation.

B1. Some of the questions ask about children. How many pre-school children between the ages of 4 months and 4 years 11 months are under your regular care or guardianship?*

- One child
- Two children
- Three children
- Four children
- Five or more children

IF MORE THAN ONE CHILD FOLLOWING TEXT APPEARS: You have indicated that you have more than one pre-school child in your care. Please answer the questions that follow for your child who had their birth or birthday most recently.

B2. Which of these age groups does your child belong to?*

- 4 months - 6 months old
- 7 months - 11 months old
- 1 year old
- 2 years old
- 3 years old
- 4 years old

B3. Is your child a....*

- Boy
- Girl

B4. What is your relationship to the child?*

Biological parent

Foster parent

Guardian

Mother's / father's partner or spouse

Grandparent

Aunt

Uncle

Cousins

Siblings

Other (please specify): _____ *

Don't know

SKIP TO B6 IF NOT BIOLOGICAL PARENT OR FOSTER PARENT

B5. Is this your first child?*

Yes

No

B6. Which ethnic group or groups does your child belong to? Please select as many as apply.*

New Zealand European

Maori

Samoan

Cook Island Maori

Tongan

Niuean

Chinese

Indian

Other (please specify): _____ *

Don't know

Section 2 – Child’s oral health status

How many teeth does your child currently have?*

- None
- 1 - 4 teeth
- 5 or more teeth

IF NONE SKIP TO SECTION 6, QUESTION 20

How would you describe the health of your child's teeth or mouth?*

- Excellent
- Very good
- Good
- Fair
- Poor
- Don't know

Has your child had any fillings placed in his / her teeth?*

- Yes
- No
- Don't know

Have any of your child's teeth been removed because of tooth decay or 'gum boil' (abscess) or infection? Please do not include teeth lost for other reasons, such as injury.*

- Yes
- No
- Don't know

Section 3 – Child’s toothbrushing practices

Has your child ever had his / her teeth cleaned by a toothbrush?*

- Yes
- No
- Don't know

IF YES, SKIP TO QUESTION 8

IF NO OR DON'T KNOW GO TO QUESTION 6

Has your child ever had his / her teeth cleaned using tools other than a toothbrush?*

Yes (please type what they are):

_____*

No

Don't know

What is the main reason your child does not have his / her own toothbrush?*

Too expensive

My child doesn't need one

My child doesn't like using toothbrushes

Other reasons (please specify):

_____*

Don't know

SKIP TO SECTION 6, QUESTION 20

How old was your child when he / she first started having his / her teeth brushed?*

Less than 1 year old

1 year old

2 years old

3 years old

4 years old

Don't know

At present who usually brushes your child's teeth? Please select as many as apply.*

The child

Me

Another parent or caregiver

Another adult

Don't know

Which of the following statements describe how you usually assist your child to brush his / her teeth? Please select as many as apply.*

- I watch the child brush his / her teeth and give advice
- I put toothpaste on his / her toothbrush
- I brush his / her teeth
- I remind the child to brush his / her teeth
- I help him / her in a different way
- None of the above

At present does your child....*

- Not have a toothbrush at all
- Share a toothbrush with another person
- Have his / her own toothbrush
- Don't know

IF HAVE HIS/HER OWN TOOTHBRUSH OR DON'T KNOW SKIP TO QUESTION 13

What is the main reason your child does not have his / her own toothbrush?*

- Too expensive
- My child doesn't need one
- My child doesn't like using toothbrushes
- Other reasons (please specify):

_____*

- Don't know

How often are your child's teeth brushed?*

- Less than once a day
- Once a day
- Twice a day
- More than twice a day
- Don't know

When your child's teeth are brushed, how often does he / she use toothpaste?*

- Always with toothpaste
- Often with toothpaste
- Sometimes with toothpaste
- Occasionally with toothpaste
- Never with toothpaste
- Don't know

SKIP TO QUESTION 19 IF NEVER WITH TOOTHPASTE OR DON'T KNOW

Which of the following type of toothpaste does your child use (please select one)?*

- Toothpaste for babies
- Toothpaste for younger children

- Toothpaste for older children

- Fluoride toothpaste, not age specific

- Non-fluoridated / Natural toothpaste, not age specific

- Don't know

When deciding on toothpaste for your child, what do you typically look for? Please select as many as apply.*

- A brand I trust
- Cheaper price / discounted
- Contains no fluoride at all
- Contains a low level of fluoride
- Matches my child's age
- A taste my child likes
- A cartoon character or picture my child likes
- To have one toothpaste for the whole family

Other reasons

I am not responsible for choosing toothpaste for my child

After tooth brushing does your child usually...*

Just swallows

Rinse and swallows

Rinse and spits

Just spits

Don't know

How much toothpaste does your child use on his / her toothbrush?*

Full brush of toothpaste

Pea-size of toothpaste

Smear of toothpaste

None

Don't know

When are your child's teeth usually brushed? Please select as many as apply.*

Before breakfast

After breakfast

After lunch

After dinner

Immediately before bed

At other times

Don't know

Section 4 - Child's dental visit experience/ enrolment

Thinking about the first time that your child visited a dental professional, how old was he / she then?*

- Younger than 1 year old
- 1 year old
- 2 years old
- 3 years old
- 4 years old
- Child has never visited a dental professional
- Don't know

SKIP TO QUESTION 24 IF CHILD HAS NEVER VISITED A DENTAL PROFESSIONAL OR DON'T KNOW

Why did your child go to this dental professional for the first time?*

- Problem with his / her teeth
- Check-up
- Went just to get used to going to the dental professional
- Went when an older sibling went to the dental professional
- For some other reason
- Don't know

How long has it been since your child last visited a dental professional for any reason?*

- Within the past 12 months
- Over 1 year ago
- Don't know

What was the reason for your child's last dental visit?*

- Problem with his / her teeth
- Check-up
- For dental treatment recommend after a check-up
- For dental treatment under general anaesthetic at a hospital
- For some other reason

Don't know

How easy or difficult is it for your child to get to a dental professional? *

Very easy

Somewhat easy

Somewhat difficult

Very difficult

Don't know

Is your child or has your child been enrolled in the Community Oral Health Service (also known as COHS or School Dental Service)?*

Yes

No

Don't know

IF YES OR DON'T KNOW SKIP TO SECTION 5, QUESTION 27

Please tell us why your child is not enrolled in the Community Oral Health Service (also known as COHS or School Dental Service)?*

Section 5 - Knowledge and attitudes

To the best of your knowledge, at what age do you think....*

	Younger than 1 year old	1 year old	2 years old	3 years old	4 - 5 years old	6 - 7 years old	8 years or older
a. Children can have their first free dental check-up with the Community Oral Health Service (also known as COHS or School Dental Service)	()	()	()	()	()	()	()
b. Children should begin seeing a dental professional	()	()	()	()	()	()	()
c. Children should begin to have their teeth brushed every day	()	()	()	()	()	()	()
d. Children are able to brush their teeth on their own	()	()	()	()	()	()	()

Have you ever been told or received information on when your child should begin seeing a dental professional? Please select as many as apply.*

- Yes - by a GP or practice nurse
- Yes - by a Well Child provider
- Yes - by Plunket
- Yes - by Tamariki Ora provider
- Yes - by my own dentist or dental hygienist
- Yes - by other health professionals
- Yes - by educator and teachers
- Yes - by family member
- Yes - by someone else
- No - never received any information
- Don't know

Have you ever been told or received any information on how to clean your child's teeth? Please select as many as apply.*

- Yes - by the Community Oral Health Service (COHS) / School Dental Service
- Yes - by other dental professional
- Yes - by a GP or practice nurse
- Yes - by a Well Child provider
- Yes - by Plunket
- Yes - by Tamariki Ora provider
- Yes - by other health professionals
- Yes - by educator and teachers
- Yes - by family member
- Yes - by someone else
- No - never received any information
- Don't know

Please rate the following statements using the following responses: strongly disagree, disagree, neither agree or disagree, agree, or strongly agree.

I feel comfortable asking my health care provider questions regarding my child's teeth.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

Keeping my child's primary teeth (the child's first set of teeth) healthy is important to me.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

My child will benefit from having his / her teeth brushed.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

Regular dental visits for my child are as important as regular medical check-ups.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

It is important for children to use age-appropriate toothpaste.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

I would give something sweet in my child's bottle, sippy cup or dummy to make him / her happier.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

Cavities or holes in baby teeth do not need to be filled.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

There is no relationship between the health of baby teeth and adult teeth.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

Don't know

My child gives me a hard time when I try to brush his / her teeth.*

Strongly disagree

Disagree

Neither agree or disagree

Agree

Strongly agree

I never have tried to brush my child's teeth

Don't know

Section 6 - Adult's oral health status, and oral care practices

Now it's the end of the questions about your child's oral health. The next few questions are about you.

When was the last time you saw a dental professional?*

Within the last 12 months

Between 12 months and five years

Over five years ago

I have never seen a dental professional

Are all of your teeth false?*

Yes

No

Don't know

IF YES, SKIP TO SECTION 7, QUESTION X1

How often do you brush your teeth?*

Never

Less than once a day

Once a day

More than once a day

Section 7 – Demographics about participant

This is the last section. The purpose of this section is to collect some general information about you and your household.

X1. Are you...*

Male

Female

X2. Which ethnic group or groups do you belong to? Please select as many as apply.*

New Zealand European

Maori

Samoan

Cook Island Maori

Tongan

Niuean

Chinese

Indian

Other (please specify): _____*

Don't know

X3. Which best describes you at the moment?*

Working in paid employment: full time (30 hours or more)

Working in paid employment: part time

Not in paid work and looking for a job

Not in paid work, and not looking for a job: Student

Not in paid work and not looking for a job: Homemaker

Not in paid work and not looking for a job: Beneficiary

Not in paid work and not looking for a job: Retired

Don't know

X4. Can you please tell me the high qualification you have?*

- No formal school qualification
- NZ School Certificate in one or more subjects or National Certificate Level 1 or NCEA Level 1
- NZ Sixth Form Certificate in one or more subjects or National Certificate Level 2 or NZ UE before 1986 in one or more subjects or NCEA Level 2
- NZ Higher School Certificate or Higher Leaving Certificate
- University Entrance 1986 onwards
- Bursary/Scholarship or National Certificate Level 3 or NCEA Level 3 or NZ Scholarship Level 4
- Other secondary school qualification gained in NZ
- Other secondary school qualification gained overseas
- Trade or technical certificate, for example, builder
- Professional qualification, for example, ACA, teacher, nurse
- Undergraduate diploma
- Bachelors degree, for example, BA, BSc
- Postgraduate diploma
- Postgraduate degree, for example Honours, Masters or PhD
- Other (please specify): _____ *
- Don't know

X5. Including yourself, how many people in each age group usually live in your house? *

	Age	Number of people
a.	0 - 4 years	
b.	5 - 7 years	
c.	8 - 12 years	
d.	13 - 14 years	
e.	15 - 16 years	
f.	17 years	
g.	18 years and over	

X6. What is the total income that your household got from all sources, before tax or anything was taken out of it, in the last 12 months?*

- Less than \$5,000
- \$5,001 - \$10,000
- \$10,001 - \$15,000
- \$15,001 - \$20,000
- \$20,001 - \$25,000
- \$25,001 - \$30,000
- \$30,001 - \$35,000
- \$35,001 - \$40,000
- \$40,001 - \$50,000
- \$50,001 - \$60,000
- \$60,001 - \$70,000
- \$70,001 - \$80,000
- \$80,001 - \$90,000
- \$90,001 - \$100,000
- \$100,001 - \$120,000
- \$120,001 - \$150,000
- \$150,001 - \$250,000
- \$250,001 or more
- Don't know