FACTORS INFLUENCING THE ORAL HEALTH PRACTICES OF CHINESE IMMIGRANT PARENTS FOR THEIR YOUNG CHILDREN (AGES 0-6) IN VANCOUVER AND RICHMOND, BC: PARENTS’ AND SERVICE PROVIDERS’ PERSPECTIVES

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Factors Influencing the Oral Health Practices of Chinese Immigrant Parents for Their Young Children (ages 0-6) in Vancouver and Richmond, BC: Parents’ and Service Providers’ Perspectives

submitted by Hui Juan Gao in partial fulfillment of the requirements for the degree of Master of Science in Population and Public Health

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Abstract

**Background**: Early Childhood Caries (ECC) is a prevalent chronic condition affecting the health of young children (ages 0-6) worldwide, despite being mostly preventable through the adoption of effective oral health care practices. In both Canada and the United States, immigrant children suffer disproportionately from dental caries as compared to non-immigrant children. Limited research has examined the factors influencing oral health and care of young children from immigrant families in Canada. **Objective**: This qualitative exploratory study was carried out to examine the multi-level factors influencing the oral health care of young children (ages 0-6) from recent Chinese immigrant families residing in the cities of Vancouver and Richmond, British Columbia. **Method**: Working within a social constructivist paradigm, this study included Chinese immigrant parents (n=15), dental professionals (n=4) and community agency members (n=3) recruited from six different community sites using purposeful sampling. Semi-structured individual interviews were conducted until data saturation was reached. Interviews were transcribed verbatim and analyzed thematically to develop themes and sub-themes to summarize the findings. **Results**: Parents generally devoted much effort into establishing and modifying regular oral health care for their children and have improved their knowledge and understandings about oral health following immigration to Canada. Support was provided to parents in both oral health home care and professional dental care from family members, social networks, communities and professional dental care teams. Despite the support received, parents continued to experience major challenges in the areas of lacking translated and consistent oral health care information, lack of/insufficient dental payment assistance programs, and significant language and communication barriers. **Conclusion**: Given the ongoing challenges experienced by Chinese immigrant families, collaborative effort is needed from all levels of the government, residential
and cultural communities and health care organizations to deliver consistent and practical oral health care information using various media platforms targeting immigrant communities, improve dental coverage for lower-to-middle income families, and mobilize resources to provide necessary translation and interpretation services to new immigrant families.
Lay Summary

Dental decay affects immigrant children more than non-immigrant children in Canada. Developing good oral health care habits are key to preventing tooth decay in children. Little research has examined the facilitators and barriers to Chinese immigrant parents’ efforts to protect their young children’s teeth. This study has identified that key facilitators were support from parents’ family and social network, communities and dental health care teams. The key barriers were lack of consistent information on topics related to children’s oral health, insufficient assistance to cover dental costs, and language barriers preventing access to information and communications during dental visits. To help parents overcome the challenges in promoting oral health for children, further support is needed from the government, communities, and health care teams to spread consistent oral health care messages to all immigrant communities, improve dental coverage programs, and provide more translation and interpretation services to Chinese immigrant families.
Preface

This thesis contains the original, unpublished, independent work conducted by the MSc student, Hui Juan Gao, under the supervision of Dr. Brenda Poon and with guidance from Dr. Rosamund Harrison and Dr. Kavita Mathu-Muju. The study design, data collection, research analysis and writing of the thesis were primarily the work of the student, with extensive support from Dr. Brenda Poon and ongoing feedback from other members of the supervisory committee.

Sections of this thesis will be submitted for publication in peer-reviewed journals. The main study findings in Chapter 3 have been presented as poster and oral presentations at multiple academic conferences. Part of Chapter 3 of this thesis has been published as a conference abstract [Gao H.J., Poon B., Harrison R. and Mathu-Muju K. (May 2018) Immigration and dental health care-lessons learned from new Chinese immigrant families with young children (ages 0-6) in British Columbia, Canada. European Journal of Public Health, Volume 28, Issue suppl_1]. The conference abstract was drafted by the student and edited by Dr. Poon, Dr. Harrison and Dr. Mathu-Muju.

Ethical approval for this study was obtained from the University of British Columbia Behavioural Research Ethics Board (H14-01975) and the Vancouver Coastal Health Research Institute in year 2016.
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<td>BC</td>
<td>British Columbia</td>
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<tr>
<td>CODIIPP</td>
<td>Children’s Oral Disease Integrated Intervention Pilot Project</td>
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<tr>
<td>dmft</td>
<td>decayed, missing or filled teeth (in primary teeth)</td>
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<tr>
<td>DMFT</td>
<td>Decayed, Missing or Filled Teeth (in permanent teeth)</td>
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<td>ECC</td>
<td>Early Childhood Caries</td>
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<td>GP</td>
<td>General Practitioner</td>
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<td>HK</td>
<td>Healthy Kids</td>
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<td>MOSAIC</td>
<td>Multi-lingual Orientation Service Association for Immigrant Communities</td>
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<td>MSP</td>
<td>Medical Service Plan</td>
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<td>NOHS</td>
<td>(Chinese) National Oral Health Survey</td>
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<td>PRC</td>
<td>The People’s Republic of China</td>
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<td>S. mutans</td>
<td>Streptococcus mutans</td>
</tr>
<tr>
<td>TCM</td>
<td>Traditional Chinese Medicine</td>
</tr>
<tr>
<td>UBC</td>
<td>University of British Columbia</td>
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Glossary

*Dental care access*: measures the opportunity for an individual to obtain and use both preventive and treatment dental services, depending on the availability, physical accessibility, affordability, timeliness, and cultural-and language-appropriateness of dental care services provided, to achieve the best possible dental outcome (Canadian Dental Association, 2017; Gulliford et al., 2002).

*Oral health inequality*: the burden of oral diseases, including dental caries, is unequally shared among and within populations, with marginalized groups experiencing socio-economic disadvantages disproportionately affected (Canadian Dental Association, 2017; Watt, 2012).

*Oral health-related knowledge, attitudes and beliefs*: understandings of and values associated with oral health, perceptions about the harm of oral diseases, and level of perceived self-efficacy and control over dental outcomes, all of which influence individuals’ tendency and success to carry out regular oral health care (Gao et al., 2010; Hilton, Stephen, Barker, & Weintraub, 2007; Hooley, Skouteris, Boganin, Satur, & Kilpatrick, 2012).

*Social determinants of oral health inequality*: structural determinants and living conditions driving the social stratification of oral health inequalities among and within populations, including the broader political and economic conditions, characteristics of the health care system, the proximal social and physical environments that people live in, and individual health behaviors and biological factors interacting across different levels of influences (FDI World Dental Federation, 2013; Fisher-Owens et al., 2007; Watt, 2012).
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Dedication

This thesis is dedicated to my parents, Weidong Gao and Cindy Chi, whose unconditional love and support over the years have made this work possible. They have instilled in me the values of authenticity and persistence that I have brought to my work and which I will continue to carry forward in my career and life.

To my dear friends in Vancouver, Toronto and Munich, who have believed in, encouraged and supported me throughout my journey and pursuit of becoming independent in both life and career and, along the way, taught me the immeasurable value of interdependence.
Chapter One. Introduction

Overview of the Issue

Dental caries is one of the most common chronic conditions affecting health of children under the age of six in Canada and worldwide (American Dental Association, 2000; Canadian Dental Association, 2010a; World Health Organization, 2017). Dental caries, like many other dental diseases, can negatively impact both the oral and general health of individuals over their lifetime (Petersen, 2003; Thomson et al., 2004). In Canada, the burden of dental caries is not shared equally among children. Immigrant children, along with other children experiencing social and economic disadvantages, shoulder a much higher proportion of the disease burden than the rest of the Canadian paediatric population (BC Ministry of Health, 2014; Health Canada, 2010a). In particular, Chinese immigrant children tend to experience dental caries at a high rate and severity in Canada and abroad (Chinn, Cruz, & Chan, 2011; Kostek & Martinello, 2002; Locker, Clarke, & Murray, 1998; Wong, Perez-Spiess, & Julliard, 2005). Chinese immigrant parents, like immigrant parents from many other cultural and ethnic origins, often experience unique social, economic, and cultural challenges in adopting good practices to promote oral health for their children (Amin & Harrison, 2009; Hilton et al., 2007; Wong et al., 2005). Despite the high level of dental caries found among Chinese immigrant children, there is limited research concerning the oral health practices of Chinese immigrant parents with their young children and the multi-level factors that influence the parents’ adoption of such oral health practices. In order to reduce the disease burden of dental caries and promote oral health of Chinese immigrant children, a thorough understanding of the oral health practices and the multi-level factors that influence the adoption of oral health care practices by Chinese immigrant parents is needed.
In this chapter, I first summarized literature relevant to oral health of young children, dental caries in Chinese immigrant children, and multi-level factors influencing immigrant children’s oral health practices and outcomes. I closed the chapter with an overview of the rationale and research questions that guide this thesis research.

**Oral Health of Children**

Oral diseases are major public health problems worldwide (Petersen, 2003). In particular, dental caries is a common chronic disease affecting health of children in both developed and developing countries (American Dental Association, 2000; Canadian Dental Association, 2010a; World Health Organization, 2017). Early Childhood Caries (ECC) refers to the presence of one or more decayed, missing, or filled tooth surfaces in primary dentition of pre-school children between 0 and 71 months of age (American Dental Association, 2000; Canadian Dental Association, 2010a). If ECC is not treated in a timely manner, the disease can progress and pose significant negative impacts on children’s quality of life and affect their oral and general health throughout the lifetime (Canadian Dental Association, 2010a; World Health Organization, 2017). Importantly, ECC is preventable and can be managed early to prevent progression to severe ECC (Canadian Dental Association, 2010a; World Health Organization, 2017). The etiology of ECC is multifactorial in nature, influenced by a range of biologic, behavioral, socioeconomic, cultural, and health system factors (Fisher-Owens et al., 2007; Lee & Divaris, 2014; Watt, 2012; Watt & Sheiham, 2012). The development and progression of ECC can be halted by a combination of community and individual-level preventive and treatment measures.

**Early childhood caries as related to oral and general health.**

Poor oral health condition affects the quality of life of children in multiple ways. First, children with ECC may suffer from chronic pain and discomfort if cavitated teeth are left
untreated (Gradella, Bernabé, Bönecker, & Oliveira, 2011; Nuttall et al., 2006). Second, children with poor oral health may have reduced orally related functions, such as problems in eating, chewing, talking, and the avoidance of eating certain foods (Canadian Dental Association, 2010a; Gradella et al., 2011; Nuttall et al., 2006). Third, poor oral health may negatively impact children’s social and emotional well-being, such as feeling embarrassed to smile, being more irritable or less cheerful, reduced comfort level in social interactions and overall lack of self-confidence (Foster Page, Thomson, Jokovic, & Locker, 2005; Nuttall et al., 2006; Patel, Tootla, & Inglehart, 2007). Lastly, poor oral health may affect children’s performance in school. Children with dental caries may miss days from school to receive dental treatment, which can affect their academic performance in school (Health Canada, 2010a). In sum, children with ECC may experience overall reduced quality of life as a result of poor oral health.

Oral health in childhood is a strong predictor of oral health later in life. Children with previous caries experience are at elevated risks of developing new caries (Amin & Harrison, 2009). Moreover, individuals who have had dental caries in childhood have increased risk of developing caries later in life (Thomson et al., 2004). Cohort studies have shown that early childhood caries experience predicts greater risk of developing future caries in permanent teeth both in adolescence and adulthood (Lee, Kim, Jin, Paik, & Bae, 2014; Li & Wang, 2002; Thomson et al., 2004). Having cavities in permanent teeth negatively affects oral health of adults and can lead to tooth extractions if cavitated teeth are left untreated. Multiple studies have now indicated that having caries in permanent teeth is the most common reason for tooth extraction in adults (Aida et al., 2006; Al-Shammari, Al-Ansari, Al-Melh, & Al-Khabbaz, 2006; Da’ameh, 2006; Richards, Ameen, Coll, & Higgs, 2005). To a lesser extent, having caries in primary teeth as children also predicts more extensive periodontal disease and greater number of missing teeth.
in adults (Thomson et al., 2004). Overall, the detrimental effects of childhood caries often continue into adulthood and contribute to poor oral health condition in adults.

Oral health is an integral and essential part of general health. Poor oral health directly affects one’s ability to perform daily tasks and participate in everyday activities, such as eating, speaking, and social interactions, all of which are important in ensuring general physical and psychological health and well-being (Petersen, 2003). Poor oral health also contributes to the risk of developing multiple chronic diseases that affect general health. For example, diabetic patients with periodontal diseases have increased risk of developing complications at greater severity as compared to diabetic patients without periodontal conditions (Grossi & Genco, 1998; Lamster, Lalla, Borgnakke, & Taylor, 2008). Periodontal diseases also predict high risk of developing cardiovascular diseases, such as stroke and myocardial infarction (Core Functions Steering Committee & Population Health and Wellness, BC Ministry of Health, 2006; DeStefano, Anda, Kahn, Williamson, & Russell, 1993; Meurman, Sanz, & Janket, 2004). Moreover, oral diseases are risk factors for respiratory diseases, such as pneumonia and emphysema (Azarpazhooh & Leake, 2006; Mojon, 2002).

**Prevention and control of ECC.**

Prevention and early management of ECC can be achieved through a combination of community and individual-level preventive measures. Good oral health homecare practices are essential in maintaining a child’s oral health by removing cavity-causing bacteria in the mouth, reducing the amount of acidic substrate on which bacteria feed, and strengthening the tooth surfaces to resist cavitation. Some examples of practices effective in maintaining good oral health for children are twice daily toothbrushing, parental supervision during toothbrushing, not using night bottles containing sweet liquid, keeping diets low on the amount and frequency of

Good dental care seeking behaviors further promote oral hygiene and overall dental health of children. Regular use of preventive dental services can ensure that the dental health of children are continually monitored by professionals and that when risk of developing dental caries is detected, appropriate interventions, such as fluoride varnish and dental sealants, can be applied to prevent and/or halt progression of dental caries in children (Children’s Dental Health Project, 2013; Population and Public Health, BC Ministry of Health, 2014). Previous research suggested that early dental visits by age one predicted higher likelihood of subsequent preventive dental visits and fewer restorative and/or emergency visits for children at high risk of developing ECC (Lee, Bouwens, Savage, & Vann, 2006; Savage, Lee, Kotch, & Vann, 2004). The dental-related costs for children receiving first preventive visits by age one were almost 40% lower than those receiving first preventive visit after age one (Children’s Dental Health Project, 2013; Savage et al., 2004).

**Oral Health Inequalities for Immigrant and Non-Immigrant Children**

The burden of ECC is not shared equally among children, with children experiencing social and economic disadvantages shouldering a much higher burden of the disease than the rest of the paediatric population (World Health Organization, 2017). In Canada, Aboriginal children shoulder the highest burden of dental caries (BC Ministry of Health, 2014; Health Canada, 2010a). Similarly, children living in poverty, those from middle-income families, and immigrant children experience ECC at greater prevalence and severity than the rest of Canadian children.
Oral health of immigrant children in Canada.

According to the results of the 2007-2009 Canadian Community Health Measure Survey (CHMS), the prevalence of dental caries and amount of untreated caries for six to eleven year-old children born outside of Canada (50.2%, 0.35) were similar or better than children born in Canada (57.3%, 0.37) (Health Canada, 2010a). However, these numbers should be interpreted with the following caveats in mind. First, the sample size of children born outside of Canada included in the survey was too small to enable accurate estimates about the rates of dental caries and untreated caries of immigrant children in Canada. Second, by not taking into account the different countries of origin of children, the survey did not capture potential differences in dental health status and treatment needs of children coming from different countries. Thus, the oral health component of the CHMS survey is not a reliable data source for obtaining accurate estimates of the oral health status of immigrant children in Canada.

On the other hand, findings from several studies showed that immigrant children and adolescents in Canada experienced dental caries at higher prevalence and severity and had more treatment needs than non-immigrant children and adolescents (Kostek & Martinello, 2002; Locker et al., 1998; Woodward, Leake, & Main, 1996). While no Canadian statistics on the dental status of Chinese immigrant children is available, the findings from two studies in the United States suggested that Chinese immigrant children also had higher prevalence and severity of dental caries than non-immigrant children (Chinn et al., 2011; Wong et al., 2005).

Immigrant children experience higher prevalence and severity of dental caries. In one study, for example, the rate of caries in immigrant adolescents was 10% higher than that of
Canadian-born adolescents in North York, Ontario, Canada (Locker et al., 1998). Immigrant adolescents had more teeth affected by decay (mean DMFT score = 2.90 vs. 2.06) than non-immigrant adolescents (Locker et al., 1998). Similarly, the likelihood of eight to nine year-old immigrant children having one or more decayed primary or permanent teeth was 2.68 times higher than that of Canadian-born children in North York, Ontario (Woodward et al., 1996).

In addition to higher prevalence and severity of dental caries, immigrant children and adolescents tend to have higher rates of untreated dental caries and use dental services less frequently than Canadian-born children. Immigrant adolescents had higher proportions of untreated caries (0.40 vs. 0.07) than non-immigrant adolescents (Locker et al., 1998). A similar trend was found in an inner city school in Edmonton, Alberta, Canada, where the majority of students came from immigrant and refugee families and experienced untreated dental caries at a rate of 42%, about 27% higher than the regional average of 15% (Kostek & Martinello, 2002). Despite the high treatment needs that many immigrant children experience, a smaller proportion of immigrant adolescents regularly visited dentists than non-immigrant adolescents (42.8% vs. 72.6%) (Locker et al., 1998). While the oral health status of immigrant adolescents improved with increased length of stay in Canada, it did not reach the same level as that of Canadian-born adolescents (Locker et al., 1998).

Overall, a small but growing body of research indicates that immigrant children and adolescents experience higher rates of dental caries, have greater treatment needs, and make less frequent use of professional dental services than non-immigrant children and adolescents in Canada. These findings are consistent with findings from studies in the United States which indicated that Chinese immigrant children tended to have less optimal dental health and more treatment needs than non-immigrant children (Chinn et al., 2011; Wong et al., 2005). For
example, in a study based in Manhattan Chinatown, New York city, it was found that non-U.S.-
born Chinese immigrant children, aged 2-11, had higher prevalence of caries in permanent teeth
than the national average (mean DMFT 3.81 vs. 1.47) (Chinn et al., 2011). Also, immigrant
Chinese children had higher rates of tooth decay in primary teeth (mean dmft 5.06 vs. 3.53) than

**Oral health of children in the People’s Republic of China and Canada.**

The oral health of Chinese immigrant children, especially those whose families recently
immigrated to Canada from the People’s Republic of China (PRC), is likely influenced by the
dental care system in the PRC, in addition to the Canadian dental care system. Therefore, the
dental health status and treatment needs of Chinese immigrant children in Canada may share
similarities with those of children in the PRC. A comparison between the dental health status and
treatment needs of children in the PRC and Canada may help explain, in part, the oral health
disparity observed between Chinese immigrant children and non-immigrant children in Canada.

The Chinese 3rd National Oral Health Survey (NOHS) in 2005 and the Canadian Health
Measure Survey (CHMS) 2007-9- Oral Health Component both reported on the prevalence and
severity of dental caries of children, the percentages of children with untreated caries, and
utilization of dental care services of children (Health Canada, 2010a; Hu, Hong, & Li, 2011; Xia,
2010). The two surveys collected similar data on children’s oral health status, though differed
with respect to the breakdown of age range and whether or not primary and permanent teeth were
distinguished. Both countries examined children between five to six and eleven to twelve years
of age. The Chinese survey examined two specific age groups of children, five to six-year-olds
and twelve-year-olds, while the Canadian survey combined children from six to eleven years of
age into one group (Health Canada, 2010a; Xia, 2010).
In terms of the distinction made between primary and permanent teeth, the Chinese survey did not distinguish the two, while the Canadian survey examined primary and permanent teeth separately (Health Canada, 2010a; Hu, Hong, & Li, 2011). For comparison purposes in this part of the review, “primary teeth” refers both to the teeth of five to six-year-olds in the Chinese survey and the primary teeth of children between six and eleven years of age in the Canadian survey; and “permanent teeth” refers to both the teeth of twelve-year-olds in the Chinese survey and the permanent teeth of children between six and eleven years of age in the Canadian survey.

Results from both surveys indicated that the prevalence and severity (i.e. dmft- for primary and DMFT-for permanent teeth) of dental caries were lower for children in Canada as compared to those of children in the PRC. With respect to dental caries in primary teeth, children in PRC had a prevalence of 66% and an average severity of dmft= 3.5 in 2005, while 47.8% of Canadian children had caries in their primary teeth with an average severity of dmft= 1.99 in 2009 (Health Canada, 2010a; De-yu Hu et al., 2011; Xia, 2010). With respect to dental caries in permanent teeth, 29% of children in PRC were affected by caries with the average DMFT of 0.5; while 23.6% of children in Canada had caries in their permanent teeth with an average DMFT of 0.49 (Health Canada, 2010a; Hu et al., 2011; Xia, 2010).

Second, the children in PRC were more likely to have untreated caries compared to children in Canada. With respect to primary teeth, 97% of children in the PRC had untreated caries, while 16.9% of children in Canada had untreated caries (Health Canada, 2010a; Xia, 2010). With respect to permanent teeth, 87% of children in the PRC had untreated caries, much higher than the 14.7% rate among Canadian children (Health Canada, 2010a; De-yu Hu et al., 2011; Xia, 2010).
The difference with respect to dental service utilization was also substantial, where children in the PRC had much lower dental attendance rates than children in Canada. About 91% Canadian children between six and eleven years of age visited a dental professional within the last year for any reason, while only about 15% of five-year-old and 21% of twelve-year-old children in the PRC visited a dentist within the last year for any reason (Health Canada, 2010a; Xia, 2010). In terms of reason for visit, the majority of children (72% of five-year-olds; 62% of twelve-year-olds) in the PRC visited the dentist for treatment purposes, including dental injury, acute tooth pain, chronic tooth pain, discomfort, and dental cosmetic (Xia, 2010). The most common reasons for treatment-related dental visits were acute tooth pain, chronic tooth pain, and discomfort (Xia, 2010). Dental visits for prevention purposes were less common for children in the PRC. The Chinese survey indicated that only about 22-28% of five-year-olds and 28-38% of twelve-year-olds in PRC visited dentists for regular check-ups or other preventive interventions (Qu, Wang, Shi, & Zhou, 2011; Xia, 2010). Since there is no Canadian national-level data on dental visit frequency by reason for visit, comparisons could not be drawn between the two countries.

Overall, the oral health status of children in PRC was less optimal than that of children in Canada, especially with respect to the proportion of children with untreated caries and children’s dental service utilization rates.

**Multi-Level Determinants of Children’s Oral Health**

In the past few decades, the oral health of people in many developed countries has improved significantly (Fisher-Owens et al., 2007; Lee & Divaris, 2014; Watt, 2005). However, oral health inequalities have widened. The increasing disparity in oral health is especially pronounced in dental caries status of pre-school children (Watt, 2005; Watt & Sheiham, 1999).
Children from more socially disadvantaged groups, such as ethnic minority and low socio-economic groups, suffer disproportionately from dental caries than children from more advantaged backgrounds (Fisher-Owens et al., 2007; Watt & Sheiham, 1999). It has been increasingly recognized that in order to tackle oral health inequalities, research needs to extend beyond individual-level factors to examine broader environmental factors and the potential mechanisms through which different levels of factors, including family, community, and health care system-level factors, interact to generate oral health inequalities in children (Fisher-Owens et al., 2007; Lee & Divaris, 2014; Watt, 2012). In this section, I provide a brief overview of multiple levels of influences on oral health inequalities in children.

At the micro-level, characteristics of individual children, both biological and behavioral, influence their oral health. Biological risk factors for the development of ECC in children include early colonization of the mouth by bacterial strain, *Streptococcus mutans*, accumulation of *S. mutans* to pathogenic levels, and susceptible dental morphology of deep pits and fissures (Berkowitz, 2003; Fisher-Owens et al., 2007). In addition, genetics may play a role in determining the risk and etiology of ECC development in children (Vieira, Modesto, & Marazita, 2014). The influence of biological and genetic factors on the risk of developing ECC is often mediated by modifiable behavioral factors of the child. The behavioral factors include oral hygiene habits, feeding practices and diet choices, and utilization of professional dental services (Fisher-Owens et al., 2007; Hooley et al., 2012). For example, brushing teeth less than twice a day, high dietary sugar consumption, and the use of a night bottle with sweet liquid all contributed to chronic high levels of cariogenic bacteria in the mouth and, in turn, led to higher risk of developing ECC (Berkowitz, 2003; Hooley et al., 2012).
Individual factors, especially those of young children, are embedded in the family environment. In particular, the oral health-related behaviors of children are mainly influenced by their primary caregivers, usually parents (Hooley et al., 2012). First, family socio-economic circumstances, including parental income and educational level, influence children’s oral health condition. For example, lower family income and parental educational level contributed to higher risk of developing ECC by creating financial barriers for families’ access to healthy foods and professional dental services (Adair et al., 2004; Fisher-Owens et al., 2007; Hooley et al., 2012). Second, oral health-related knowledge, beliefs, and attitudes of primary caregivers influence children’s oral health through the oral health practices caregivers model and adopt with their children. For example, beliefs that primary teeth are unimportant and that cavities are not preventable inhibited parents from adopting good oral homecare practices and seeking regular preventive dental care for their children (Hilton et al., 2007; Hooley et al., 2012; Wong et al., 2005).

The next level of influence is neighborhood and community-level factors. Families function within the context of both the physical residential and relational communities, such as neighborhood, parental social network, and cultural communities (Fisher-Owens et al., 2007; Irwin, Siddiqi, & Hertzman, 2007). The physical environment of a neighborhood, including the water fluoridation level and availability of healthy food options, influences children’s oral health (Fisher-Owens et al., 2007; Population and Public Health, BC Ministry of Health, 2014). Evidence suggests that water fluoridation in communities reduced the occurrence and severity of dental caries in both adults and children (Griffin, Regnier, Griffin, & Huntley, 2007; McDonagh et al., 2000).
Second, the social environment of a neighborhood or community influences the oral health of children. Higher socio-economic status and less income inequality in a community are often associated with availability of high quality services, including dental care services, which promotes general and oral health of children and adults (Fisher-Owens et al., 2007; Irwin et al., 2007). Social capital, or collective efficacy, refers to the strength of social networks and relationships within a community that facilitate reciprocated exchange of information, services, and resources (Fisher-Owens et al., 2007; Irwin et al., 2007). High social capital and strong social cohesion were linked to good oral health outcomes, such as lower rates of dental injuries and lower severity of caries in children, as compared to children from communities with lower social capital and cohesion (Fisher-Owens et al., 2007; Pattussi, Hardy, & Sheiham, 2006a, 2006b). In addition to the neighborhood social environment, the involvement of the social network of a family in the care of children also influences the oral health of children. For example, family members taking an active role in assisting with the daily care of a child’s teeth, such as reminding a parent of dental appointments, helped alleviate the parent’s stress of caring for the child’s teeth alone (Arora, Liu, Chan, & Schwarz, 2012; Wong et al., 2005). However, parents may also receive information and advice from their social network that were contradictory to the recommendations given by dental professionals and experience difficulty in making dental care decisions for children (Arora et al., 2012; Wong et al., 2005).

Third, the cultural environment regarding oral health of a community is also important in shaping the oral health practices that parents adopt to promote their children’s oral health. In a cultural community, such as the Chinese culture, common cultural norms, values, beliefs, and practices for oral health can influence the oral health of children through a range of family and individual-level factors, such as oral hygiene behaviors of family and individuals, diet choices,
preventive orientation, dental service use, dental fear, and perceived seriousness and control over
the development and progression of dental caries (Adair et al., 2004; Fisher-Owens et al., 2007;
Hilton et al., 2007; Wong et al., 2005). Also, the culture regarding oral health of any community
can influence the oral health practices and outcomes of children (Fisher-Owens et al., 2007).
Thus, promoting a supportive community environment that values oral health may encourage the
adoption of community-level oral health promotion programs, such as fluoride varnish and
dental sealant applications, and oral health education to parents, making dental preventive
services and information readily available to parents with children (Fisher-Owens et al., 2007).

The individual, family, and community-level influences on children’s oral health operate
with and within the wider context of the national and regional public dental care systems and
relevant health policies. The health care system pertaining to oral health influences the
availability of and access to dental services of children. The health care system plays a key role
in distributing resources to different populations according to their health care needs (Watt &
Sheiham, 2012; Whitehead, Judge, & Benzeval, 1995). Some key factors in the health care
system related to children’s oral health include: dental insurance coverage, the number of dental
practitioners accepting young children, availability of publicly funded dental programs, and
percentage of dental practitioners participating in public dental care programs (Fisher-Owens et
al., 2007; Lee & Divaris, 2014). For example, having dental insurance coverage that was
accepted by dental practitioners was a key factor in individuals’ decisions to access professional
dental care services (Fisher-Owens et al., 2007; Health Canada, 2010a; Newbold & Patel, 2006).
Also, the availability of paediatric dentists or dentists willing to accept young children was an
important influence on parents’ decision to bring their children to preventive dental services at an
early age (Hilton et al., 2007). Another important contextual factor is the policies adopted by the
national, regional, and local governments related to dental care of children. Health policies set health care priorities and guide the distribution of health care resources and services to different populations in a society. Thus, health policies influence the availability of and access to health care services of different groups of people. For example, having universal dental care coverage and publicly funded oral health programs can make dental services more affordable and improve access to services and programs for people experiencing social and economic disadvantages (Birch & Anderson, 2005a; Ismail & Sohn, 2001; Mouradian, Wehr, & Crall, 2000).

Overall, the oral health practices and outcomes of children are influenced by the interaction of factors across the individual, family, community, and health care system levels. Because the present study focuses on Chinese immigrant children’s oral health, I reviewed in greater depth, in the following sections, the influences of family, Chinese culture, and the dental care systems on children’s oral health inequality.

**Family influences on children’s oral health.**

The family environment that children live and grow up in shapes the oral health practices of children, which, in turn, influences the oral health outcomes of children. In particular, the family socio-economic circumstances and parental oral health-related knowledge, beliefs, and attitudes are important aspects of the family environment that influence the oral health practices of children.

The family socio-economic circumstances can have both direct and indirect influences on the oral health practices parents adopt for their children. Family socio-economic circumstances directly influence the professional dental health care seeking behaviors of parents for their children. Having lower family income and limited dental health insurance created financial constraints that prevented parents from seeking preventive dental visits for their children on a
regular basis (Gao et al., 2010; Iida & Rozier, 2013). Family socio-economic circumstances can also influence the oral homecare practices parents adopt for their children. For example, parents experiencing unemployment or financial difficulties tended to have high stress levels and be less likely to initiate and maintain regular oral health care practices for their children (Amin & Harrison, 2009; Hooley et al., 2012).

Also, family socio-economic circumstances indirectly influence oral health practices of children through shaping parental oral health-related knowledge and attitudes. High parental educational levels predicted accurate parental knowledge of and positive attitudes towards oral health of children. For example, parents with high educational levels were more likely to have high awareness of the importance of primary teeth and the seriousness of tooth decay in children, as well as strong intention and confidence to establish healthy oral hygiene habits and control sugar intake for children (Adair et al., 2004; Gao et al., 2010). Knowledge of and attitudes towards oral health play the key role in shaping the oral health care practices of children and influence their oral health outcomes.

Parental oral health-related knowledge, beliefs, and attitudes may either protect from or contribute to the risk of developing ECC of children through shaping the oral health practices that parents adopt for children. Parents who have accurate knowledge of and positive beliefs and attitudes towards oral health tend to adopt healthy oral health practices for their children (Adair et al., 2004; Hooley et al., 2012). For example, parental knowledge of and belief in the importance of twice-daily toothbrushing in prevention of dental caries and intention to establish regular toothbrushing habits for children predicted higher likelihood of reported twice-daily toothbrushing behaviors in children (Adair et al., 2004). Similarly, parental knowledge of and belief in the negative effect of snacking on sugary foods and drinks in elevating risk of caries
development predicted higher likelihood of low-sugar dietary choices for children, including not adding sugar to drinks, less frequent consumption of sugary snacks, and the use of sugar-free medications (Adair et al., 2004; Hooley et al., 2012). Moreover, parental efficacy, or parents’ belief in their ability to establish and maintain healthy oral health habits for their children, was a strong predictor of healthy oral health habits in children (Adair et al., 2004; Gussy, Waters, Riggs, Lo, & Kilpatrick, 2008). For example, parents having confidence in their ability to establish regular toothbrushing habits and control the consumption of sugary snacks for their children predicted higher likelihood of parents reporting children brushing teeth twice daily and having healthy sugar snacking habits (Adair et al., 2004).

On the other hand, parents’ inaccurate knowledge and misguided belief of and negative attitudes towards oral health of children often lead to unhealthy oral health-related behaviors in children (Adair et al., 2004; Hilton et al., 2007; Hooley et al., 2012). First, misguided parental beliefs about primary teeth and dental caries can inhibit parents from taking preventive measures to care for children’s teeth. For example, not believing in the long-term importance of primary teeth and the connection between cavities in primary and permanent teeth contributed to parents not seeking preventive dental care for their young children (Amin & Harrison, 2009; Hilton et al., 2007). Also, the beliefs that cavities in primary teeth are unavoidable and that preventive dental care is not effective in preventing caries likely led to parents not taking preventive actions to protect their children’s primary teeth (Amin & Harrison, 2009; Hilton et al., 2007; Hooley et al., 2012). Second, inaccurate knowledge about the protective and risk factors of dental caries can prevent parents from adopting healthy oral health care habits for their children. For example, the lack of awareness that cariogenic bacteria, S. mutans, can be transmitted from the parent to a child through saliva, likely contributed to parents’ practices of pre-tasting food before feeding it
to children and sharing eating utensils with children, both of which elevate children’s risk of developing ECC (Gussy et al., 2008; Wan et al., 2001, 2003). Another example is that confusion over the protective effect and the appropriate use of fluoride in caries prevention likely prevented parents from using fluoride toothpastes for their children in daily toothbrushing (Fukuda, Shinsho, Shigemasa, & Saito, 2007; Gussy et al., 2008). Third, the lack of practical knowledge of how to establish healthy oral health care habits for children can be a barrier that prevents parents from adopting good oral health practices for children (Amin & Harrison, 2009; Riedy, Weinstein, Milgrom, & Bruss, 2001). For example, not knowing effective techniques to help children cooperate with daily toothbrushing prevented many parents from brushing teeth twice a day for their children (Amin & Harrison, 2009; Riedy et al., 2001). Fourth, parents’ permissive parenting styles and low levels of parental efficacy can prevent parents from helping their children adopt healthy oral health care habits. For example, both permissive attitudes towards children’s sugar snacking habits and low confidence in establishing regular toothbrushing habits for children likely prevented parents from successfully controlling sugar snacking habits and establishing healthy oral hygiene habits for their children (Adair et al., 2004; Amin & Harrison, 2009; Gussy et al., 2008; Hooley et al., 2012). Lastly, parents’ misconceptions of the role of dental professionals in the care of children’s oral health can negatively affect the oral health of their children (Amin & Harrison, 2009; Hilton et al., 2007). For example, some parents’ perceptions that dental professionals, instead of themselves, should be responsible for the condition of their children’s teeth likely prevented these parents from adopting better oral homecare practices to help children achieve better oral health (Amin & Harrison, 2009). Moreover, parents with past negative experiences receiving dental treatments tended to have lack
of trust in or even fear towards dentists, which, in turn, made them less likely to bring their children to see a dentist unless a dental problem arose (Hilton et al., 2007; Riedy et al., 2001).

Overall, family socio-economic circumstances and parental oral health-related knowledge, beliefs, and attitudes are important factors in the family environment that shape the oral health practices of children and influence their oral health outcomes.

**Chinese cultural influences on children’s oral health.**

Parents’ understanding of children’s oral health and oral health-related beliefs and attitudes are often influenced by culture, including those of Chinese parents (Arora et al., 2012; Hilton et al., 2007; National Health and Family Planning Commission of the People’s Republic of China, 2009; Wong et al., 2005). The Chinese culture has some oral health norms and beliefs that may prevent parents from adopting practices conducive to promoting their children’s oral health. For example, a very common belief amongst Chinese parents is that primary teeth are not important and that they fall out eventually to give a second chance to permanent teeth (Arora et al., 2012; Hilton et al., 2007; National Health and Family Planning Commission of the People’s Republic of China, 2009; Wong et al., 2005). The results of one study in the United States showed that some parents declined dental treatment for cavities for their children because they strongly believed that baby teeth were not important (Wong et al., 2005).

Another common misunderstanding among Chinese parents is that preventive dental visits are unnecessary for maintaining good oral health for children. Instead, many people regarded professional dental care as for treatment purposes and should only be accessed when there were problems, such as tooth pain and discomfort (Hilton et al., 2007; Wong et al., 2005). The lack of value some parents associate with preventive dental visits may be a factor for parents’ decision to only bring their children to see dentists when pain and discomfort arise.
Moreover, some Chinese parents hold the belief that routine procedures in preventive dental visits can do more harm than provide benefits for children’s oral health. For example, some parents believed that dental cleaning may loosen teeth, scratch tooth surfaces, and cause damage to natural teeth (Wong et al., 2005). Overall, the beliefs that baby teeth are unimportant, preventive dental visits are unnecessary in maintaining good oral health, and preventive dental procedures cause damage to teeth may all contribute to parents adopting less-than-optimal oral health practices for their children.

Aside from some misguided oral health beliefs and perceptions, the social influences, especially those from extended family members, may also hinder Chinese parents’ effort to adopt good oral health practices for their children. In the Chinese culture, respect for elders is regarded as an important virtue and almost always upheld in making decisions, including health-related ones (Arora et al., 2012; Wong et al., 2005). It is very common for Chinese grandparents to take on the role of caregivers for grandchildren, including making health-related decisions (Arora et al., 2012; Hilton et al., 2007). In Chinese households, another common practice is that health-related decisions are made at the level of household and that individual health care decisions are often heavily influenced by members of their social networks, especially family members (Jin, 2010). Under the influence of these traditional values and practices, young Chinese parents may be pressured to follow the advice of elders as a sign of respect, even if the advice is in conflict with recommendations offered by dental professionals. Many young parents reported receiving conflicting information from elders in the family and dental health professionals (Hilton et al., 2007; Wong et al., 2005). For example, findings from one study showed that some Chinese parents, whose children were recommended by dentists to undergo multiple tooth extractions due to severe tooth decay, experienced difficulty accepting treatments that countered the advice of
mothers-in-law and mothers who believed that baby teeth need not to be treated (Wong et al., 2005). While the majority of the parents proceeded with treatments for their children despite feeling guilty about disrespecting the elders, the advice from elders was a major influence for other parents to refuse dental treatments (Wong et al., 2005). Other members of parents’ social network, such as friends and neighbors, also influence parents’ decisions in bringing children for dental treatment services. For example, a Chinese immigrant mother declined treatment for her son’s teeth after consulting her friends in China and the United States who questioned the necessity and safety of multiple tooth extractions under general anesthesia, despite dentists’ recommendations (Wong et al., 2005).

In addition to social influences, dental professionals and institutions in both home and host countries of the family can play a key role in influencing Chinese parents’ dental care decisions for their children. Dental professionals from home and host countries can provide conflicting information to parents regarding dental treatment options. For example, some parents received contradictory recommendations from dentists in China and the United States regarding the appropriate age for multiple tooth extractions (Wong et al., 2005). Moreover, dental advice and information provided to parents in the host country may reflect inadequate understanding of and consideration for parents’ respective cultures. For example, dental professionals may not understand the common, though mistaken, belief in some cultures that baby teeth are not important, and blamed parents for not taking proper care of children’s teeth and being late in seeking professional dental care (Wong et al., 2005). In a similar manner, dental health educational materials often provided advice that showed lack of understanding and consideration for cultural differences (Arora et al., 2012). Findings from one study in Australia showed that Chinese parents experienced difficulty in following the dietary recommendation that children eat
low-sugar foods, such as avocado, cheese, and yogurt for snacks, as these foods are not usually
given to children on a traditional Chinese diet (Arora et al., 2012). The culturally inappropriate
dietary advice may leave Chinese parents unable to decide what food to provide to their children
to protect their teeth, while not having to change the traditional Chinese diet for their children
altogether.

Overall, Chinese culture likely influences parents’ oral health practices for their children
through shaping culturally based oral health norms and influencing the oral health beliefs of
parents and members of their social network. In addition, culturally inappropriate dental care
services and information provided to Chinese immigrant parents and children in the host country
may further prevent parents from adopting optimal oral health practices for their children.

**Dental health care system influences on children’s oral health.**

Features of a dental health care system greatly influence children and their families’
access to and utilization of professional dental services. The differences in the overall dental
health care organization between the People’s Republic of China (PRC) and Canada, especially
with respect to the methods of financing for dental services, availability and nature of public
dental health programs for children, and the number and distribution of dental professionals, may
contribute to the observed differences, as noted previously, in the dental service utilization
patterns and overall dental health status of children in the two countries. For Chinese immigrant
families with young children that have recently migrated from the PRC to Canada, their dental
service use patterns are likely influenced by their dental care experiences and observations in
their home country, in addition to the influence of the dental health care system in the host
country. Therefore, an understanding of similarities and differences between the dental care
systems in Canada and the PRC is necessary to help understand how the dental health care
systems of both countries influence the oral health practices, especially professional dental care seeking behaviors, of Chinese immigrant parents with young children in Vancouver and Richmond, BC.

In both Canada and the PRC, dental care is mainly privately financed. While the majority of Canadians use private dental insurance to cover dental costs, most Chinese pay out-of-pocket for dental services. Having to pay out of one’s own pocket may discourage the utilization of dental services in the PRC, as indicated by the much lower rate of use of dental services as compared to the rate of dental service use in Canada (Health Canada, 2010a; Xia, 2010).

In Canada, the private sector accounted for approximately 93.7% (i.e. $11.7 billion) of the total spending on dental expenditures in 2012 (Canadian Institute for Health Information, 2014). Of the total private dental expenditures, private insurance accounted for 59.6% and household out-of-pocket spending accounted for 40.4% of the dental expenditures (Canadian Institute for Health Information, 2014). The majority of the Canadian population had dental insurance coverage, with about 62% of the population accessing private insurance, mostly through employment benefits, and 6.1% drawing from public insurance. Still, approximately 32% of the population had no dental insurance coverage (Health Canada, 2010a, 2010b).

In the PRC, on the other hand, out-of-pocket payment is the primary method of financing dental services for most people. There is limited data on the breakdown of dental expenditures at the national level; however, a few studies suggested that the proportion of adults paying solely out-of-pocket for dental services was between 67.8% and 86.1% in selected cities in the PRC (Liu, 2013; Liu et al., 2013; Qu et al., 2011). In particular, one of the studies found that 90.7% (n= 858) of parents paid solely out-of-pocket for their children’s dental care in Xi’an, a medium-sized municipality in Central China (Liu, 2013). The use of private commercial dental insurance
or employment dental benefits is very low in the PRC, unlike in Canada. Liu (2013) found that only 0.4% of parents used a commercial dental plan, and 2.9% of parents used dental benefits to cover the costs of dental services for their children. In terms of public funding for dental services, over 90% of the Chinese population has access to the Basic Medical Care plan, which can be used to cover some dental costs (Anonymous, 2014; Qu et al., 2011). The rates of use of the plan to cover dental costs were low, with only 17.9% of adults and 5.9% of parents using the plan to cover costs of dental services for themselves and their children respectively (Liu, 2013; Liu et al., 2013). Paying for dental services through the Basic Medical Care plan offers few benefits over paying out-of-pocket, given that the funding available in the plan is half contributed by the individual patient and that the limited funding available through the plan is shared between multiple outpatient medical and dental services (Liu, 2013; Qu et al., 2011).

Overall, both countries rely mainly on private financing, with limited contribution from the public sector for dental expenditures. For both Canada and the PRC, part of the public funding for dental health care is in the form of governmental support for public dental health programs for children. Both the Canadian and Chinese governments offer free dental preventive services to young children. The preventive dental services for children in both countries include screening for dental caries, referral and/or application of fluoride varnish and dental sealants, and oral health education to parents. A main difference between the two countries with respect to governmental support for dental care is that Canada has public programs that provide financial subsidies for children to access regular dental care, while no equivalent program is available in the PRC, which may contribute to the observed differences in overall dental service utilization patterns and oral health status of children in the PRC and Canada.
In Canada, public dental programs for children are developed at the provincial level and vary from province to province. In the province of British Columbia, Canada, the provincial Early Childhood Dental Programs have been providing free dental assessment and referral to preventive and treatment services to all children under the age of six and are delivered at the level of regional health authorities (Poon et al., 2011). Dental program staff assess a child’s risk for caries by interviewing parents about dentist visiting patterns, sibling/parent dental decay, oral hygiene and dietary practices, and potential barriers to access (Poon et al., 2011). For children identified as having high risk of developing caries and those who have active caries, program staff refer families to a preventive fluoride varnish program or suitable diagnostic and treatment services (Poon et al., 2011). The public dental programs for children in BC are designed to include all children under the age of six in the province; however, the statistics on the actual percentage of children being covered by the programs is not available.

In the PRC, public dental programs are developed at the federal or provincial level depending on the region. For example, the most wide-reaching federal program, the Children’s Oral Disease Integrated Intervention Pilot Project (CODIIPP), provides free dental services to children in selected sites in 22 out of 34 provinces and autonomous regions in the Western and Central parts of China (National Health and Family Planning Commission of the People’s Republic of China, 2013). The CODIIPP program has been providing free dental examinations, dental sealant applications, and oral health education of school-aged children since 2008 (National Health and Family Planning Commission of the People’s Republic of China, 2013). Starting in 2012, the program has incorporated free fluoride varnish applications for pre-school children between ages three and six in pilot sites of twelve provinces (National Health and Family Planning Commission of the People’s Republic of China, 2013). Although the program
continued to expand, the coverage rate of children and regions remained low, with children in 17% (i.e. 392) of all counties (cities, districts, and production units) in the Central and Western regions covered by the program as of year 2012 (National Health and Family Planning Commission of the People’s Republic of China, 2013). Besides the CODIIPP program, the most affluent Eastern regions of China have been developing public dental programs for children at the provincial and/or municipal level with varying coverage rates for children. For example, the Beijing municipal government has been offering free applications of dental sealant to school-aged children and fluoride varnish to pre-school children in 113 designated dental care facilities since 2005 and 2011 respectively (Anonymous, 2010; Beijing Daily, 2013; Beijing Municipal Health Bureau, 2013; Beijing Stomatological Association, China, 2013; Government of Beijing, 2011). The statistics on the percentage of children being covered through the program is not available.

In addition to the public dental preventive programs for young children, the province of BC has been offering financial support for low-income families with children under the age of nineteen to access regular dental services through the Healthy Kids (HK) program. The program provides $1,400 per child every two years for basic dental services, including dental exams, cleanings, fillings, and tooth extractions (Government of British Columbia, 2014). The uptake of the program was low, with less than 40% of the eligible children making use of it for dental care in both year 2005 and year 2011/12 (Dedyna, 2013; Quinonez et al., 2007, pg. 94). Similar to the province of BC, all of the other twelve provinces and territories in Canada have been providing some form of financial support to young children from low-income families to access regular professional dental care, though the programs varied from province to province (Rowan-Legg & Canadian Paediatric Society, Community Paediatrics Committee, 2013). For the PRC, no
information can be found that indicated any of provinces or autonomous regions offered public financial subsidy programs to young children and their families to access regular dental care.

Another feature of the dental system that may contribute to differences in dental service use and dental health status of children in the two countries is the number and distribution of dental professionals. Both countries have uneven geographical distribution of dental professionals, while the PRC experiences an additional overall shortage of dental professionals. The total number of dental professionals in China was 136,520 in 2008 (Gao & Li, 2013; Zhao, Sun, & Sun, 2010). The dental professional-to-population ratio was about 1:10,000 (Gao & Li, 2013; Wang, 2012). The ratio is much lower than the World Health Organization’s recommendation for countries to have one dental professional for every 5,000 residents (Wang, 2012). In comparison, Canada had a total of 42,633 dental professionals in 2007 and an overall dental professional-to-population ratio of 1:777 (Health Canada, 2010a). Specifically, there was one dentist for about every 1,700 residents and one dental hygienist for about every 1,500 residents (Health Canada, 2010a).

Despite the difference in overall supply of dental professionals, both countries experience uneven distribution of dental professionals. In the PRC, the geographic distribution of dental health care providers concentrates in the more affluent Eastern regions. For example, in the Beijing municipality, there was one dentist serving every 3,600 to 3,700 residents, a ratio much higher than the national average (Gao & Li, 2013; Wang, 2012). On the other hand, the geographic distribution of dental professionals was less concentrated in the Central regions and loosely distributed in the least developed Western regions (Gao & Li, 2013). The same pattern existed within each province, where more dental professionals concentrated in more affluent regions and fewer professionals in less affluent regions of the province (Gao & Li, 2013; Lin &
Schwarz, 2001). Similarly, the geographic distribution of dental professionals in Canada is very uneven. Both the rural/urban distribution and distribution across provinces showed the uneven pattern. The dental professional-to-population ratio in urban areas was 1734:1, while that of rural areas was 5,096:1, indicating that three times as many dentists were serving the urban population than the rural population in Canada by 2009 (Canadian Dental Association, 2010b). The same uneven distribution pattern was observed across provinces in Canada, where British Columbia had the highest ratio of 1,509:1 and Newfoundland and Labrador had the lowest ratio of 2,891:1, almost twice the difference (Canadian Dental Association, 2010b).

In conclusion, the dental health care systems in the PRC and Canada have similarities and differences. Both systems have pre-dominant private financing of dental expenditures, public dental programs for children with limited coverage, and unequal geographic distribution of dental professionals. The two systems also have differences. In Canada, dental insurance is available to the majority of the population, public dental programs are designed to improve children’s access to regular dental care, and the overall supply of the dental professionals meets the demand of the population. While in the PRC, out-of-pocket payment is the primary means of financing dental services for the majority of the population; public dental programs for children focus on providing temporary preventive interventions rather than facilitating access to regular dental care, and the supply of dental professionals cannot meet the demand of the population. Overall, the differences between the two dental care systems likely contribute to the observed differences in the rates of dental service utilization and overall dental health status of children in the two countries. For young Chinese immigrant children whose families recently moved from the PRC to Canada, their oral health practices and outcomes were likely influenced by both dental care systems. Thus, the differences in the dental health care systems between the PRC and
Canada likely contributed to disparity in oral health condition between young Chinese immigrant children and non-immigrant children in Canada.

**Rationale for the Present Study and Research Questions**

Dental caries is the most common chronic disease affecting the teeth of children under the age of six. Immigrant children and adolescents tend to experience dental caries at a greater prevalence and severity in Canada and the United States than non-immigrant children and adolescents (Chinn et al., 2011; Locker et al., 1998).

The review of relevant literature highlighted ways that Chinese immigrant families may face unique challenges in promoting the oral health of their children in a host country like Canada. Factors at multiple levels may create barriers for Chinese immigrant parents in adopting practices that help promote their children’s oral health. For example, immigrant parents may experience socio-economic disadvantages that came as a result of difficulty in finding and securing suitable employment, held different oral health beliefs and attitudes that were culturally embedded, as well as experienced pressure to adjust to different, and often stricter, oral health norms in the host country (Amin & Harrison, 2009; Arora et al., 2012; Dong, Levine, Loignon, & Bedos, 2011; Dong, Loignon, Levine, & Bedos, 2007; Wong et al., 2005). In particular, the review of the literature indicated that Chinese immigrant parents may face unique challenges from non-immigrant parents, such as cultural, language, and financial barriers, that merit further exploration (Dong et al., 2011; Hilton et al., 2007; Wong et al., 2005). Previous studies in the United States revealed that Chinese immigrant parents held different beliefs and attitudes toward oral health than many non-Chinese parents, such as beliefs that dental preventive visits are unnecessary and that dental cleanings may loosen teeth (Hilton et al., 2007; Wong et al., 2005). In a Canadian study by Amin and Harrison (2009), the authors also found that Chinese parents
held oral health beliefs that were considerably different from those of non-Chinese parents, including feeling ambivalent towards the effectiveness of preventive dental care in preventing dental caries and having more permissive attitudes toward children’s demand for sugary snacks.

Despite the initial evidence, there has been limited previous research that specifically examined the unique challenges and/or barriers Chinese immigrant parents may face in promoting oral health for their children. In the province of British Columbia from year 1999 to 2012, the highest number of new immigrants (i.e. more than 20%) came from Mainland China (BC Stats & Citizenship and Immigration Canada, 2016; Government of British Columbia, 2015). The majority of the Mainland Chinese immigrants came as economic immigrants (i.e. skilled workers, provincial nominees, and investors) and through family reunion (BC Stats & Citizenship and Immigration Canada, 2016; Government of British Columbia, 2015). Given the disparity in oral health condition between immigrant and non-immigrant children in Canada and the significant number of Chinese immigrants in BC, a study that examines the oral health of young Chinese immigrant children (ages 0-6) is needed. In this study, I aim to acquire an understanding of the experiences and perspectives of Chinese immigrant parents in Vancouver and Richmond, BC in promoting the oral health for their young children and also to identify the types of challenges faced and supports needed by these parents.

The population of interest is recently (i.e. within the last ten years or not before year 2005) immigrated Chinese parents of children under the age of six in Vancouver and Richmond, BC. The specific objectives of my research are to investigate 1) Chinese immigrant parents’ understandings and practices of oral health care for their young children, and 2) contextual and environmental factors that influence the understandings and practices of oral health care of
Chinese immigrant parents for their young children. The specific research questions under investigation are:

1. What are Chinese parents’ practices in promoting their young children’s (ages 0-6) oral health?
2. What types of factors (e.g. family, cultural, social, economic, health system) influence parents’ practices for promoting their young children’s (ages 0-6) oral health?
   A. Chinese parents’ understanding of good oral health and/or practices that promote oral health (internal factors)
   B. Perceived barriers and facilitating factors for parents in adopting optimal oral health practices (environmental/contextual factors)
   C. Supports needed by parents to help their children achieve better oral health

To respond to the research questions, I interviewed Chinese immigrant parents of young children (n=15) regarding their experiences and perspectives in promoting oral health care for their children. I also included the perspectives of dental professionals (n=4) and members of community agencies (n=3) who provided services and support to Chinese immigrant families with young children. By combining the perspectives of Chinese immigrant parents, dental professionals, and members of community agencies, a more comprehensive understanding was gained about the social, economic, cultural, and health care system-level factors that influenced Chinese immigrant parents’ efforts to promote oral health for their children and the supports needed by parents to achieve optimal oral health for their children.
Chapter Two. Method

Theoretical Framework and Researcher’s Stance

The objectives of this research are to study Chinese immigrant parents’ understandings and practices of oral health care and identify contextual and environmental factors that influence Chinese immigrant parents’ understandings and practices of oral health care for their young children (ages 0-6) in Vancouver and Richmond, British Columbia. With the research focus on parents’ perspectives and experiences of oral health care for their children, a social constructivist paradigm that emphasizes the subjective meanings and the contextual influences that shape the meanings about a topic would be suitable in guiding the research methodology (Creswell, 2007; Patton, 2002). In contrast to research grounded in a postpositivist paradigm that aims to develop objective knowledge about causal relationships from observable evidence, a study within the social constructivist paradigm focuses on the varied and multiple subjective meanings about a topic that are socially constructed (Alvesson & Sköldberg, 2009; Creswell, 2007; Patton, 2002; Phillips & Burbules, 2000).

The social constructivist paradigm involves the formation of meaning through social interactions with others, as well as with social, cultural, and historical contexts of participants (Creswell, 2007; Patton, 2002). This emphasis on individuals’ interactions with external contexts through which meanings are constructed enables me to examine the influence of context and environment on Chinese immigrant parents’ understandings and practices of oral health care for their children. Moreover, the social constructivist paradigm allows me to understand the complexity of the issue of oral health care in Chinese immigrant families through examining the multiple perspectives of Chinese immigrant parents on oral health care for young children. In the social constructivist paradigm, the researcher aims to understand the complexity of the multiple
perspectives of participants, rather than narrowing these views into predefined categories (Creswell, 2007; Patton, 2002). Working within the social constructivist paradigm, I derived patterns of meanings inductively by basing my analysis closely on participants’ stories on oral health and practice, rather than more deductively from theory.

An important aspect of working within the social constructivist paradigm is to recognize my role as a researcher and that my own background and thinking all play key roles in shaping my interpretation of the stories of my participants (Creswell, 2007; Patton, 2002). Therefore, it is important that I understand and make clear how my own personal, cultural, and social backgrounds and experiences shape the way I interpret or make sense of the meanings the study participants may have about oral health and practices for their children.

Reflecting on my own background and experience, two experiences may influence my interactions with the participants and interpretations of meanings of their stories. The first is my own immigration experience. Having recently immigrated to Canada from Mainland China myself, my immigration experience helps me relate to the oral health care experiences of Chinese immigrant parents for their young children in Canada. However, having the first-hand immigration experience may also predispose me to interpreting the experiences of my participants through the lens of my own experience, which may share similarities with and have differences from their unique experiences. A second influence is my knowledge of the literature and theories on social determinants of children’s oral health and the oral health of immigrant children. My familiarity with the body of literature and theory in social determinants of oral health and immigrant children’s oral health gives me foundational understanding of some complex issues confronting Chinese immigrant parents in promoting oral health for their children and the potential multi-level determinants influencing their children’s oral health. However, my
familiarity with the literature and theory may bias my interpretations of the participants’ stories to fit the existing frameworks and, in turn, undermine the study’s objectives of describing parents’ stories and basing analysis closely on their stories.

To minimize the potential influence of both my own immigration experience and familiarity with relevant theories and literature, I engaged in an ongoing reflexive process throughout the research project to continually reflect on how my own experience and knowledge may influence my thinking and interpretation of my participants’ experiences. Some specific strategies I used were writing reflective memos and notes throughout different stages of the research, which are explained in more detail in the section on reflexivity.

Considering the overall objective of the project and theoretical framework within which I am working, I aim to conduct research that is: 1) suitable in responding to the research questions, and 2) compatible with the social constructivist paradigm. In line with these objectives, I have used purposeful sampling strategy, semi-structured interviewing, and thematic analysis to select the study sample, collect data, and analyze data respectively, as described in subsequent sections.

Data Collection

Participants.

This study involved three groups of participants: 1) Chinese immigrant parents (n=15) who are primary caregivers of young children between the ages of zero and six, 2) dental professionals (n=4) with experience providing oral health care to children from Chinese immigrant families; and 3) community agency members/service providers (n=3) with experience helping Chinese immigrant families settle in Canada.

Chinese immigrant parents provided information that directly responded to the research questions on 1) oral health care practices and 2) factors perceived by parents as influencing
parental oral health care practices for children. The direct and extensive involvement of parents in providing oral health care to their children gave them the firsthand experience and knowledge about oral health care for their children. The knowledge that parents had about their children’s oral health care routines enabled them to provide key information on oral health care practices adopted for their children. Also, parents’ perspectives on oral health care for children, which stemmed from their direct involvement in caring for their children’s oral health, provided the key information on factors perceived by parents as important in influencing the oral health care practices of their children.

Interviewing dental professionals and community agency members who had extensive experiences working with Chinese immigrant families with young children in Vancouver or Richmond provided key information on the dental health care system and immigration, respectively, as important contexts for the oral health care practices and experiences of young children from Chinese immigrant families. First, dental professionals provided their perspectives on the different ways the dental health care system, including dental insurance/benefit plans, dental practices, and dental health care providers, may have facilitated and/or created barriers for Chinese immigrant parents in providing oral health care and accessing dental services for children. The information on different aspects of the dental health care system contributed to my understanding of the dental health care system as a key context in the provision of oral health care to young children in Chinese immigrant families. Second, community agency members with experience in helping Chinese immigrant families settle in the city of Vancouver or Richmond shared their perspectives on the social, economic, cultural, and other changes that Chinese immigrant families experienced when adapting to life in Canada; and how such changes may have influenced the oral health care experiences of the families. The information on immigration
and related changes enhanced my understanding of immigration as an important context that shaped the oral health care experiences of young children in Chinese immigrant families.

Together, the triangulation of the perspectives from three different groups of participants provided a more thorough understanding of oral health care of young children in Chinese immigrant families than the perspectives of any group alone (Creswell, 2007; Maxwell, 2008). The perspectives of dental professionals and community agency members served to provide information on the contexts of dental health care system and immigration and supplement the perspectives of Chinese immigrant parents on factors influencing oral health care practices for young children.

**Sampling and inclusion criteria.**

*Chinese immigrant parents.*

Purposeful sampling was used to select participants for this study. Purposeful sampling involves the selection of participants with rich information about a topic being studied to allow for in-depth understanding of the topic (Patton, 2002). To obtain a broader range of experiences and perspectives of Chinese immigrant parents, I selected participants that varied based on the following two criteria:

1. **Length of residency in Canada**—included participants who had lived in Canada for less than five years and those who had lived in Canada between five and ten years (Rationale: with varying lengths of residency in Canada, the experiences and perspectives of immigrant parents with respect to oral health care for children may differ)

2. **Socioeconomic standings of populations served at sites of recruitment**—included sites of recruitment that differed in terms of the major socio-economic groups served
(Rationale: by recruiting from sites that serve different socio-economic groups, participants recruited were more likely to vary with respect to socio-economic status; thus, representing a wider range of perspectives and experiences with respect to oral health care for young children)

The use of purposeful sampling for selection of Chinese immigrant parents is consistent with the social constructivist paradigm, where multiple meanings and perceptions of individuals with different experiences and perspectives are sought and valued equally (Creswell, 2007; Patton, 2002). Moreover, the variation in the sample created by selecting participants that differed on the abovementioned criteria allowed for both rich descriptions of unique experiences and views on oral health care for children and identification of common core experiences and meanings of oral health for children shared by Chinese immigrant parents from different backgrounds (Patton, 2002).

In terms of sample size, the ideal criterion for an adequate sample is redundancy within the data or data saturation (Patton, 2002). Sampling can be terminated when data stability or saturation is reached, in other words, no new information pertaining to the research questions is gained from new participants (Hill, Thompson, & Williams, 1997; Patton, 2002). A few qualitative studies on Chinese immigrants’ perceptions and understandings of oral health suggest that, on average, a minimum of ten to fifteen interviews would be necessary to reach data saturation (Arora et al., 2012; Dong et al., 2007; Wong et al., 2005).

For this study, a total of fifteen (n=15) parent interviews were conducted in parents’ preferred language of Mandarin Chinese. During the process of recruitment and data collection, I re-listened to the audio recording following each interview and made notes of key findings and new information that emerged to help me gauge, on an ongoing basis, whether or not data
stability or saturation had been reached (Hill et al., 1997; Melanson, 2013). By the end of the fifteenth interview, it became clear that data stability or saturation was reached, with no new information emerging from the last interview that was not already covered in previous interviews.

To determine the eligibility of Chinese immigrant parents to be included in the study, the following criteria were used:

- Recent immigrant from Mainland China (immigrated to Canada no more than ten years ago or not before year 2005)
- Primary caregiver of at least one child who is six years of age or younger
- Residing in a neighborhood in the city of Vancouver or Richmond (i.e. within the Vancouver Coastal Health delivery area)
- Speaks either English or Mandarin-Chinese

**Dental professionals and community agency members.**

The selection of dental professionals and key members of community agencies also involved purposeful sampling. The criterion for inclusion of both groups was having extensive experiences working with Chinese immigrant families with young children. Since the sites of recruitment included in this study all served large numbers of Chinese immigrant families, the dental professionals and community agency members approached and recruited all had extensive experiences working with Chinese immigrant families for many years. A total of four (n=4) dental professionals and three (n=3) community agency members were interviewed as part of this study.
Ethical approval.

Minimal risk research approval was obtained from UBC Behavioral Research Ethics Boards on March 11, 2016 (H14-01975) and operational research approval was obtained from Vancouver Coastal Health Research Institute on May 5, 2016 (V14-01975). Subsequent study approval renewals were applied and granted by UBC Behavioral Research Ethics Boards on an annual basis. To protect the privacy and confidentiality of study participants, a pseudonym was assigned to each participant and socio-demographic information was only summarized and reported in aggregate forms.

Recruitment.

Recruitment of participants began in mid-March 2016 following research ethics approval from UBC Behavioral Research Ethics Board and ended in late June 2016, for a total duration of three months. The recruitment happened at the following sites:

1. Strathcona Community Dental Clinic, operated by Strathcona Health Society (http://strathcona-health.ca/index.asp): The clinic provides both preventive and treatment dental services at reduced costs to low-income families with children under the age of nineteen, with emphasis on inner city communities in the city of Vancouver.

2. Robert and Lily Lee Family Community Health Centre (http://www.vch.ca/locations-and-services/find-health-services/?program_id=1200): The dental clinic offers both preventive and treatment dental services under the Vancouver Public Health Children’s Dental Program to children whose families reside in the city of Vancouver. All children under 36 months of age and eligible children in grade seven and under can receive dental services at reduced costs. While the clinic serves mainly children from
low-income families, children from families with higher income are also eligible to access services through the clinic.

The program provides free dental prevention and early intervention services of ECC to children between ages one and five in the city of Richmond. Services are provided to all families in Richmond irrespective of socio-economic standing.

4. University Neighborhoods Association at UBC (http://www.myuna.ca/about-us/contact-us/): A council overseeing five residential neighborhood communities on UBC campus, all of which are within the city of Vancouver. The majority of the residents are UBC faculty, staff, students and families with middle-to-high income and educational levels.

5. Wesbrook Welcome Centre in Wesbrook Village: A community centre that provides community programs and services to both visitors and residents of the Wesbrook Village, a residential neighborhood near UBC Campus. Clientele includes families with young children residing in surrounding neighborhoods of UBC Campus.

6. MOSAIC (http://www.mosaicbc.com/about-mosaic): A non-profit organization that provides multi-lingual settlement and integration services to new immigrants and refugees in the Greater Vancouver Area. The clients served include new immigrant families with young children residing in the city of Vancouver and within the Vancouver Coastal Health delivery area.

Following research ethics approval from the UBC Behavioral Research Ethics Board in March 2016, I made formal requests for permission to recruit by sending invitation letters to
organizational leads at each of the six organizations and agencies. All six organizations and agencies gave formal approvals for recruitment. After obtaining permissions for recruitment, I reached out to and established connection with key contact persons at each organization/agency through e-mail communications, in-person meetings, or telephone calls.

After consultation and discussions with key contacts at each organization/agency, I employed the following strategies to recruit parent participants. First, I enlisted help from key contacts at each organization/agency to distribute study recruitment materials, including recruitment poster and invitation letters, to potential participants. Second, I posted recruitment posters in designated locations of respective organizations and agencies. Lastly, I was invited by leads at some of the organizations and agencies to introduce the research study to groups of parents in community events and programs using a script approved by the UBC Behavioral Research Ethics Board.

All recruitment materials were provided in both English and Simplified Chinese and included name and description of the study, commitment of participation, remuneration, and contact information, so that interested parents could reach me by telephone or via e-mail. Upon initial contact with potential participant, I explained the scope and purpose of the study to parents and informed them about whether or not they met inclusion criteria for participation. For parents who met all inclusion criteria and were interested in taking part in the study, we set up a mutually convenient time and location for the interview. A few days before the interview, I forwarded the informed consent to the participating parent via e-mail.

In the process of recruiting parent participants through the organizations and agencies, I have established contact with leads and staff members at respective organizations and agencies. In consultation with leads at each organization/agency, I sent e-mail invitations to respective
dental professionals/community agency members for individual interviews. For dental
professional/community agency members who were interested in participating, we set up a
mutually convenient time and location for interview. I forwarded an informed consent prior to
the interview for the participating dental professional/community agency member to review.

Data collection method.

Data collection was conducted using semi-structured, face-to-face interviews with
Chinese immigrant parents, dental professionals, and key members of community agencies. Data
collection started in March 2016 and was completed by end of June 2016. The face-to-face
interview format allows for the elicitation of verbal responses from participants and non-verbal
cues, such as gestures, facial expressions, and tones of voice (Patton, 2002). To capture verbal
and important non-verbal communications, I audio recorded each interview in its entirety and
took field notes of important non-verbal cues during the interview. The non-verbal cues were
used to help understand and remember the interview scenario and were not analyzed formally.
The semi-structured interview format is appropriate for this study as it strikes a balance between
consistency across interviews and flexibility within each interview (Patton, 2002). The semi-
structured interview is an interview format where the key topics to be discussed are determined
before interviewing to ensure that the same topics are covered in each interview (Patton, 2002).
Within the “predetermined” topics, however, the interviewer is “free to explore, probe, and ask
questions” about the experiences and perspectives of the interviewee (Patton, 2002, pg. 343).
Pre-framing the topics to be discussed ensures that interviewing is done in a “more systematic
and comprehensive” way across different interviews and that all relevant topics are covered in
the interviews within allotted time (Patton, 2002, pg. 343). At the same time, by not specifying
the exact interview questions to be asked and leaving the order of questions flexible, there is
freedom for the interviewer to ask questions that reflect the content and flow of each individual interview situation (Patton, 2002).

For interviews with the three groups of participants, I developed interview guides with questions that covered relevant topics on oral health care for young children in Chinese immigrant families, as detailed in the following sections. Probing and follow-up questions were used for in-depth exploration of the diverse perspectives and experiences of Chinese immigrant parents, dental professionals, and key members of community agencies. Interviews with parents were all conducted in Mandarin Chinese language. Interviews with dental professionals and community agency members were conducted in English, except one interview with a dental professional in Mandarin Chinese.

The interview guides were used and tested in Mandarin Chinese in two pilot interviews with one friend and a family member who were parents of children. The wording and questions were revised according the feedback from the pilot interviews.

**Interview protocol by group of participants.**

At the beginning of each interview, I began by reviewing the informed consent form with each participant.

**Chinese immigrant parents.**

After the parent participant reviewed and signed the consent form, I began by asking each participant questions on family socio-demographic information. Then I asked the participant a series of questions about the oral health home care practices and dental care seeking behaviors adopted for the child. The questions on a parent’s socio-demographic information and oral health care practices for children were used to provide a specific context for the later interview conversation about the parent’s perspectives of and experiences with children’s oral health care.
Next, I asked the participant about their understandings and personal experiences of oral health care, as well as general and specific (i.e. social, economic, and cultural) influences on oral health of children (see interview guide in Appendix A).

In terms of the length of parent interviews (n=15), the majority lasted between forty minutes and one hour. The shortest interview was fifteen minutes and longest was one hour and forty minutes. Despite variation in length of interviews, all questions in the interview guide were covered in each parent interview.

*Dental professionals.*

The foci for interviews with the dental professionals were on their experiences providing dental care to children from Chinese immigrant families, their thoughts on the role that the dental health care system may play in Chinese immigrant families’ access to dental services and promotion of oral health for children, and their suggestions on what more could be done within the dental health care system in Canada to support Chinese immigrant parents to promote oral health for their children (see interview guide in Appendix B). The lengths of interviews (n=4) with dental professionals were between fifty minutes and one hour and forty minutes.

*Community agency member/service providers.*

Interviews with community agency members (see interview guide in Appendix C) centered on their experiences helping Chinese immigrant families settle in Vancouver or Richmond and access professional dental services, their observations on Chinese parents’ efforts to promote oral health for their children, and their thoughts on the support and services needed to better facilitate Chinese immigrant parents to promote oral health for their children. The interviews with community service providers (n=3) were between seventy and eight minutes in length.
Data Analysis

All interview data were analyzed using thematic analysis (Braun & Clarke, 2006). The detailed description of thematic analysis and steps taken to carry out the analysis are explained below.

Thematic analysis.

Thematic analysis involves the development of a set of interconnected themes, through close examination and interpretation of the interview data, to represent the entire data set in a way that responds to the research objectives (Attride-Stirling, 2001; Braun & Clarke, 2006). Using thematic analysis involves making a number of decisions before starting the analytic process, including choosing the type of analytic approach, level of theme development, and interpretative paradigm, to best respond to the research objectives (Braun & Clarke, 2006).

The objectives of this research are to first reveal the wide range of experiences of and perspectives on oral health care for young children (ages 0-6) among Chinese immigrant parents and then identify the contextual factors influencing oral health care practices that Chinese immigrant parents adopt for their young children. To achieve the two research objectives, I conducted thematic analysis using an inductive approach to develop themes at the latent level, while working within the social constructivist paradigm.

The rationale for the analytic decisions made is as follows: First, an inductive analytic approach allows for coding that is based closely in the data without trying to fit the data into an existing coding frame and thereby helps reveal a range of experiences and perspectives among Chinese immigrant parents (Braun & Clarke, 2006). Second, a thematic analysis at the latent level, which goes beyond surface meanings of the interview data, allows for the identification and examination of underlying social, economic, cultural, and other contextual factors that shape
the meanings and practices of oral health care for young children among Chinese immigrant parents (Braun & Clarke, 2006). Third, a thematic analysis within the social constructivist paradigm allows for the examination of the influence of broader social, cultural, and economic contexts in shaping the meanings and practices of oral health care for young children among Chinese immigrant parents (Braun & Clarke, 2006).

**Transcription and initial coding.**

Throughout the data collection stage, I audiotaped each interview in its entirety on two separate digital recorders. Following each interview, I re-listened to the audio recording multiple times and wrote memos about first impressions and key points worth noting to help familiarize myself with interview data and prepare for initial coding. Concurrent data analysis allowed for the ongoing reflection on and refinement of interview questions to help focus later interviews to collect information still to be learned from the participants (Attride-Stirling, 2001; Braun & Clarke, 2006; Melanson, 2013). Re-listening to audio recordings and keeping memos of earlier interviews helped inform about content areas to be emphasized and elaborated on in later interviews, however, very few changes were made to the actual interview questions and all questions were used in all interviews.

Following completion of data collection, I carried out verbatim transcription for all interviews in NVivo 11 for Mac between November 2016 and February 2017. Verbatim transcription is a crucial step to ensure the accuracy of data collected and is a key strategy to ensure the quality of thematic analysis by familiarizing myself with the content of each interview (Braun & Clarke, 2006; Maxwell, 2008).

After verbatim transcription of interviews, I carried out initial coding for all parent interviews using NVivo 11 for Mac between February and July 2017. I began the coding process...
by reading and re-reading each transcript in its entirety to achieve immersion in the data and jotting down margin notes on transcripts for ideas to prepare for the formal coding process (Braun & Clarke, 2006). Then I selected three parent interviews with rich information and conducted systematic line-by-line coding to develop an initial coding framework with preliminary descriptions for initial codes. Using the initial coding framework, I continued line-by-line coding for all parent interviews and revised the coding framework throughout the initial coding process. By the end of initial coding, a framework, with nine main coding categories and around forty sub-categories, was developed and respective coded data extracts were sorted into one or more of the main/sub-coding categories. Throughout the initial coding process, I followed the inductive thematic analytic approach and coded systematically through the entire data set for as many categories as possible to prepare for developing themes at the next stage of coding (Braun & Clarke, 2006). I also put each individual data extract into as many categories as it fitted to facilitate later stages of coding as suggested by Braun & Clark (2006). For individual data extracts, I ensured to keep enough surrounding text to give context for the content of each data extract (Braun & Clarke, 2006). The initial coding and subsequent analysis for parent interviews were conducted in Mandarin Chinese without translating the interviews into English to ensure the accuracy of the language used. Translation was carried out in the final writing stage of Chapter Three on study results, where selected quotes from parent interviews were translated into English. The accuracy of translated texts was checked using back translation in Google Translate.

For the purpose of member checking, I sent summary reports of interview transcripts to respective parent participants. By August 2017, most parent participants had received summary reports of interview transcripts. For parents who could not be reached or explicitly expressed not
wanting to receive a summary report, I sent a follow-up e-mail with my contact information so that parents could reach me if they changed their minds about their decisions. I have not received any feedback or requests for changes from any parent participant. Member checking is an important strategy to validate credibility of findings and conclusions, as it is the best way to rule out the possibility of misinterpreting meanings and perspectives of participants on the issues being studied (Creswell, 2007; Maxwell, 2008; Melanson, 2013).

The same initial coding process was repeated for interviews with dental professionals and community agency members between February and July 2018 to develop initial codes and a working coding framework.

**Identifying and reviewing themes.**

I began the process of identifying and refining themes in July 2017 and completed this stage of analysis in February 2018. First, I sorted and compiled coded data extracts by main coding categories and sub-categories using the coding framework generated from initial coding. Then I proceeded to thoroughly review coded data extracts by categories to develop and refine main themes and sub-themes, which were organized into a working thematic map. A thematic map is a visual representation of the relationships and interconnectivity between themes both on the same level and across different levels (Attride-Stirling, 2001; Braun & Clarke, 2006). Throughout the analytic process, I wrote analytic memos to both track the analytic progress and make note of emerging analytic thoughts and ideas to help with theme identification and refinement. By the end of the theme identification and refinement process, I compiled coding summary reports for five main themes and multiple sub-themes with detailed descriptions of each theme/sub-theme and key supporting coded data extracts in preparation for writing up findings from this study.
For identification and refinement of themes, I followed the principles of “internal homogeneity”, referring to the coherence of data within a theme, and “external heterogeneity”, referring to sufficient distinctiveness between themes (Attride-Stirling, 2001; Braun & Clarke, 2006; Patton, 2002, pg. 465). In reviewing themes and corresponding coded data extracts, I first examined the coherence of coded data extracts within each theme and then the suitability of themes in relation to the entire data set. Meanwhile, I made necessary modifications, including removing duplicate data extracts, rearranging data extracts to suitable theme/sub-theme, and revising descriptions and names of themes/sub-themes, so that the resulting thematic map and coding summary reports met the dual criteria of “internal homogeneity” and “external heterogeneity”, as well as accurately reflected the overall meanings present in the entire interview data set (Braun & Clarke, 2006; Patton, 2002, pg. 465). I continued with the reviewing and refinement process until further refinement was not adding anything substantial to the refined thematic map as recommended by Braun & Clark (2006).

A similar theme development and refinement process was carried out to analyze interviews with dental professionals and community agency members between August and November 2018.

Data representation.

I summarized findings from analysis of the entire interview data set in Chapter Three. The writing was grounded in the themes and sub-themes developed from the interview data to address the research objectives of this study. As recommended by Attride-Stirling (2001) and Braun & Clarke (2006), I provided a detailed account of each theme and sub-theme with supporting data extracts.
Rigor and Validity

I have taken a number of measures throughout the research process to best ensure validity and rigor of my research.

Methodological congruence.

Throughout the research process, I have been attentive to methodological congruence between data collection and analysis procedures, and the social constructivist framework (Braun & Clarke, 2006; Creswell, 2007; Maxwell, 2008; Melanson, 2013; Patton, 2002). I have employed a reflexive process to ensure that social constructivism is the suitable theoretical framework for responding to the research questions and that the data collection and analytic methods selected work well within the social constructivist paradigm and are also suitable for responding to the research questions.

Reflexivity.

In a qualitative interview study, the researcher has inevitable influence on the conduct and outcomes of the research project (Maxwell, 2008). If not understood and used properly, the researcher’s theoretical understandings, values, and perspectives can lead to researcher bias and reactivity that distort the ways in which data are collected and analyzed (Maxwell, 2008). The complete elimination of the influence of the researcher is neither possible, nor recommended, in an interview study (Maxwell, 2008). Instead, the suggestion is to understand, acknowledge, and make appropriate and productive use of the researcher’s influence to help acquire knowledge, while maintaining the “integrity” of the researcher and the research project itself (Braun & Clarke, 2006; Creswell, 2007; Maxwell, 2008, pg. 243; Patton, 2002). One strategy to help understand and make clear the researcher’s role and influence on the research is ensuring reflexivity throughout the research process (Creswell, 2007; Maxwell, 2008; Melanson, 2013). In
this study, I endeavored to understand and acknowledge my role and position as a researcher in relation to the entire research situation, including participants. I wrote reflective memos and took notes throughout the research process, including before data collection, during data collection and analysis stages, to understand my own thinking and assumptions made and the influence they may have had on the way I conducted research and interacted with participants (Braun & Clarke, 2006; Creswell, 2007; Melanson, 2013).

**Familiarization with the settings.**

Given the short timeframe of recruitment stage of this study, I had limited time to establish contact and build rapport with immigrant parents and members of the community organizations prior to interviews. However, I used interview conversations with parents and professionals as opportunities to further understand the support and services offered by various organizations and gain familiarity with the settings and people in the relevant organizations, which helped place my research in the broader context of community (Creswell, 2007; Maxwell, 2008).

**Triangulation of perspectives.**

Triangulation is the process of collecting data from a diverse range of participants, settings, and with a variety of methods (Creswell, 2007; Maxwell, 2008). Triangulation helps minimize the possibility of “chance associations” and “systematic bias” that can occur by using any particular method or interviewing a homogenous group of participants, thereby increasing the credibility of explanations developed from the data (Creswell, 2007; Maxwell, 2008, pg. 245). In this study, I used purposeful sampling to recruit Chinese immigrant parents from diverse backgrounds and with different experiences of oral health care for children. In addition, I interviewed dental professionals and staff members of community agencies to collect a wider
range of perspectives on the issue of oral health care for young children in Chinese immigrant families. The triangulation of perspectives from diverse groups of participants helps ensure the credibility of information collected.

Data saturation.

As described in the section on Sampling and inclusion criteria of Data Collection, I continued to recruit and interview parents until the next interview was not adding new information relevant to the study. This redundancy within data is necessary to ensure an adequate sample and that enough information is collected from the participants on the issue of oral health care for young children in Chinese immigrant families (Melanson, 2013; Patton, 2002).

Strategies ensuring validity during data analysis.

In addition to verbatim transcription, member checking, and concurrent data analysis mentioned previously in the Data Analysis section, I employed three other strategies to ensure the quality of data analysis. The first strategy was comparison. Drawing from the constant comparison approach to data analysis, I compared emerging themes and supporting data extracts within and across interviews and related key findings from the study to current literature on oral health of immigrant children and relevant theories on social determinants of oral health (Boeije, 2002; Glaser, 1965). The comparison process helped me examine and validate the explanations and conclusions drawn from data analysis, as well as identify inconsistencies within the analysis to allow for modifications of explanations (Maxwell, 2008). The second strategy was debriefing with experts and peers in relevant fields of study to provide an ongoing external review of my research process (Creswell, 2007). Regular communications with members of my supervisory committee have helped identify important gaps and inconsistencies in my research design and process and brought improvement to all respects of the research study (Creswell, 2007). The
third strategy was to provide a rich and detailed description of my research process and findings. I provided a thorough description of the entire research process, with details about the participants, settings, interview protocol, and analysis procedures, allowing the readers to judge for themselves the quality and applicability of findings to other contexts (Creswell, 2007; Kvale & Brinkmann, 2015).

**Generalizability of results.**

The goal of this qualitative exploratory study is to generate findings that add to the body of literature on and contribute to the collective understanding of oral health care of Chinese immigrant children. In line with the goal of this research, I employed the approach of analytic generalization, where readers can make “reasoned judgment” of how and to what extent the findings of my study can be used as a “guide” to studying oral health care of immigrant children in other contexts (Kvale & Brinkmann, 2015, pg. 297). Unlike statistical generalization that relies on random and large samples to generalize to a wide population, the analytic generalization relies on a thorough and detailed account of the generalization “arguments and supporting evidence” for the reader to judge the applicability of findings in a different context (Kvale & Brinkmann, 2015, pg. 297; Patton, 2002). Using the analytic generalization approach, I provided a thorough description of the setting of my research, the specific research procedures employed and their limitations, my interpretation of and reasons for the significance and implications of the research findings, which, in turn, enables readers to decide if and how the findings can be applied to their own contexts.

Despite measures taken to ensure the validity and rigor of this research study, findings from this study may not be directly applicable to understanding the oral health care situation and needs of Chinese immigrant children in other settings in Canada. However, common findings
across multiple studies that examine the oral health care needs of Chinese immigrant children in
different contexts can collectively contribute to knowledge about this population and potentially
inform research and policy that aim to create supportive environments – at multiple levels – for
promoting the oral health of Chinese immigrant children.
Chapter Three. Results

Overview of Study Findings

Through in-depth thematic analysis of the complete interview data set, I have developed and summarized the main study findings in this chapter in the order of general understanding of oral health care, understandings and practices of oral health home care, access and utilization of professional dental care, challenges facing families in oral health care, support received by families in oral health care, and further support needed in oral health care. The analysis and summary of findings have emphasized the narratives of immigrant parents with young children, with the perspectives of dental professionals and community agency members incorporated to supplement and triangulate with the perspectives of parents where appropriate.

The socio-demographic characteristics of parent participants (n=15) were collected as part of the study and are summarized in Table 1 below. The majority of parents have resided in Canada for less than ten years, were between 31 and 40 years of age, had a family income below CAD $ 50,000, had one or two children and completed post-secondary school. About equal numbers of parents resided in Vancouver and Richmond. All parents were native speakers of Mandarin Chinese, a few also spoke Cantonese Chinese and were fluent in English. All but one of the parent participants were mothers of young children (i.e. sample of 14 mothers and 1 father), despite efforts to recruit both mothers and fathers into the study.
Table 1.
Socio-demographic characteristics of parent participants (Number of Families, N=15)

<table>
<thead>
<tr>
<th>Length of residence in Canada (years)</th>
<th>N=</th>
<th>Place of residence</th>
<th>N=</th>
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<tbody>
<tr>
<td>0-5</td>
<td>6</td>
<td>Vancouver</td>
<td>7</td>
</tr>
<tr>
<td>6-10</td>
<td>7</td>
<td>Richmond</td>
<td>7</td>
</tr>
<tr>
<td>10+</td>
<td>2</td>
<td>Other</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age range (years)</th>
<th>N=</th>
<th>Annual family income ($)</th>
<th>N=</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30</td>
<td>2</td>
<td>&lt;30,000</td>
<td>7</td>
</tr>
<tr>
<td>31-35</td>
<td>5</td>
<td>30,000-50,000</td>
<td>5</td>
</tr>
<tr>
<td>36-40</td>
<td>6</td>
<td>&gt;50,000</td>
<td>3</td>
</tr>
<tr>
<td>40+</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of children</th>
<th>N=</th>
<th>Highest education level</th>
<th>N=</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>3</td>
<td>Secondary</td>
<td>2</td>
</tr>
<tr>
<td>Two</td>
<td>9</td>
<td>Post-secondary</td>
<td>13</td>
</tr>
<tr>
<td>Three</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

General Understandings About Oral Health and Care

All parents shared their general understandings and knowledge about oral health care. More specifically, parents described their perceptions and understandings about the importance of oral health as related to general health of children, the roles of primary teeth in children’s quality of life and in relation to the outcome of permanent teeth, as well as the varying levels of preventability and multi-factorial causes of dental caries.

Importance of oral health.

All parents described oral health as being important for both children and adults. Many parents experienced oral health issues themselves, which prompted parents to have the intention to practice better oral health care for their children from early on to prevent similar oral health issues from happening to their children. For example, one parent described that her and her spouse’s experiences with dental pain and treatments brought forward the realization of the importance of oral health and the intention to practice good oral care from early on for their
child, “sometimes we go to see the dentist because of pain and it's really troublesome... so we'd like to care for his (the child’s) teeth well” (Louisa, parent).

In terms of priority of oral health in relation to other health care needs of children, most parents considered oral health as an integral part of overall health and was equally as or even more important than other health needs of children. For example, one parent explained her understanding about oral health being a key part of overall health and having important influence on the general health of children, “I think that teeth are important... because if her teeth are not good that would affect her eating... then that affects nutrition and her overall health” (Kendra, parent). On the other hand, a few parents perceived oral health as separate from the overall health of children and placed less emphasis on oral health than with other health needs of children, “teeth I may not give priority consideration to them... if other aspect let’s say overall health I may pay more attention to overall health... this (oral health) I also place emphasis... but compared to health of the body I would place more emphasis on overall health” (Claire, parent).

**Importance and function of primary teeth.**

All parents considered primary teeth to be important for children. Many parents explained the connection between condition of primary teeth and the outcome of permanent teeth of children and that dental caries in primary teeth may affect the health of permanent teeth later on as described in the words of a parent, “if primary teeth are decayed... I think the root of teeth could be affected... may affect adult teeth that grow out later on I suspect... I believe so” (Veronica, parent).

In terms of the functions and role of primary teeth in children’s everyday life, many parents considered that primary teeth are important for eating, speech, and keeping good aesthetics. In particular, some parents explained that the importance of primary teeth lies with its
impact on children’s quality of life and shared the understanding that if children suffered from
dental issues in primary teeth then they would experience discomfort and pain affecting their
everyday life, “we Chinese say ‘toothache is not an illness but when it hurts it nearly kills’… if
there is some minor tooth problem like for my second child… sometimes there is pain in the
gums… then he doesn’t eat well… and becomes difficult to deal with” (Alexis, parent).

On the other hand, a few parents expressed the understanding that primary teeth would fall out eventually to give place to permanent teeth so that even if children had caries in primary teeth, it would not be an issue, “primary teeth are okay no decay is enough… and I keep thinking
even if primary teeth have cavities… as long as they will grow again… if when the next set of
teeth grow out… then need to remind her often… because I feel that if the next set of teeth are
damaged then there is nothing you can do” (Kendra, parent).

Preventability and causes of dental caries.

All parents believed that dental caries in children was mostly preventable and that the risk
and extent of developing dental caries could be greatly reduced through the adoption of good
oral health care practices for children, “I feel that if you clean them (teeth) well and protect
them… on your own can absolutely protect them well… don’t eat too much sugary foods… and
brush twice daily… use floss to clean” (Claire, parent).

Although not specifically asked during the interviews, many parents spontaneously
brought up the perception that the causes of dental caries were multi-factorial and that both
genetic predisposition and oral health care habits were important in determining children’s risk
of developing dental caries. In particular, a few parents believed that genetics may play a more
significant role in determining children’s risk of developing dental caries than later oral health
care as described in the words of a parent, “I think the thing with teeth is mostly born with...
some people are naturally more prone to have cavities... although what you do later on has some influence but I feel seventy percent is predetermined and the rest of thirty percent depends on how you care for it” (Jody, parent).

Overall, all parents believed in the importance of oral health, understood the roles and functions of primary teeth, as well as the causes and preventability of dental caries for children. Despite some differences in perceptions and understandings about oral health, all parents had the intention and made the effort to promote oral health for children as described in more detail in later sections.

**Oral Health Home Care Practices**

To promote oral health for children, parents employed a range of strategies to help children establish oral health home care routines, including feeding and dietary practices, oral hygiene practices and the use of complementary home remedies. Parents shared their understandings about various oral health home care practices and described the process of establishing and modifying oral health home care practices based on children’s developmental stages.

**Feeding and dietary practices.**

Parents described the feeding and dietary practices, ranging from night feeding to sugar snacking and dietary choices, adopted and modified for their children and their understandings of the importance of feeding and dietary practices in relation to oral health care for children.

**Early feeding practices and understandings.**

The majority of parents reported a combination of bottle-/breastfeeding for children. Most children weaned from night feeding before or at around one-and-a-half years of age, while a few parents weaned children off night feeding after two years of age. For most children,
weaning from night feeding happened naturally following or at the same time as weaning from bottle-/breastfeeding. However, a few parents weaned children from night feeding at an earlier age than the time of weaning from bottle-/breastfeeding.

Many parents shared the understanding that the timing for weaning off night feeding depends on the specific feeding and developmental needs of children. The perceived appropriate ages for weaning from night feeding varied among parents, ranging from five months up to two years of age. Some parents learned from parenting books, doctor’s visit or based on their own observations about children not needing night feeding once they were past a few months of age, “some children can sleep through the night from very early on... other children would demand for feeding... and it says in the book that after adding supplement food (children) gradually do not require night feeding anymore” (Yvette, parent).

To help children wean from night feeding, parents came up with a range of practical strategies, including gradually increasing feeding intervals at night, giving bottle with only water or using a teether to soothe a crying child, and letting another family member care for child at night. In particular, a few parents mentioned the harm to dental development of prolonged use of teethers and the practice of never leaving teether in a child’s mouth for long periods of time. For example, one parent described giving a teether to soothe the child at night but never leaving it in the child’s mouth for too long, “so either when he’s about to fall asleep take it out... or if he’s not happy about it then would wait till he’s asleep and take it out... the adult would take out the teether for sure... then leave... never let him sleep with teether in the mouth” (Louisa, parent).

**Dietary practices and understandings.**

All parents reported effort in controlling sugar snacking habits and making healthy dietary choices for children. While specific practices and strategies used to control sugar
snacking and promote healthy dietary practices varied from family to family, the main categories of practices were limiting the frequency and amount of sugar snacking, avoiding and setting age limits for consumption of specific types of sugary foods, establishing regular eating and living habits, and choosing healthy food options for children.

All parents recognized the harm of eating too much sugar and its negative impact on both oral and general health of children. In terms of how sugars may be harmful to oral health, many parents shared the understanding that sugary snacks are corrosive in nature, stick to teeth easily and can be hard to clean off, all of which may lead to damage to teeth. For example, a mother described her knowledge about sugary drinks, “now the saying is that soft drinks or those...coke and such they are very corrosive... so they erode teeth” (Melanie, parent). In line with this understanding, parents reported effort in avoiding giving children sugary snacks unless they had no other food options available and also ensuring children rinsed their mouths with water after eating sugary snacks. For example, a mother of two children described her strategy, “after eating cookies need to rinse with water... cookies tend to stick to teeth and cannot get rid of it... only when outside there is no other food to eat then would eat those cookies and such... no sweets at home” (Veronica, parent).

In addition to harm to teeth, parents shared the understanding that eating too many sweets is harmful for overall health as the human body does not require much sugar. A mother described her understanding of the lack of necessity of candy, “the human body does not need sugar very much... children just like the taste of it they feel happy eating it... but (candies) are not good for the body or teeth” (Emma, parent). Further, some parents described the intention to avoid sugary snacks for children given the lack of nutritional value of sugary snacks to the human body, “we usually eat much sugar already inadvertently... so I feel that like candy which has no nutrient
whatsoever... it’s better to avoid... they really have no benefit to health nor to teeth” (Jennifer, parent).

With the understanding about the harm of sugar snacking for both oral and general health, all parents perceived that controlling sugar snacking as important for promoting children’s health and described practical strategies to limit sugar snacking and choose healthy diets for children. Many parents described ways to limit children’s access to sugary snacks, including buying and keeping fewer sugary snacks at home, placing sugary snacks somewhere high up that children could not reach, always having home-cooked meals and healthy snack alternatives available, setting age limits for when children can start having particular sugary snacks, and choosing less sugary food options for children to promote oral health for children as described in the words of a mother, “before three years of age... ice cream almost never had... she didn’t know anyway... then biscuits... basically only bought the ones for infants... those biscuits with very little sugar content... and only one or two pieces a day... then candies almost never let her touch them... so I feel perhaps (that’s why) now her teeth are quite good” (Kendra, parent).

Another common approach to controlling sugar snacking was by setting limits to the frequency and amount of sugar snacking for children. Almost all parents described setting limits on how often children could have sugary snacks on a weekly or monthly basis and effort to keep track of the amounts of sugary snacks given to children. Parents often came up with strategies for controlling sugar snacking specific to their family’s circumstance and daily routines. For example, a mother described her approach to limit consumption of sugary drinks for her three children after school, “juice and such I usually would not let them drink too much... for example
one bottle like this... I usually let the three of them share... and impossible that one child drinks the whole bottle in one day... I rarely let that happen” (Claire, parent).

In addition to controlling sugar snacking, many parents perceived that adopting healthy dietary and living habits for children are important for oral health. Some parents described that they have learned about the harm of frequent eating in increasing children’s risk of developing dental caries from dental professionals and the importance of limiting the frequency of eating in a day. For example, one parent described helping her child to establish regular eating and living habits by sending the child to attend daycare on a regular basis, “his everyday eating habit is very structured... morning after breakfast (he) goes to kindergarten... then wait for lunch time... afternoon there is a snack time... then later sometime after five o’clock I bring him back and at six o’clock (he) eats dinner” (Jennifer, parent).

Another aspect of promoting healthy dietary habits is choosing healthy food options. Many parents explained that selecting and eating healthy foods for snack time was especially important when children were outside of home where there would be limited availability of healthy foods and wide presence of sugary snacks. One mother described bringing her children vegetables as snacks to school and the relative benefits of snacking on healthy foods as compared to sweets, “if I give her cucumbers, peppers and other vegetables for snack time... she always likes to eat these... and I think this is beneficial for her... because you eat this (vegetable) is also healthy snack... different from snacking on chocolate-based snacks” (Miranda, parent).

Overall, parents shared general recognition about the harm of sugar snacking and the importance of healthy eating and living habits for both oral and general health of children and have developed a range of practical strategies to help promote oral health for children.
Oral hygiene practices.

In terms of oral hygiene practices for children, the majority of parents reported daily toothbrushing of at least once before bedtime with fluoride-containing toothpastes, with exception of a few parents whose children were relatively young at the time of interview. Only half of the parents were able to carry out twice daily toothbrushing for children. Many parents also helped children rinse their mouths with water after eating or feeding as an extra measure to ensure oral hygiene for children.

A key understanding shared by most parents was the importance of establishing oral hygiene habits from early on in children’s life to help prevent dental caries and promote oral health for children. Parents explained that early oral hygiene from before primary teeth eruption helps prevent dental caries in primary teeth and that protection of primary teeth can promote healthy permanent teeth for children later on, as the condition of primary teeth influences the outcome of permanent teeth, “before children have teeth should practice oral hygiene... then after first baby tooth erupt should be more careful... good living habit and your hygiene... I think if both these could be done for children... the chance of having cavities would be much lower” (Yvette, parent).

Some parents described that another purpose of starting oral hygiene habit early was to instill strong oral health care awareness in children so that children become aware of the importance of oral health and care, “need to lay good foundation now... and his awareness for oral care needs to be improved... from very young need to instill (awareness)” (Konnie, parent).

In line with the understanding about the importance of starting oral hygiene early for children, many parents described the process of establishing oral hygiene practices for children from early on and modifying practices according to children’s developmental stages.
**Process of establishing and modifying oral hygiene practices.**

Many parents started the process of establishing oral hygiene habits for children from a young age. Prior to primary tooth eruption, some parents started oral hygiene for children by using clean cloth with water to wipe and massage the gums occasionally. Following the eruption of primary teeth, more parents began cleaning teeth for children using toothbrushes specific for infants and started teaching children to spit out water. When more baby teeth came in, most parents started toothbrushing for children once a day before bedtime. As children grew older, more parents introduced toothbrushing in the morning in addition to bedtime toothbrushing as children became better able to cooperate with toothbrushing or could brush teeth on their own. For example, one parent described the process of establishing and modifying oral hygiene habits based on her child’s developmental stages, “probably in infant stage… (I) also read up on health care for children so knew cleaning with water and cloth… then after that used fluoride-free toothpastes (to brush) and took part in fluoride varnish programs… when she grew older used fluoride toothpaste appropriate for her age… in any case I was quite meticulous with this aspect (oral hygiene) and never used things casually” (Kendra, parent).

Parents’ role in toothbrushing also evolved with children’s developmental stages. The majority of parents brushed teeth for younger children. As children grew older, many parents started teaching children to brush teeth on their own. In terms of ages of start for independent toothbrushing, the majority of parents gradually let children brush their own teeth between four and eight years of age, however, a few parents let children brush their own teeth from relatively early on at around two to three years of age with adult supervision.

Parents employed a range of strategies to help children learn toothbrushing and ensure effectiveness of toothbrushing. Some parents described modelling toothbrushing behavior as a
useful strategy to teach children brush their own teeth as children would learn by imitation, “I let her watch me brush teeth... because I think they usually imitate whatever parents are doing... I let them learn by observing... this way it’s actually much easier when you teach them” (Miranda, parent). To ensure effectiveness of toothbrushing, parents often re-brushed after or brushed before letting children brush their own teeth. Most parents shared the understanding that re-brushing by parent was necessary when children had not reached the developmental stage where they could brush teeth effectively on their own as described by a parent, “they have toothbrushes in the mouth like that and hands are still playing sometimes... I think they can’t brush clean enough... so every night after they brush once no matter how well they brushed I brush for them once more before going to sleep” (Claire, parent). In addition to rebrushing for children, many parents also came up with specific strategies to help children brush teeth more effectively. Some parents let children use electric toothbrushes, which was believed to help them reach and brush all surfaces of teeth with rigor, and one parent even used an electric timer to make sure that children were brushing teeth for sufficient time.

**Knowledge about use of fluoride.**

Throughout the process of establishing and modifying oral hygiene practices, most parents also adapted oral hygiene tools used for children according to their developmental stages. In particular, parents introduced and modified the use of fluoride in oral hygiene routines according to children’s stages of development. In the beginning, the majority of parents used only water for cleaning teeth following primary teeth eruption of children. As children grew more teeth, many parents introduced the use of fluoride-free toothpastes into children’s oral hygiene routines when children were just learning to spit out water. A common understanding among parents was that fluoride-containing toothpastes were not safe for use on children before
they learned how to spit out water and that children’s ability to spit out water was regarded as an
important criterion for decision of whether or not to start using fluoride toothpaste, “around
when (they) knew how to swallow but not how to spit yet used fluoride-free (toothpastes) ... later
started using fluoride-containing (toothpastes)” (Yvette, parent).

Many parents learned about the importance of fluoride in prevention of dental caries for
children from dental visits and participation in community dental programs. Some parents
described the understanding that local drinking water was not fluoridated so that children needed
to receive semi-annual fluoride varnish applications before they could start using fluoride-
containing toothpastes, “they say that water in Vancouver is not like in China and so need to
receive fluoride varnish... the nurse told us that after a certain age when child could use a
children’s toothpaste that contains fluoride... if can use that toothpaste to brush teeth then would
not need to apply (fluoride varnish)” (Kendra, parent).

As children grew older, most parents started using fluoride-containing toothpastes for
children, following dentists’ recommendations or instructions on toothpaste packaging. A few
older children were using adult toothpastes at the time of the interview. While the majority of
parents described the benefit of fluoride, only one parent brought up the understanding that over-
use of fluoride could be harmful to children’s health and the decision of refusing fluoride rinse
for children in school, “they say it’s (fluoride) not good for the bones... if already brush teeth
every day and floss then don’t need to use fluoride rinse it seems not good for health” (Veronica,
parents).

**Home remedies and Traditional Chinese Medicine.**

When asked about the use of home remedies to help relieve dental discomfort or pain, the
majority of parents described using some form of home remedies to help relieve dental
symptoms for both adults and children. Home remedies were generally used to complement regular oral health home care practices and professional dental care for children, rather than replacing the recommended oral health care practices.

The concept of excessive internal heat (“上火”) in Traditional Chinese Medicine (TCM) was brought up by many parents as the perceived cause for many symptoms, including gum swelling and pain, sore throat, fever, mouth sores and the like. Some parents explained the understanding that excessive internal heat is equivalent to inflammation in Western medicine, “I think... that (gum swelling) is in Chinese medicine called ‘fire/heat’...and in Western medicine called ‘inflammation’” (Veronica, parent). To relieve symptoms of excessive internal heat, including gum swelling, many parents believed that remedies offered in Traditional Chinese Medicine would be more effective than Western medicine or visiting a dental professional, “if there is any effective Chinese or herbal medicine then probably better than Western medicine... would give priority consideration (to Chinese medicine)” (Emma, parent).

As for the types of home remedies used, most parents described herbal and food-based remedies and strong preference of those over Chinese medicinal remedies. Some examples of the herbal and food remedies mentioned by parents include pear water, watermelon, various herbal soups that are typically incorporated as part of everyday diets of the families, “if find them cough and such (I) would cook some soup... we Chinese are used to simmering soup, right? ... so would simmer (soup) that’s a bit more cooling for them to drink” (Melanie, parent). Many parents explained that the main purpose of using herbal and food remedies is to promote general health by dampening or reducing high internal heat in the body (“祛火”), rather than specifically for relief of dental symptoms, “gum swelling or pain probably have high internal heat... I actually would give my son watermelon to eat... I think watermelon dampens heat very well”
(Veronica, parent). Parents also considered that better general health can promote better oral
health in turn, “if you have many illnesses then your teeth would not be good... if have many
illnesses and poor health then teeth would not grow well either” (Miranda, parent).

A common Chinese medicinal remedy used widely in southern provinces of China is
cooling/cold tea (“凉茶”). Given the popularity of this medicinal beverage, specific questions
were asked to inquire about if and how cooling tea was used. A few parents explained that
cooling tea is commonly used to relieve symptoms of high internal heat and that the knowledge
is usually passed down from previous generations, “my mother-in-law and my mother... they say
if have mouth sores... dental or mouth-related problems... show signs of excessive internal heat
in the mouth... they would ask us to drink cooling tea” (Miranda, parent). Similar to other food-
based and herbal remedies, the main use of cooling tea is for promotion of general health, rather
than relieving dental issues specifically. In particular, one parent expressed uncertainty regarding
if cooling tea was used for relieving dental issues, “if they have excessive internal heat would
drink cooling tea... but for teeth... I don’t know... don’t understand” (Arial, parent). In terms of
conditions for use, one parent explained the understanding that climate/environmental conditions
(“水土”) of high heat and humidity and pollution of drinking water might have necessitated the
use of cooling tea in southern provinces of China, as compared to elsewhere in China or Canada.
Unlike other food and herbal remedies, one parent explained that cooling tea is considered as a
medicine in Traditional Chinese Medicine and expressed concerns for safety of using cooling tea
on children to reduce excessive internal heat as it is often prepared at home without tight
regulations on medicinal contents or concentrations, “cooling tea is made from Chinese
medicine... so as medicine if we adults do not control the quantities (of ingredients) well... then
it would harm children” (Miranda, parent).
Aside from ingestible home remedies, parents brought up a wide range of home remedies for relieving dental discomfort and pain and these varied from family to family. For relieving dental pain or gum swelling, parents described rinsing with salt and mint water, applying hot pack to swollen cheek, or applying toothpaste directly to swollen gum as effective methods of relief. For easing teething pain, one parent described learning from children’s grandparents about chewing on licorice root sticks to help both soothe teething pain and provide additional health benefits to children, “when he was young would use licorice root sticks for teething... it was itchy and (he) likes to bite on things... so (grandmother) bought many sticks of licorice root from back home... licorice root sticks were almost like Chinese herbal medicine... gave him that to chew... it was quite good... quite helpful to oral health” (Emma, parent).

Many parents used a wide range of home remedies mainly to promote general health but also to help relieve specific dental discomfort for children. The use of home remedies did not prevent parents from practicing oral health home care and seeking professional care for their children and was mostly complementary to regular oral health care practices.

Overall, all parents have made effort to adopt regular oral health home care practices for their children as informed by the shared beliefs in the importance of good oral hygiene habits, healthy dietary habits, and complementary nature of use of home remedies.

**Professional Dental Care Access and Utilization**

In addition to practicing oral health home care, all but one parents accessed and used professional dental health care services for their children. The majority of children received only preventive dental care, while some children also received dental treatments. Parents described their understandings and perceptions of professional dental care, including the importance of
preventive dental care, appropriate age to start dental visits, and importance and acceptability of preventive dental procedures and treatments for children.

**Access and use of preventive dental care services.**

All parents have accessed professional dental health services for their children, except one parent with a child younger than six months of age at the time of interview. The patterns of professional dental care access and utilization of all fifteen families in the study are summarized in Table 2 (page 70).

<table>
<thead>
<tr>
<th>Table 2.</th>
<th>Professional dental care access and utilization patterns (Number of families, N=15)</th>
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</thead>
<tbody>
<tr>
<td><strong>Currently accessing dental care</strong></td>
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<td>Preventive</td>
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<td>No</td>
<td>Treatmenta</td>
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<tr>
<td></td>
<td>Not applicable</td>
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<tr>
<td><strong>Age of 1st dental visit</strong></td>
<td><strong>Frequency of dental visits</strong></td>
</tr>
<tr>
<td>≤ 2 years of age</td>
<td>Every 6 months/half a year</td>
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<tr>
<td>&gt; 2 years of age</td>
<td>Less often</td>
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<td>Not applicable</td>
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<tr>
<td><strong>Type of dental agency accessed</strong></td>
<td><strong>Country where care is received</strong></td>
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<td>Public/community dental program</td>
<td>Canada &amp; China</td>
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<td>Not applicable</td>
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<tr>
<td><strong>Main payment method</strong></td>
<td><strong>Information about 1st dental visit</strong></td>
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<td>Community</td>
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<tr>
<td>Private/employment insurance</td>
<td>Other HCPs (e.g. parent’s dentist, GPs)</td>
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<tr>
<td>Out-of-pocket payment</td>
<td>Family and friends</td>
</tr>
<tr>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

*Note. One family has a child younger than six months of age and the dental visit statistics were not available for that family at the time of interview as indicated by “not applicable” in Table 2.*

*a The types of treatments included dental fillings, tooth extractions (some under General Anesthesia), orthodontic consultations.*

As shown in Table 2, the majority of parents reported that children received only preventive care and five parents reported children receiving treatment care in addition to
prevention. Equal numbers of families started bringing children for dental visits before age two as those after two years of age. Also, the parents reported the tendency of bringing their younger children to start dental visits at earlier ages than their older children as they gained more information about the best ages of starting dental visits. The frequency of dental visit was every six months or more often for the majority of families, with the exception of a few families that experienced frequent relocation. In terms of the types of agencies and country where care was received, the majority of parents sought dental care for children exclusively in Canada and through either or both private and public/community dental service agencies. To pay for dental care, about a third of the families had Healthy Kids coverage, more than a third paid exclusively out-of-pocket, and only less than a third of the families had private dental insurance through employment. As for the sources from which information about initial dental visit were obtained, most of families received such information from the community, some from health care providers in private settings, and only one from family and friends. Many parents have also received information from multiple sources, and one parent described that information received from different sources conflicted with each other as elaborated further in “informational challenge” facing families.

**Understandings about preventive dental care.**

All parents were aware of the importance of professional dental health care in prevention of dental diseases and promotion of oral health for children. The majority of parents shared the understanding that the main purposes of dental visits for children were to check and monitor dental development, detect and treat dental issues early, as well as get children used to dental visits from early on, as explained in the words of a parent, “*in the beginning the dentist would check to see whether or not your child’s dental development is normal… second is to detect in*
advance if there’s any cavity or just dental plague… dentist may help clean or polish it… then if it’s really serious would need to do preventive treatment… another thing is to help children develop the habit of not being afraid of visiting the dentist” (Yvette, parent).

In addition to dental checkups and establishing regular dental visit habits early, many parents also considered that dental visits were important to help improve oral health care for children at home. Dental visits were educational opportunities for parents to learn about effective toothbrushing techniques for children, consult dental professionals to troubleshoot various oral health care issues, and get feedback on the sufficiency of oral health care practices overall. Aside from prevention purposes of professional dental health care, some parents explained that dental visits were also for treatment purposes and served as important reminders for parents to improve oral health home care for children, “the dentist would give us suggestions afterwards… then we would try to follow the suggestions… when the dentist takes a look he would know what problem there is with teeth… whether or not you took care of it well then he would tell us” (David, parent).

**Knowledge about first dental visits.**

Despite generally sharing the understanding about prevention purposes of dental visits, parents had varied knowledge about the best age to bring children to first dental visits. The majority of parents considered that first dental visits for children should be at around the time of primary tooth eruption and that regular dental visits should be every six months or semi-annually. Contrary to the recommended starting age for dental visits, however, some parents had the understanding that children would not need to visit a dentist until the time that primary teeth started to fall out or when other dental issues emerged, “if there’s not much problem with teeth before five years of age we would not say… pay too much attention to it… depends on the child…”
when the first tooth starts to fall out… change to permanent teeth… then you need to be careful… maybe go and visit a dentist… consult about when he can get dental sealant” (Alexis, parent). Another parent suggested that the recommended age for visiting a dentist may be different in Mainland China, “in China our habit was maybe when teeth start changing to permanent teeth… then would go and see the dentist… or if feel (dental) discomfort” (Emma, parent).

Aside from potential differences in recommended starting ages for dental visits between the two countries, a parent of a young child received conflicting information from different sources in Canada and was uncertain about the best age to bring child for first dental visit, “the family doctor suggested at eighteen months… but also heard from other people that soon after first tooth comes in can visit the dentist so I’m not quite sure” (Louisa, parent). Differences in recommended ages for first dental visits between two countries and conflicting information received from different health care providers may both have contributed to parents’ varied understandings about best starting ages for children’s dental visits.

*Understandings about preventive dental procedures.*

When accessing professional dental health services, the majority of children received only preventive dental procedures. A number of parents elaborated on their understandings about the necessity and benefits of regular dental cleaning and perceived harm of this procedure. The majority of parents understood that professional dental cleaning, was a necessary procedure to maintain oral health for both themselves and their children. Many parents learned about the importance of regular dental cleaning from dental professionals after moving to Canada and had previous misconception or lack of knowledge about the role of dental cleaning. For example, one parent described developing an improved understanding about the importance of dental cleaning,
“in the past I always thought that dental cleaning and such was for cosmetic purposes and not about health... unrelated to health... after coming here I realized that my previous understanding was mistaken” (Emma, parent). With improved understanding of dental cleaning, some parents began to receive regular dental cleaning for themselves after moving to Canada, “I never had dental cleaning in my life... only started after I came here... so I didn’t know that (I) need to have dental cleaning (before)” (Jennifer, parent).

When it comes to the acceptability of professional dental cleaning for children, the majority of parents accepted dental cleaning as part of the care routine during dental visits for children, despite not explicitly expressing their opinions. However, a few parents held strong views regarding the acceptability of this procedure. Some parents strongly believed in the importance of regular dental cleaning for children and made the decision to bring children for regular dental cleaning according to recommendations from the dentist, in some cases even going against family members’ opinions. For example, one mother described her rationale for the decision of bringing her children to receive dental cleaning in spite of grandparents’ disapproval, “because they (grandparents) see things like dental drills and such... they think that maybe the dentist would cause them to bleed and have a mouthful of blood... their view is ‘don’t touch their teeth’... I think regular dental cleaning is like bringing your car for washing... since the dentist asked me to do this... then when the dentist said that children actually needed dental cleaning... I thought that I should do accordingly” (Miranda, parent).

On the other hand, one parent believed that dental cleaning for children was unnecessary and harmful to children’s teeth and made the decision of not bringing children to regular dental cleaning or visits, “I think that here maybe with children’s teeth... there’s too much emphasis... from very young they like to bring (children) for dental cleaning... we just thought it doesn’t
matter... just feels like it’s too ‘invasive’ for children... excessive cleaning is not necessary”
(Kendra, parent).

In general, most parents accessed preventive dental care services for children and believed in the importance of regular professional dental care and procedures in prevention of dental diseases and promotion of oral health for children. However, varying understandings and opinions existed among parents regarding the best ages to start dental visits and the acceptability of dental cleaning for children.

Dental treatments.

The majority of children received only preventive dental care. Some children, however, underwent treatment procedures for dental caries of varying degrees of severity, including dental fillings, tooth extractions and treatments under general anesthesia. A few children also received dental orthodontic consultation and treatments.

Most parents considered dental fillings for children as effective and necessary procedures to treat dental caries. However, for parents whose children had undergone primary tooth extractions, their views on the results of treatment were divided. One parent considered that the outcome of multiple tooth extractions for the child was positive with no further dental issues, “recovered with no other problems and the teeth are good... there’s no say more cavities or gum swelling and such... (treatment) can also be considered as quite successful” (David, parent).

However, another parent voiced concern for the delayed permanent tooth eruption after multiple primary teeth of an older child were extracted and made the decision to refuse dental extractions for a younger child to let cavitated teeth fall out naturally, “I am worried that this oldest child’s teeth will need to be corrected... second child has one cavity... I follow the treatment plan in
China and not have it extracted... when the permanent tooth grows out... let it replace (primary tooth) on its own” (Alexis, parent).

Another major concern was the use of general anesthesia for younger children. A parent described the emotional struggles to come to terms with the necessity of dental treatment under general anesthesia, from initial hesitation and resistance to accept the procedure and later the feeling of unease when watching the child undergoing the treatment, “he was too young and needed general anesthesia... both aspects were difficult for us to bear... but after the operation he recovered quite well... however when we saw him under general anesthesia we were quite distressed... it was quite uncomfortable... because he was young and has not developed enough yet... we tried to push it back for him... then let him be treated so there may not be such a big consequence or not needing general anesthesia... but there was really no other way and could only do general anesthesia” (David, parent). After the treatment under general anesthesia, the parent described paying more care and attention to the details of the child’s oral health care routines in an effort to prevent similar dental issues from happening again.

When it comes to orthodontic consultation and treatment, parents shared the understanding that orthodontic treatment was often unnecessary for children until they grew older and had a full set of permanent teeth and generally made decisions to postpone orthodontic treatments for children.

Overall, most parents accessed and used professional dental care for preventive care of children, while some children also received dental treatments. Parents generally believed in the importance and necessity of preventive dental care and procedures and that of dental treatments, however, some parents also voiced concerns and uncertainties regarding the acceptability and necessity of some preventive and treatment procedures for children.
Challenges Facing Families in Oral Health Care

A series of challenges in the areas of, information and communication, financial, cultural and parenting, and dental fear and anxiety, have created difficulties for parents to establish and modify oral health care practices and promote oral health for children as described in detail in this section.

Informational and communication challenges.

Parents experienced challenges in communications and access to oral health care information, including limited oral health care knowledge promotion in Mainland China, language barriers and inconsistent dental messaging in Canada, that made it difficult for parents to practice good oral health care for children.

A key barrier that prevented parents from practicing oral health care for both themselves and their children was the lack of prior knowledge and information on oral health and care. The majority of parents described lacking dental prevention awareness before moving to Canada and experiencing limited promotion of general oral health care knowledge in Mainland China. First, some parents described that their own parents had never placed strong emphasis on oral health care, “when I was young my mother maybe never cared about brushing teeth… just casually brushed teeth on my own… never used dental floss if something got stuck … if feel uncomfortable then used toothpick to pick likely not very clean” (Veronica, parent).

Aside from the influence of previous generations’ lack of emphasis on oral health care, parents also experienced limited community and/or governmental effort to promote and educate the public about oral health care in Mainland China. Parents described the absence of organizations or agencies that would provide oral health care education and consultation in their communities, “my child has not yet started kindergarten… I am not sure if kindergarten may
have more opportunities to promote (oral health) knowledge to us parents... I feel that oral health consultation is very important... but in China it seems... as far as I know... there’s no such agency” (Flora, parent).

With limited oral health care promotion and education received in Mainland China, parents described having little knowledge or previous misconceptions about oral health care for both adults and children. Many parents did not know the importance of establishing oral health care routines early for children in prevention of dental diseases and promotion of oral health before moving to Canada. As a result of lack of knowledge, parents often did not practice sufficient oral health care for children, “my two older children... I did not start toothbrushing for them at around age one ... until they were past two years and three years old (I) started help them... sometimes at most just helped them brush teeth in the morning... in the evening very rarely... just did not have that habit” (Claire, parent).

Similarly, many parents had lack of knowledge and misconceptions about oral health care for themselves. For example, parents described the common belief in China that dental cleaning would cause harm to teeth or that it was a procedure only for cosmetic purposes. Related to the misconception about dental cleaning, parents described the common practice in Mainland China of visiting the dentist only when they had dental issues that required treatment, instead of for preventive purposes, “never treated teeth seriously... people around us all visit the dentist when there is pain... only then would think about treatment plan or pay attention to protect teeth” (Emma, parent).

Following immigration to Canada, the majority of parents gained better knowledge and understandings about oral health care for both themselves and their children. However, language barriers created challenges in both communications with dental professionals and access to oral
health care information for many parents. Lack of quality interpretation services provided by trained interpreters made communication difficult during dental visits for both parents and dental professionals alike. A parent explained her struggles to convey deeper meanings in conversations with dental professionals who did not speak Chinese languages during dental visits, “let’s say I want ask how her condition is... or explain to them some condition... that to me is relatively difficult... because speaking English... my level is not good... so this is a very big challenge to me... I mainly ask them whether or not she has cavities... these simple ones I can talk to them... but anything deeper or such would be difficult for me to communicate” (Claire, parent).

Similarly, many dental professionals found that language barriers created significant challenges in communication with families and that it was sometimes necessary to re-schedule dental appointments to a time when a staff member proficient in Chinese languages would be present, “we’ve had people book appointments with me and not ask for an interpreter and just come in and their English is so limited that we can’t even do you know body language... so it’s a tough thing the language part of it” (Julia, dental professional). When interpretation services were available, dental professionals generally had concern over the quality and accuracy of interpretation offered by either professional or informal interpreters, “so even when we get the official interpreters in there’s different you know sometimes you’ll say a really long thing and then they’ll have a very short conversation... and then when you were using an informal interpreter yeah you don’t really know what’s going on kind of thing... you know they interpret your question for their knowledge base, which can totally change what you’re asking” (Julia, dental professional).

In addition to communication challenges, language barriers also prevented parents from access to essential oral health care information and resources and many parents voiced strong
preferences for oral health care informational materials to be published and delivered in Chinese languages, “it’s best to have translation... many community centers also have these (informational materials) ... but we cannot understand... so this aspect (language) is quite difficult” (Alexis, parent).

Besides language barriers in access to oral health care information, the provision of inconsistent oral health care information from different sources created additional challenges for parents when making dental-related decisions for children as described in a previous section of “Knowledge about first dental visits”. The concern with inconsistency in dental messages and information provided was also echoed by dental professionals who struggled to encourage all health care providers to spread consistent messages about the first dental visit, “a lot of the immunizations are done at GP clinics... and so it’s a matter of... those physicians being aware of the importance of that first dental visit... and we have tried to encourage those messages to physicians, but that’s definitely been a struggle... the nurses are all on board that are doing immunizations, obviously some of the physicians are but not all of them” (Katherine, dental professional).

Overall, the lack of promotion of oral health care information in Mainland China, language barriers and receiving inconsistent dental messages in Canada, have all created significant challenges for parents in accessing important oral health care information and having effective communications with dental professionals.

Financial challenges.

Financial barriers created significant challenges for families in both access to professional dental care service and practicing regular oral health home care for children and adults alike.
Unaffordability of professional dental care.

High cost of dentistry in Canada is a major barrier for a number of families to access professional dental care services on a regular basis for both children and parents themselves. The challenge with unaffordability of dentistry was especially pronounced in families earning a middle-level income. About a third of the parents in this study reported paying exclusively out of pocket for children’s dental care expenses; most of whom had a family income that was above the low-income cutoff and were ineligible for government dental payment assistance programs yet did not have private dental insurance plans through employment. For example, one parent explained the difficulty in affording regular dental care for children due to cost, “information is there... however, money is difficult... because my husband says... ‘earning money is so hard if not necessary then don’t go (to the dentist) ... so expensive’” (Arial, parent). While most parents were accessing regular dental care services for children, many of them were not able to access professional dental care for themselves due to high cost and having no dental coverage as described in the words of a parent, “sometimes if not too bad would not go to the dentist... different from children... also because children... the government covers (the cost) so we make our effort when there is no financial impact... if need to consider financial matters then sometimes would not visit the dentist unless necessary... it’s like that to be honest” (Konnie, parent).

Access to regular professional dental care services was also challenging to many lower income families despite being eligible for Healthy Kids, the government dental payment assistance program. According to interviewed community agency members, the Healthy Kids program was accepted at the set program rate by only a small number of dental service agencies across the province of British Columbia, with many private dental clinics balance billing patients...
on Healthy Kids program to cover the portion of cost not covered by government subsidy. The
low acceptance rate of Healthy Kids program by dentists and the practice of balance billing
families on the Healthy Kids program made access to dental care services challenging for many
low-income families. The frustration of being rejected for access to dental service using Healthy
Kids program was described in the words of a community agency member “they (parents) don’t
know all the time... whether the dentist accept Healthy Kids at the Healthy Kids rate... or has the
dentist filled their quota... so you as a parent... you phone the one... ‘no, we're not accepting, but
we extra bill so it would cost you about a hundred dollars more for your child to have a cavity
filled’... ‘okay thank you’... next one next one... like how many are you gonna phone before you
go... ‘what am I doing’, right?...... so access with your Healthy Kids program is very difficult... in
a situation where you have no extra money to pay the extra billing that they would charge”
(Malcolm, community agency member).

In addition to unaffordability of regular dental care services, some parents also expressed
concerns for the anticipated high costs of orthodontic treatments that children may require as a
result of early primary tooth extractions from severe dental caries. For example, one parent of
three children described the financial challenge that may face the family if multiple children
would require orthodontic treatments in the near future, “because only my husband works... one
person supports five people this situation... for orthodontics... like my daughter... only to
straighten one of her teeth... it’s two thousand and five hundred... in terms of finances... it’s
really a bit difficult... if all of my three children would need orthodontics... how much do you
need to spend?” (Claire, parent).
Both high cost of professional dental care services and the lack of/insufficient dental insurance coverage have created significant difficulties for a number of low-to-middle income families to access both regular and specialist dental care services for children and adults alike.

**Impact on oral health home care.**

Financial barriers also created challenges for parents in practicing everyday oral health home care for children. According to several community agency members, difficult financial circumstances were often associated with harsh living conditions and high levels of parental stress, which could exacerbate the difficulties for families to establish good oral health home care practices for children. Tight living arrangements with multiple generations living under the same roof or a family sharing a wall with neighbors would make it difficult for parents to go through the daily struggles of carrying out oral health care routines for children. One dental professional gave the example of the challenges for parents to help children establish bedtime toothbrushing habits and wean from night feeding in cramped living conditions, “the kid will cry... and it's easy for us to say... ‘don't worry just let them cry’ and that will take a few nights and then they'll stop crying, but if you’ve got a neighbour that's bashing on the door saying you know ‘what are you doing? are you beating up your kid?’... you know these places have thin walls and a kid crying is not acceptable to a neighbour... and often it's not acceptable to a grandparent either... 'cause grandparents don't like kids to cry” (Katherine, dental professional).

Moreover, financial difficulties experienced by new immigrant families could render some families in a vicious cycle of persistent disadvantaged circumstances and cause high levels of parental stress. With the unaffordability of childcare services, many newcomer parents, especially mothers, had no option but to stay home to care for children. Combining with social isolation that came as a result of loss of personal and professional networks following
immigration, new immigrant parents would experience significant barriers in their effort to pursue opportunities to develop their English language and employable skills to get into the Canadian labor market and integrate into the society as described in the words of a community agency member, “this is a "chicken and egg" problem because the parents they cannot afford to find day care... the average rate is now one thousand dollars per month... but most of them they are working under minimum wage... you can imagine like after you deduct all the tax and everything... almost like not much left and the parent thinking ‘why go to work’, right?... the longer they don’t go to work they leave the market longer (it’s) getting harder to get back to (labor market)” (Linda, community agency member).

Even though the impact of unaffordability of childcare services was not described by parents in this study, many of them had a family income below the low-income cutoff and may have very likely experienced similar social isolation and challenges in developing language and employable skills. In addition to the isolation and difficulty in joining the labor market, many immigrant families could not afford childcare services and needed to rely heavily on extended family members, especially grandparents, to share or even take over childcare responsibilities. The practice of intergenerational parenting created additional challenges in oral health care for children as described in the section on “cultural and parenting challenges”.

**Cross-national challenges in access and use of professional dental care.**

Immigrant families often maintained connections with their home countries and the phenomenon of going back to Mainland China to seek professional dental care was also common for the parents in this study. Many parents compared and contrasted their experiences of accessing and utilizing professional dental care services in Mainland China and Canada in terms
of affordability and access, process of booking dental appointments, dental visit experiences, and quality of care and services.

For families who have tried to access professional dental care services for children in both countries, a dilemma of unaffordability of preventive dental services in Canada and unavailability of preventive dental care in China created major barriers to parents’ effort to access professional dental care for their children. Some parents described the experience of being denied access to preventive dental care for children when visiting the dentist in China as preventive dental care was uncommon, “they thought I was strange and could not communicate... (they) said ‘here no child so young would visit the dentist, okay?’... so couldn’t get to the dentist” (Miranda, parent). High cost of dentistry in Canada, together with unavailability of preventive dental services for children in China, led to a situation where immigrant families experienced difficulties to access preventive dental care in both countries, “(in Canada) even if just regular checkup... without coverage is one hundred something dollars... children and adults the same... in China checkup or regular dental cleaning costs about twenty Canadian dollars... not much... but the problem is you can’t trust the technology... and they have no emphasis... they think it’s strange for children to have dental cleaning... so you can’t do it in a cheap place and cannot afford it in an expensive place” (Miranda, parent).

A number of parents also compared and contrasted the experiences with utilization of professional dental care services in Canada versus Mainland China. For ease of booking and timeliness of dental appointments, some parents described that in Canada the process of booking dental appointments was simple, yet the wait times for dental appointments tended to be longer. The process of booking dental appointments was often complicated in Mainland China, however, emergency care would always be available when needed as described in the words of a parent,
“(in China) you can always find a way to get a visit... but finding a way to get an appointment sometimes can be quite complicated... like you might need to find acquaintances to help register... or you need to call on your own in advance to register or on the computer and such... and here the advantage is you don’t need to go through such a complicated process... you can book an appointment directly... but the disadvantage is that you probably cannot get a visit right away” (Louisa, parent).

In terms of the quality of dental services received, many parents described that the quality of dental preventive or treatment procedures in Mainland China varied by the types of dental institutions and individual dental professionals, while dental procedures received in Canada were generally of consistently higher quality. For example, one parent compared her experience of receiving dental filling treatments in both countries and the difference in the results of treatments, “(in China) got one filling... one year later... the whole filling fell out when I was eating... so I started visiting my current dentist (in Canada)... it was in 2006 that I got another filling... until now every time I ask the dentist ‘does it need to be re-done?’... it didn’t fall out” (Miranda, parent).

Parents also compared the actual experiences of dental visits in both countries and found that the dental health care settings in Mainland China tended to be more crowded and dentists often had little time for individual patients, as compared to in Canada where dental appointments were more one-on-one, and clinics were less crowded. Dental professionals generally had a lack of consideration for patient’s comfort level during dental procedures in Mainland China, while dental care tended to be more patient-oriented in Canada. One parent described her experiences of receiving dental cleaning and contrasted the differences in care experiences in the two countries “in China during dental cleaning it’s really painful and you cannot cry out... mouthful
of blood... there’s no suction pump... they ask you to spit it out yourself... super embarrassing you know sometimes (the dentist) is a man... I found this aspect is really not considerate... and here you just lie down... if you can sleep that’d be best... if not, you just open your mouth for a moment then it’s done... and doctors and nurses they are all very gentle” (Miranda, parent).

In general, immigrant parents found that a combination of unaffordability in Canada and unavailability of preventive dental services in Mainland China made access to dental care difficult in both countries. In terms of utilization experiences, professional dental care services in Canada were characterized as having simpler process of booking appointments, longer wait times, more patient-oriented and of higher quality. While professional dental care services in Mainland China were geared more towards emergency care, with more complicated process of booking appointments, less consideration for patient comfort and of varying quality.

**Cultural and parenting challenges.**

Parents experienced evolving challenges in the process of establishing and improving oral health care routines for children at different developmental stages, including children’s lack of co-operation and resistance to oral health care routines, low parental efficacy in controlling children’s behaviors, difficulties associated with the common phenomenon of inter-generational parenting, and to be a lesser extent, negative social and environmental influences.

**Parenting challenges in oral health home care.**

Most parents described experiencing evolving challenges in both establishing toothbrushing habits and controlling sugar snacking for children. For establishing oral hygiene habits, children’s lack of cooperation and parents’ perception of low locus of control over children’s uncooperative behaviors have made it difficult for parents to initiate and keep up with oral hygiene routines for children. For example, parents often struggled with children’s initial
resistance to toothbrushing and had to wrestle with their child crying during toothbrushing, “he resisted a lot... resisted if you brushed teeth for him he did not like it... he would cry and make trouble... and still needed to hold him down and brush for him... in the beginning it was quite difficult” (David, parent). Despite initial difficulties in establishing toothbrushing habits for children, most parents found that the challenge of children’s lack of cooperation could be overcome with time and persistence, “when first started toothbrushing (child) would cry and make trouble and would not like it... after a transition period it was all fine” (Konnie, parent).

For some parents, however, the challenge of lack of cooperation from children stalled their effort to establish toothbrushing habits for children. The perception of having little control over children’s uncooperative behaviors was a barrier that prevented some parents from insisting on toothbrushing and opting instead for less effective oral hygiene practices, “he doesn’t like others helping him brush... [I: what do you do when you child doesn’t want you to brush?] ... if he really doesn’t let me then I use cloth with water and wipe his teeth... but that is also difficult... he would be running around... then need to hold him there... he is also always moving so I can’t actually clean very well I think” (Jody, parent).

The lack of insistence on toothbrushing as a result of low parental efficacy was a concern raised by many dental professionals working with the families. Dental professionals often needed to remind parents about the importance of regular toothbrushing and the consequences of not brushing teeth effectively in order to encourage parents to take control over their children’s oral hygiene habits, “it's more of a parenting issue than anything... so then they are going to offer water... ‘I can't get their teeth brushed but I offer them water after they eat all the time’ so they don’t understand how caries develops you know the S. mutans is gonna suck that sugar and do
the damage anyway so I have to very gently say ‘well you may get rid of some the free sugars but
the damage is still gonna be done’” (Julia, dental professional).

Similarly, for controlling sugar-snacking and establishing healthy dietary practices, parents struggled with children’s natural preference and demand for sugary snacks. Many parents described that children have preference for sugary snacks and that avoiding sugary snacks altogether would only make children demand for more snacks high in sugar. For example, a mother explained her decision to let children have sweets in moderation rather than completely forbidding sugary snacks, “I think eating sweets has no benefits… but children are... the more you don’t let them eat the more they want to eat (sweets)... so giving him sweets in moderation is unavoidable” (Jennifer, parent). Moreover, a few parents pointed out that some children have stronger demand for sugary snacks than most, which made controlling children’s sugar snacking habits very challenging, “my older child would eat less sweets... but this younger child would ask for a lot of sweets or ice cream and such... if he asks for sweets we try to divert his attention or use other ways... and not let him eat (sweets) right away then he may forget” (David, parent).

Although the majority of parents in this study reported positive effort in controlling children’s sugar-snacking habits using a variety of practical strategies as described in “Dietary practices and understandings”, many dental professionals and community agency members were concerned that new immigrant parents were more permissive towards children’s sugar snacking demands and described the need for frequent reminders to parents about the harm of sugar snacking and importance of limiting sugar intake for children. As described by a dental professional who was also a mother, “throughout the day they may let children eat much sweets... eat a lot of cookies... sugary juice... they always feel that children like to eat those (sugary snacks)... if not let them have it then there’s no enjoyment (for children)... I noticed my
own children going to school... I don’t bring those (sugary snacks) for children... but they would share... I asked ‘how come you have candies?... how did you get this packaged candy?’... they would say ‘we share snack’... so we often talked to parents about ‘healthy snack’... I believe the school would give this information as well... but still need to repeat non-stop” (Audrey, dental professional).

The combination of low parental efficacy and children’s inability to cooperate with toothbrushing and natural preference for sugary snacks made it difficult for some parents to establish and maintain good oral health care habits for their children.

**Intergenerational parenting challenges.**

With financial challenges that immigrant families often experienced, many immigrant parents relied on extended family members to share childcare responsibilities. The challenge of intergenerational parenting differences in establishing oral health care habits was especially pronounced among Chinese immigrant families where it would be common for grandparents to be heavily involved in sharing childcare responsibilities, and even playing the role of primary caregivers for children.

The clash between grandparents’ and parents’ generations in terms of understandings and practices of oral health care created challenges in the process of establishing effective oral health care routines for children. Both parents and community agency members brought up the issue that grandparents tended to be more lenient towards children’s sugar snacking demands and were less likely to carry out regular toothbrushing for children, due a combination of lack of emphasis on oral health care and exhaustion from taking on childcare responsibilities. The majority of parents interviewed in this study were taking on sole responsibility of caring for their children. According to parents in this study, the reasons for not relying on grandparents in sharing
childcare responsibilities were two-fold. First, caring for grandchildren could become a burden to grandparents. Second, extensive involvement of grandparents would make it difficult for parents to discipline children and establish oral health care routines, as grandparents would often spoil children with sweet treats or use treats to bribe children to stop misbehaviors. For example, one parent described her decision of bringing up her children alone without help from grandparents to avoid potential conflicts, “didn’t want them (grandparents) to help... afraid there would be conflict... different way (parenting) than them would have conflict... so all by myself... sometimes it’s difficult for elderly to change habits” (Veronica, parent).

Another challenge with intergenerational parenting was that children would often experience disruption in oral health care routines and stable emotional attachment as a result of being cared for by different caregivers. For families where grandparents served as the primary caregivers for children for extended periods of time, the children often followed different grandparents who travelled back and forth between Mainland China and Canada. As most grandparents would come to Canada on visitor visas, they often could only stay in Canada for up to six months at a time and would need to return to China to get visas renewed. Regarding this phenomenon where children were separated from parents for extended periods of time, multiple community agency members brought up concerns for the challenges that children would experience in having stable emotional attachment and disruption in their oral health care routines, “grandparents have a difficult time they are gonna give you whatever you want to keep you happy and they are not gonna brush your teeth all the times... so these kids come back with really big problems with their teeth and of course they have a lot of attachment issues with their parents right?... now they are expected to you know be these wonderful children they haven’t
grown up with their families... and the families don't know how to parent as much so it's a tough thing” (Julia, dental professional).

The common phenomenon of inter-generational parenting in Chinese immigrant families brought an additional layer of challenge for families to carry out regular oral health care practices for children and may lead to disruption in stable emotional attachment of children.

**Negative social and environmental influences.**

To a lesser extent, parents found that influences from their social circle and the external environment have posed challenges in their efforts to practice oral health care, especially for controlling sugar-snacking habits, for children. The wide presence of processed foods high in sugar content and sugary snacks shared with children by members in parents’ social circle have made it difficult for parents to limit sugar intake for children.

Parents shared the understanding that foods consumed on a daily basis often have high sugar content so that children already ingest much sugar everyday through their normal diets. In addition, many parents observed that their children were exposed to more processed foods high in sugar content than when parents themselves were children. The increased availability of processed foods high in sugar was cited by parents as a contributing factor to children’s higher risk of developing dental caries, “what we ate was relatively simple... not like nowadays many foods are processed and have much sugar... so there was lower chance for developing dental caries” (Jody, parent).

Aside from unavoidable presence of foods high in sugar content, parents found that another evolving challenge in controlling sugar snacking for children as they grew older was the influence from social circle, where neighbors and extended family members would often give children sugary snacks. Parents often had trouble refusing sweets for children due to social
pressure and not wanting to be seen as depriving children of the enjoyment of sugary snacks, “children are older... have more friends... more neighbors... this says ‘let’s have candies’ and that says ‘let’s have candies’... so with the influence they sometimes think... ‘everyone is eating candies I want to have candies too’... see other children eat (candies) and you don’t let your children eat and let them crave seems not good... the influence is not good to be honest” (Veronica, parent). Fortunately, despite the increasing challenge of controlling sugar-snacking for children, many parents also found that children have become more aware of the harm of eating too much sugary snacks as they grew older and would ask for parents’ permission or be more selective with sweets given by others in parents’ social circle, “she also knows that that (sweets) is not good for teeth... she wouldn’t eat too much... I feel that the habit is very important... she understands now that she’s grown up... she would eat... control herself... and she would ask me if she could eat (sweets)” (Yvette, parent).

Overall, parents have experienced evolving challenges in establishing oral health care routines, including children’s inability to cooperate with toothbrushing and natural preference for sugary snacks, the parental perception of having little control over children’s uncooperative behaviors, intergenerational parenting challenges, and some negative social and environmental influences. Although most parents in this study were able to overcome these challenges with time and persistence, some parents struggled to practice good oral health care for children as a result.

**Dental fear and anxiety.**

Dental fear and anxiety from previous negative dental experiences have impacted many parents in making dental-related decisions for their children and themselves. For example, a few parents have had the experience of undergoing endodontic treatments without sufficient use of
sedation and the negative memories that resulted from such painful experiences still had impact on parents today, “every time would think this dentist if he is a good dentist would be more considerate and there should be no problem... if not a good dentist he may make it more painful for you... so when visiting the dentist still feel resistant” (David, parent). Having dental fear and doubt in dentistry created significant psychological barrier to some parents when making decisions on whether or not to bring children or themselves to visit a dentist. Out of concern for children potentially going through similar painful and uncomfortable experiences, some parents described the intention to postpone bringing children to visit a dentist as much as possible, despite knowing the importance of regular dental visits, “because he would hurt... have much pain or many painful experiences from very young... I was thinking if it is possible to not visit or visit later... before I didn’t want children to see the dentist at all... if he visits it’s very painful and did not solve any problem... it’d be equivalent to not having visited yet let children have that painful experience” (David, parent).

Fortunately for most parents, the dental fear and distrust resulting from previous negative dental experiences was alleviated to various extent through later more positive dental experiences for either parents themselves or their children. Reflecting on the lessons learned from previous negative dental experiences, parents generally described the importance of establishing dental visit habits early for children, promotion of oral health for children to avoid or delay dental treatments, and choosing dentists who work well with children, “maybe bring her to find more professional dentist who is more suitable for her or we choose a good dentist together... regularly visit the dentist for checkup and such” (Emma, parent).

On the other hand, some parents experienced persistent dental fear and distrust regarding different aspects of oral health care. A few parents experienced ongoing fear and anxiety for oral
health home care stemming from negative experiences in childhood, while others decided against bringing children to visit a dentist out of fear and anxiety, “because of distrust... maybe I am too cautious in this regard... so don’t want to bring her (to a dentist) ... feel that as long as there is no cavities or unbearable pain... then would have to visit... now it’s quite good and there is no problem... so would not bring her ... she would be nervous too... she is scared to go into a hospital and see the doctor and such” (Kendra, parent).

The memories of previous negative dental experiences had differential negative impact on parents, which influenced parents’ decisions on whether or not and when to bring children to visit a dentist. While the fear and anxiety towards dentistry was alleviated through later positive dental experiences for most parents, some parents experienced persistent fear and distrust towards dentistry and dental professionals.

Overall, parents have experienced a wide range of challenges in their efforts to establish and modify oral health care practices for their children. While most of the challenges were overcome through parents’ efforts and various sources of support, some have become significant barriers preventing parents from promoting oral health for children and thus further support would be needed as described in the section on “Support needed in oral health care”.

Support Received in Oral Health Care

In practicing oral health care for children, parents received a wide range of support from different sources, including family members, parents’ social networks, communities, dental professionals, for both oral health home care practices and professional dental care, as well as support with financial aspects and language and communications as detailed in this section.
Support from family members.

Family members provided support to parents in both oral health home care and professional dental care for children through modeling positive oral health care habits and by directly participating in carrying out oral health care practices for children.

Family members generally supported parents in establishing oral health home care for children through modelling regular toothbrushing behaviors for children, being directly involved in brushing teeth for children, and cooperation with parents’ efforts to control sugar-snacking for children. A few parents described that older siblings played key roles in modelling toothbrushing behaviors for younger siblings so that younger children imitated and adopted positive toothbrushing habits easily, “when she was one year old her sister was already four... so her sister did that (brushed teeth) and she did it also... so she got used to it really fast... there’s no resistance... we didn’t spend too much time in the process of teaching her” (Miranda, parent).

Aside from modelling oral hygiene behaviors for children, family members also took on the responsibility of brushing teeth for children. For example, one mother described her husband coming up with the strategy of singing a song when brushing teeth for children to help them get used to toothbrushing, “when finish singing the song brushing is also done... then the child would gradually get used to it... ‘when singing this song I need to open my mouth like that’” (Jennifer, parent).

In addition to support in regular oral hygiene habits, family members also supported parents in controlling sugar snacking habits for children by cooperating with parents’ measures to limit sugar-snacking for children. One parent described that grandparents who took care of their grandchildren for extended periods of time supported the parent by cooperating with the parent’s rule of not giving sugary snacks to children, “when she (the child) was young my
mother-in-law mostly cared for her... but she could agree with me that no candies before two
years of age... I didn’t spend much time to communicate with her on this... she right away
accepted it without argument... so within first two years she really didn’t touch (candies)”
(Miranda, parent).

In terms of professional dental care, family members provided support by modelling
positive dental visit habits for children and accompanying children to dental visits. Family
members’ regular attendance to dental visits helped set positive examples for children and
facilitated parents’ effort in establishing regular dental visit habits for children, “from us adults
now also place emphasis on teeth... before we thought it was not necessary to get dental
cleaning... now follow dentist’s instructions would go for dental cleaning regularly” (Emma,
parent). Siblings of younger children also set good examples by being cooperative during dental
visits and even helping to distract distressed younger siblings as described in the words of a
parent, “because the younger one resists (dental visits) a lot so I brought his older sister along...
during examination he sat in my lap and the sister played with him then the dentist examined his
mouth... quite happy this time didn’t cry... as long as his sister is nearby he’d be quite happy”
(David, parent).

To a lesser extent, parents mentioned consulting family members from time to time for
advice and suggestions when making dental-related decisions or about general oral health care
for children, despite mostly making decisions for children independently.

The support from family members played a key part in parents’ effort to practice oral
health care for children, most through modeling positive oral health care habits, participating in
children’s oral health care practices and cooperation with parents’ effort in establishing oral
health care for children.
Support from social network.

Parents received support from their social circle through communications with members of their social network to gain oral health care information, consulting for advice when making dental-related decisions, and, to a lesser extent, experiencing positive influence from other parents’ efforts to practice good oral health care for children.

Parents often communicated and exchanged information with friends, colleagues and other parents regarding various oral health care issues for children. In particular, parents found that sharing with and hearing from other parents about children’s oral health care experiences or dental issues helped improve their own oral health care knowledge and level of emphasis on children’s oral health as described by a parent, “now in mom groups around me many of their children have cavities... and some brushed teeth really well from the very beginning... still ended up with a mouthful of cavities... some so serious that needed to have surgeries... then I thought maybe need to place more emphasis on children’s dental issues” (Jody, parent).

In addition to exchanging and sharing oral health care information and experiences, many parents would also consult friends and colleagues for advice and suggestions when needing to make dental-related decisions for children. While most parents would consult multiple sources for advice, some parents expressed strong preference for consultation with friends over dental professionals and had the perception that recommendations from health professionals may not be as suitable for individual families, “medical professionals they look at it from the whole population not according to your individual family's situation... and that would have impact on your decisions” (Emma, parent).

To a lesser extent, some parents described positive influence from other parents who persisted with oral health care practices for children, which served as encouragement and
reminder for parents to keep up with regular oral health care for children as described by a parent, “even if he (the child) didn’t have teeth... wiping gum should be done every day... he wouldn’t stay still for teeth cleaning so I didn’t insist... but I saw other mothers have insisted... and many mothers from the time of birth... every time after feeding would wipe teeth for their children” (Jody, parent).

Overall, the support from members of social network helped parents gain oral health care information, provided consultation when making dental-related decisions and encouraged parents to practice better oral health care for children.

**Support from community and dental health care team.**

Parents received a wide range support from their communities and professional dental care teams for children’s oral health care. The types of support included provision of key oral health care information, positive culture and abundant resources for oral health care, as well as positive features of the dental health care settings, all of which facilitated parents’ effort to practice good oral health care for children.

**Informational support received.**

Many parents received initial oral health care information from community public health nurses and through participation in community events. Parents appreciated the ease with obtaining oral health information from the community, which facilitated their effort to establish oral health care habits for children from early on. For example, one parent described the significance of having initial oral health care information in helping the parent to start practicing good oral health care for children, given that similar information was not readily available in her country of origin, “most important informational materials were from community nurses... because we are new immigrants don’t know a lot of information... we are in host country and
originally didn’t have this information in home country... our oral health was not so good...
we’re able to do it because there is information... resources for us... recognize the importance so that can do it” (Konnie, parent).

After obtaining initial oral health care information from the community, many parents participated in regular community dental programs that provided important oral health care information and opportunities to troubleshoot oral health home care issues. For example, a parent described participating in a dental screening and education program in the community and receiving toothbrushing demonstration, practical knowledge on oral hygiene and troubleshooting for oral health care issues for her child, “brushed teeth for the child on the spot... told us how to brush teeth for her... including the format and posture to use... while cleaning teeth explained to us... for example here may need fluoride-containing toothpaste... and how to use a toothbrush... my child has some issues with feeding position and may have some malocclusion... about these issues and general knowledge can consult with dental professionals” (Flora, parent).

To effectively promote oral health care information and knowledge to more immigrant families, dental professionals and community agency members collaborated extensively with community partners and service groups over time to establish close community partnerships. The close partnerships with community organizations and work groups allowed dental professionals and community agency members to provide oral health information and services as an integrated part of various community events and activities, which effectively helped break down multiple barriers for families to access oral health care information as described by a community agency member, “we go to where they regularly meet (so) they don’t have to travel... and we bring it in you know in the language that they understand... and they feel ‘okay’ they just go to their regular places and they know they are gonna you know get some useful information” (George,
community agency member). Parents also expressed appreciation for the wide promotion of dental programs in community settings and the convenience offered by dental professionals reaching out to families instead of parents having to find dental professionals as described by a parent whose children received regular dental checkups through participation in community events, “so we are not going alone to find a dentist and that’s convenient... they invite the nurse to this school and get all children to do checkup according to the order of registration” (Emma, parent).

The support from dental and community service providers in providing key oral health care information and wide promotion of community dental events through close community partnerships have greatly facilitated parents’ effort to promote oral health for children.

**Positive culture around oral health care.**

In addition to oral health informational support from the community, positive societal attitudes and culture regarding oral health, combined with abundant community resources that convey positive messages about oral health care, have facilitated parents’ effort in practicing good oral health care for children. Parents mentioned positive influence from a society where most people visited the dentist regularly, had an overall cautious attitude towards sugar snacking, and, offered various community resources to help children normalize dental visits. For example, a parent described that both exposures to story books in the community about harm of sugar snacking and the overall cautious attitude towards sugar snacking in the society had positive influence on children, “they would read books about sugar snacking is not good... education from society... the overall environment... people are very cautious about giving children sweets... very cautious... should be better guidance I think for both children and parents” (Yvette, parent).
Family-friendly settings and services.

Both proximity of settings and child-friendly services provided by various dental health care agencies have facilitated parents’ efforts in bringing children for regular dental visits and making dental visit experiences positive for families.

In terms of the physical settings of dental clinics, parents described that locations of dental clinics being in proximity of families’ living circle helped make access to regular professional dental care for children more convenient. Some parents specifically chose dental clinics closer to home so that it would be easier to bring multiple children to visit the dentist. For a community dental clinic that was located close to children’s school, parents expressed appreciation for the convenience offered by dental staff members directly bringing children from school to dental clinic for checkups with parents’ permission, “this is convenient to have... sometimes you don’t need to come they say I’ll bring them over... go to classroom to bring the children over... really convenient” (Veronica, parent). Dental professionals also described making conscious effort to accommodate families’ needs when accessing professional dental care, including providing child-minding services to parents with multiple children, adding extra office hours to accommodate working parents who could not ask time off from work, all of which helped parents to bring children for regular dental visits.

In addition to the convenience in access, parents described that having child-friendly features in dental clinics and dental staff members who worked well with children have made their children’s first and subsequent dental visits very positive experiences, “as soon as you go in there’s waiting area where there’s a corner of toys so that children can play first... when children are mostly done with playing then let them lie on a bench for checkup... and the dentist probably has some contact with children... better than I expected... the way they interact with
children” (Jody, parent). Having child-friendly features in dental health care settings and dental staff members being considerate of children’s characteristics and needs during dental visits have made dental visit experiences positive and enjoyable to both children and parents.

**Continuity in care.**

A key form of support that parents appreciated was the continuity in care provided by professional dental care teams through building trusting long-term caring relationships, regular communications and reminders about upcoming visits, and ongoing provision of oral health care information and consultation for oral health home care issues.

The establishment of long-term caring relationships with dental professionals through regular follow-up appointments has fostered a sense of continuity in care for many parents. Through long-term follow-up visits with dental professionals, parents recognized their own improvement in oral health care knowledge over time and appreciated the motivation to improve and keep up with oral health home care routines for children. For example, one parent described that anticipation of follow-up appointments with dental professionals in community dental programs served as motivation to practice better oral health care for children, “the dentist would do two more checkups for the child... this way (follow-up) for us is also maybe motivation... through practice... and through next two appointments with the dentist... I think it would help us take better care of child’s teeth” (Flora, parent).

Some parents also found that reminders calls and messages from dental offices helped remind parents to bring children to regular dental visits so that parents could achieve a level of oral health for children that would not likely be possible otherwise, “if we didn’t have from the dentist continuous communication with us and tracking us to do different types of maintenance and checkups... we may ignore this aspect... would not be able to visit the dentist regularly for
children to receive care and repair and such... probably would not be able to do so well... would be much worse” (David, parent).

Aside from motivating parents to practice better oral health care for children over time, visits to dental professionals were also opportunities for parents to gain valuable oral health care information, troubleshoot for specific home care issues encountered, and consult with experts to help make dental-related decisions. For example, one parent described her experience of consulting with dentist to check and solve the problem of child having attachment to using a bottle to drink milk, “the dentist said that as long as she doesn’t sleep with bottle in the mouth at night.. or drink everything from a bottle... if she just drinks milk from bottle... use normal cup for drinking water... (dentist) said that it would not cause damage... if have these questions I would ask the dentist... consult the experts” (Yvette, parent).

Consistent with parents’ description of continuity of care experienced, dental professionals and community agency members devoted much effort in maintaining consistent presence in the community. For example, one community agency member described that ensuring regular presence in the community helped parents feel comfortable enough to approach and ask questions about oral health care so that the community agency member could provide ongoing support and advice to parents to help troubleshoot oral health care issues, “you just have to be consistent maybe provide different tips and tricks from time to time depending on you know the situation of the kid and parents... so that's why the recurring visit is important so they can feel that ‘okay next time you are here I can ask you this’” (George, community agency member).

Dental and community service providers were acutely aware of multiple persistent challenges that families may experience in the process of establishing and improving oral health care routines for children and made much effort to meet families where they were at, build from
their current practices, help families to take small steps over time to make changes needed, and
never giving up on any family, “so rather than telling them at each appointment what they're
doing wrong and what they should be doing differently we ask the family you know what they are
ready to do... and if they are not ready then what we would do is hopefully we keep we bring
them back and back and back... we don’t give up on them... we're calling them back into the
clinic until we hope then their life is settled down to some extent and they are ready to make
some changes” (Katherine, dental professional).

The continuity in care provided by dental professionals and community agency members
through ensuring consistent presence in communities and effort in bringing families back for
recurring visits were appreciated by parents as helpful in their effort to practice better oral health
care for their children.

Financial support received.

In terms of financial support, either qualifying for governmental dental benefit programs
or having private dental insurance plans through employment has facilitated access to
professional dental care for families. Qualification for government dental payment assistance
was sufficient for many families to afford regular dental care for children given that children did
not experience any major dental issues as described in the words of a parent, “every year there
are two free dental visits for children... already enough... if you do well then don’t really need to
fix teeth... as long as teeth were not damaged then it’s enough” (Konnie, parent).

Dental professionals and community agency members also confirmed that the provincial
government’s Healthy Kids program offered a solid basis for most types of financial support
provided by dental health care agencies, including checking and informing families regarding
their eligibility for the Healthy Kids program, and even accepting the portion of dental expenses
not covered by Healthy Kids program. For example, a community agency member who worked at a non-profit dental clinic described the clinic’s provision of financial support to immigrant families so that families can access regular dental services without worrying about cost, “we operate just like a regular dental clinic... except that we take so much more Healthy Kids patients... a service like that make it easy for these parents to approach ’cause you know they know we speak the language they know that we have been around... and they know that even though they are low-income family they are not gonna be turned away” (George, community agency member).

Moreover, dental professionals and community agency members often went out their way to refer and connect families, who were not eligible for Healthy Kids program yet did not have private insurance, to more affordable dental services. Some dental professionals even helped families to apply for additional funding where children required emergency dental care and treatments. The dedicated effort to help families access much needed financial support is best explained in the words of a dental professional, “we would never turn anybody away even if they don’t have Healthy Kids coverage... for instance there’s a clinic in Vancouver that is very conscious of what we call the ‘working poor’ so those are the ones that don’t have the Healthy Kids coverage... and I can refer a limited amount of children to that clinic... so it's a matter of looking at income and seeing where I could send them or whether there’s another clinic that may be willing to do some work for them” (Katherine, dental professional).

On the other hand, for families who had dental insurance plans through employment, parents were or anticipated to be able to access professional dental care for the entire family. Many parents also mentioned willingness to pay out of pocket for a portion or all of children’s dental care expenses if required. Nevertheless, a number of parents described the need for more
financial support from the government to help families afford professional dental care for children as elaborated in more details in the subsequent section of “Support needed in oral health care”.

**Language and communication support received.**

For language and communication support received, having high proficiency in both English and Chinese languages and the provision of translation and interpretation services provided during dental visits and of oral health care information were helpful to both parents and professionals alike.

As many parents interviewed in this study had high proficiency in both English and Chinese languages, they found that their bilingualism facilitated access to a broad range of oral health care information through different means, including online searches, communications with other parents who spoke either languages, and written informational materials, “*I actually would use both languages... on Google... if I can’t find information in Chinese I would look up in English... or can’t find in English then I would search in Chinese... so to me the information I get is probably a bit more than parents who speak only one language*” (Miranda, parent).

For parents who were not proficient in English language, many appreciated the language support during dental visits through interpretation services offered by dental care teams. Specifically, having interpretation services provided by dental professionals proficient in Chinese languages, and even the use of common body language have greatly facilitated parents’ communications with dental care team and access to oral health care information during dental visits, “*in terms of language... is a bit difficult... but I think here the dentist is pretty good... some of the body language we can also understand... and there is interpreter... so not worried about...*”
that... for me it’s best to have interpretation and our Taiwanese dentist would also give us recommendations... so the information gained from there is relatively more” (Alexis, parent).

Similarly, dental professionals appreciated interpretation support offered by their staff members, community volunteers and professional interpreters, as well as having high proficiency in both languages themselves. For example, one dental professional described her positive experiences with language support from colleagues, community partners, and provincial interpretation services, all of which facilitated communications with immigrant families, “now that we have a staff member who speaks the language somewhat I feel very supported I feel like we can book them (immigrant families) in and feel confident that they're gonna get the information that they need... I mean overall I feel very confident about our interpreter services too... I think overall when we go out to our community partners if they know that they have got families who need language help they are trying to help us, which is great” (Julia, dental professional).

Overall, both language support offered by interpreters and interaction among professionals and parents who themselves were proficient in English and Chinese languages have facilitated communication during dental visits and enhanced parents’ access to and dental professionals’ delivery of oral health care information.

Support Needed in Oral Health Care

Despite much support has been provided to families to practice good oral health care for children, parents continued to experience ongoing challenges in practicing oral health care and described the need for further support to help them promote oral health for children. Both parents and professionals interviewed described that the main types of supports needed would include, increased financial assistance from the government to help cover dental expenses for children,
better promotion of oral health care information, improved language support to enhance communications and access to information, and, to a lesser extent, more frequent communications with dental and community service providers to ensure continuity in care.

**Financial support needed.**

Parents described the need for increased financial support to help cover dental expenses in both regular and specialist professional dental care for children. A number of parents gave suggestions on the types of financial assistance needed and improvement to current financial assistance programs that would be helpful in addressing the financial barrier to access professional dental care.

The majority of parents believed that increased financial support from the government would enable parents to improve oral health care for children. For example, one parent explained that the combination of increased financial resources provided by the government and parents’ effort to practice good oral health care would bring significant improvement in children’s oral health conditions, “I think I myself take much of the responsibility to help him protect teeth... but sometimes... if the government provides more resources then everyone should be better off... every child” (Claire, parent).

In terms of the types of financial assistance needed, parents suggested options ranging from government-subsidized dental plans for purchase to full dental benefit coverage for children. For example, one parent emphasized the need to provide middle-income families with the option to purchase a subsidized dental insurance plan from the government, much like the provincial Medical Service Plan (MSP), so that families would not need to pay out of pocket for all dental expenses, “if we have some money... I think parents would be willing to spend it on children... at least better than paying one hundred dollars every time... if you think middle-
income (families) don’t need for free then offer an option... let them buy it... isn’t MSP like that too?... if you have money then the government does not cover your MSP and you pay yourself... and I think the same can be done for dental and drugs” (Miranda, parent).

Taking it one step further, some parents suggested improvement to the existing dental benefit program to provide full coverage for dental expenses of all children under the age of eighteen, regardless of family income levels. For example, one parent suggested the incorporation of dental care for children into universal health care coverage, “it’d be best like the medical insurance... to include dental visits... [Interviewer: so if dental visits can be... all expenses covered and everyone can go?] ... not to say everyone... that’s too greedy... just children... eighteen years and younger” (Arial, parent).

The need for increased financial support to cover dental expenses was also echoed by dental professionals and community agency members who advocated for increasing dental coverage of the Healthy Kids program. They also highlighted the need to build more reduced-cost dental health care agencies to improve access to professional dental care for families with young children. In particular, dental and community service providers advocated for increasing the coverage of Healthy Kids program to cover dental expenses one-hundred-percent so that all dentists across the province could afford to accept patients on Healthy Kids program, without balance-billing the patient families. This proposed change in fee structure would fundamentally remove the financial barrier for low-income families, including many new immigrant families, to access professional dental care, and would be more advantageous than building more low-cost dental health care agencies as described by a community agency member, “(if) we built another clinic in which we would get another three or four thousand patients that would come to it, but then there would be next community over doesn’t have one, right?... so really to change the fee
structure is the way to approach it when you are in a community that won’t support a clinic like ours” (Malcolm, community agency member).

Overall, increased financial support from the government either in the form of subsidized dental insurance for purchase or full dental coverage for children irrespective of family income levels could help remove the financial barrier for immigrant families to access professional dental care and facilitate parents’ effort to promote oral health for their children.

**Informational support needed.**

Parents described the need for better promotion of oral health care information in terms of the types of information needed, ways to deliver information, and potential target groups for receiving oral health information.

**Types of information.**

The majority of parents expressed the need for increased promotion of both general oral health care information and information on specific oral health care topics. In particular, parents with younger children required consistent general information from credible sources on the developmental stages of children’s teeth and evolving oral health care needs to best care for children’s teeth as described by a parent, “I want to (know) when to start cleaning for her... then all the way till before primary teeth fall out... during this time what do we parents need do to... and (get) very standard instructions... and some common knowledge” (Flora, parent).

Besides general oral health care information, some parents also described the need for information on specific oral health care topics that individual children encountered, such as advice on how to care for children’s teeth when primary tooth exfoliation happens, malocclusion in primary teeth, and orthodontic treatment options and necessity. A few parents also described needing additional information about the characteristics and regulations of dental profession in
Canada, which was believed to help with selection of dental clinics and professionals most suitable to individual children’s oral health care needs as described by a parent, “in the neighborhood we live... which dental organizations are there?... which professional institution or committee is managing?... and if they have a rating that we can go check every dental clinic and dentist... how are the reputation and professional qualifications?... if there’s a public website or publication... it can let us get to know more information in this aspect... may benefit us to find (a dentist)” (Kendra, parent).

In order to better serve new immigrant families in promotion of oral health for their children, dental professionals and community agency members described a range of information needed about new immigrant parents, including the need for more information about immigrant parents’ prior knowledge and understandings about oral health care, what has been taught to parents about oral health and care, as well as what is dentistry like in China. As described by a dental professional, “what are typical family practices that are handed down from mother to child or you know in some cases I realize it's grandparent to child because the mother is not as involved in care... what do they learn in school would be really good to know... and it would be good to know what dentistry is like in China... what are people's experience when they go to a dentist? when did they go to a dentist? is it prevention-oriented? is it treatment-oriented? is it safe?... yeah 'cause I mean they bring all that over here assuming that it's the same” (Julia, dental professional).

**Delivery of information.**

In terms of ways to better promote and communicate oral health care information, many parents described the need for more community-based informational workshops and activities for parents to learn and communicate about oral health care together with other parents. An
important notion raised by parents was the relative advantage of government and dental programs’ active delivery of oral health care messages and information to parents, over parents having to find information in communities themselves, in facilitating access to oral health care information. For example, one parent described the difficulty in seeking oral health care information in the community and needing ways to receive information directly from credible sources, “if we go and find this information... ways are limited... if the government or some institutions have useful and helpful information... if can actively send the information to us would be the best... because it’s quite difficult for us to find (information)” (Emma, parent).

For delivery of oral health information and messages, some parents suggested that the use of social media and web-based platforms may help parents receive and take up information more effectively. For example, one parent suggested using social media groups and e-mail newsletter as ways for relevant organizations to actively deliver oral health care information to parents, “oral health care association or public health system... if it can have like a sub-group focusing on children’s and teenagers’ oral health then parents can... add this WeChat group... or join the e-mail (list)... and regularly you would send some good (information) on how to protect teeth and all aspects or newest research... new ideas or concepts... share with everyone” (Kendra, parent).

In particular, a few parents suggested the use of social media platforms available as phone apps to facilitate regular communications and informational exchange with other parents and health professionals on oral health care topics for children. For example, one mother described using WeChat, a communication platform widely used in the Chinese community, on mobile devices, which enabled quicker and easier exchange of information with other parents and its’ relative advantage over traditional online forums, “now we have a mom group on
WeChat... there are three hundred mothers... sometimes if we have questions would post in the group... and if other mothers know it they would reply... but so far... in the English-speaking western side... I haven’t found anything like it... I know some websites has that... but it’s not as fast as on cell phone... cell phone is really convenient” (Miranda, parent).

Dental professionals and community agency members also expressed the need for having more channels to share oral health care information to parents and dedicated resources to support information promotional efforts. For example, a dental professional advocated for all dental health care providers to be “better marketers of information” and described the need for more channels to spread dental messages to parents effectively, “I mean where do you go to get information about oral health if you don’t go to a dentist right?... I think we need more campaigns about baby teeth... the BC Dental Association had a television spot about not putting your child to bed with a bottle any more... people got that they don’t put their children to bed with bottles anymore I find... so we need more of those kind of things... radio spots and television commercials and social marketing” (Julia, dental professional).

**Target groups for information.**

Many parents suggested the need to target promotion of oral health care information at children in school settings and new immigrants more generally. Several parents saw the need for increased oral health education for children in schools to help supplement oral health education received at home, teach children about negative consequences of insufficient oral health care, and improve children’s toothbrushing techniques. For example, one parent described that children may be more receptive of instructions from teachers than parents regarding oral health care so that oral health education received in schools may be very effective in helping children accept such information, “if in schools can also promote (oral health) would be better... because
if (information) from teachers... given by the teachers it’d be different than from the mother” (Konnie, parent).

In addition to promotion of oral health information to children in school settings, some parents also described the need to target newly-landed immigrants at large in information promotion efforts to help raise awareness of the importance of oral health and care. One parent explained the rationale being that only when adults became aware of the importance of oral health could children’s oral health also become an emphasis, “relevant organizations could regularly run some lectures/workshops... I hope that in the future these relevant lectures/workshops could let more people know... and pay attention to (teeth) early would be better... because only when adults emphasize that children’s (teeth) will be emphasized... this is crucial” (Emma, parent).

Overall, parents described the need for both general and specific oral health care information to be actively delivered to parents through a wider range of communication channels targeting not only immigrant parents, but also school-aged children and new immigrants more generally.

**Language and communication support needed.**

In terms of language support needed, a number of parents described the need for oral health informational materials to be provided in Chinese languages to facilitate thorough comprehension of information, and increased provision of interpretation services during dental visits to improve communication with non-Chinese-speaking dental professionals. For example, one parent explained the preference for translated oral health informational materials, “if have (information) in Chinese would definitely be better... that represents the majority of Chinese parents... for many parents English to them is not as easy to read as Chinese” (Kendra, parent).
Dental and community service providers also echoed the need for more translated informational materials and increased provision of interpretation services to facilitate delivery of oral health care information and communication during dental visits respectively.

To a lesser extent, some parents expressed the hope for more frequent communications with dental professionals between dental visits. They believed that more frequent check-ins with dental professionals would help keep both dental professionals and parents up-to-date with children’s oral health conditions and care routines and thus provide mutual benefits as described by a parent, “can communicate with us through phone call or in-person... could be about his recent diet... and how is his toothbrushing recently... probably just ask like that... I think would be better than now... it’s mutual... he (dental professional) can also get to know this child’s conditions” (David, parent).

In summary, most parents in this study had solid understandings and good practices of oral health care, which were consistent with recommended best practices for children. Families experienced multi-level challenges in establishing and modifying oral health care practices for children, most of which were overcome with parents’ effort and various types of support provided through different sources. However, new immigrant families continued to experience ongoing challenges in areas of financing dental care, language and communication, and access to information that required further support from all levels of governments and organizations.
Chapter Four. Discussion

Summary of the Study

A qualitative exploratory study has been carried out to examine the multi-level factors influencing the oral health care of young children (ages 0-6) from recent Chinese immigrant families residing in the cities of Vancouver and Richmond, British Columbia. A growing body of literature has helped identify significant disparities between dental health outcomes between Chinese immigrant and non-immigrant children in North America (Chinn et al., 2011; Locker et al., 1998). However, very few studies have specifically looked at the social, economic and cultural factors influencing the oral health care practices and outcomes of Chinese immigrant children in Canada. Hence this study has been conducted to bridge a knowledge gap in the body of literature.

The findings from this study revealed that Chinese immigrant families made significant effort to practice oral health care and promote oral health for their children. In the processes of establishing and modifying oral health care practices and habits for children, parents experienced a wide range of challenges that were mostly overcome with parents’ persistence and the support from family members, social networks, communities and professional dental care teams. However, parents continued to experience ongoing challenges in the areas of informational gaps, language and communication barriers, and financial difficulties that required further support from different levels of organizations, including the community and governments.

A detailed discussion of study findings in relation to the literature, followed by a discussion on the strengths and limitations, and practical and research implications of the study is presented in the following sections.
Discussion of Findings

Oral health care practices.

The Chinese immigrant parents in this study generally had good understandings about oral health and adopted care practices consistent with recommended best practices in dentistry. However, some differing beliefs and attitudes towards oral health care existed among the parents with both general and specific oral health care.

General understandings about oral health.

In terms of general understandings about oral health, the majority of parents believed in the importance of oral health as an integral part of overall health, understood the significance of primary teeth in relation of children’s quality of life and connections to permanent teeth, and perceived that risk and extent of dental caries could be greatly reduced through effective oral health practices.

On the other hand, some parents believed that oral health was a separate and less important part of general health, that primary teeth would fall out eventually prior to emergence of permanent teeth, and that heredity played a more significant role in determining risk of dental caries than later oral health care. These findings were consistent with previous studies involving Chinese immigrant families that indicated the lack of emphasis and value placed on oral health care for children by some parents (Amin & Harrison, 2007, 2009; Amin, Harrison, & Weinstein, 2006; Hilton et al., 2007; Wong et al., 2005).

Despite the fact that some parents held different general beliefs towards oral health and care for children than most others, all parents in this study had the intention and made effort to practice regular oral health care for their children.
**Oral health home care.**

*Feeding and dietary practices.*

Previous research has identified the association between using bottles at night and with sweet liquid as risk factors for developing dental caries in children (Berkowitz, 2003; Hooley et al., 2012). Parents in this study reported a wide range of ages for weaning children off night feeding, from five months up to two years of age, and described limited understandings about the significance of night feeding on children’s risk of dental caries development.

All parents in this study described extensively the harm of sugar snacking for children. Most parents reported using family-specific practical strategies, including not keeping sweets at home and having healthy snack options readily available, to help control sugar snacking and promote healthy dietary choices for children. Parents’ development of and persistence with implementing measures to control sugar snacking for children helped improve sugar snacking habits for children and were indicative of high levels of perceived efficacy by parents. These findings are consistent with previous research that identified high parental efficacy as a key predictor of success in controlling sugar snacking for children (Adair et al., 2004; Gao et al., 2010; Hooley et al., 2012). On the other hand, some parents experienced additional challenges in controlling sugar snacking, including children’s strong demand for sugary foods and wide availability of sugary snacks both on the market and shared by members of the parents’ social network.

*Oral hygiene practices.*

In terms of oral hygiene, all parents recognized the importance of early establishment of oral hygiene habits for children. However, the reported starting ages of toothbrushing and independent toothbrushing for children varied widely. While the varying reported starting ages
of toothbrushing could be partly due to recall bias by parents, the wide range of starting ages suggests that key differences in knowledge and understandings about oral hygiene existed among parents in this study.

In the beginning of the process of establishing toothbrushing habits for children, the majority of parents could only carry out toothbrushing for children once a day, instead of the recommended twice daily toothbrushing (British Columbia Dental Association, 2019; Canadian Dental Association, 2019), due to a combination of children’s lack of cooperation and parents’ busy schedules. However, consistent with previous studies that found high parental efficacy as a strong predictor for regular toothbrushing habits, most parent participants’ strong intentions and persistence helped them overcome the initial challenges and introduce twice-daily toothbrushing for children as they grew older (Adair et al., 2004; Gao et al., 2010; Hooley et al., 2012; Silva-Sanigorski et al., 2013).

In terms of use of fluoride, all parents accepted that fluoride was important in prevention of dental caries and brought children to receive regular fluoride varnish or used fluoride-containing toothpastes with older children. However, many parents with younger children believed that fluoride use was not safe for children before they developed the ability to spit out water. This parental belief was inconsistent with the current recommendation of using a rice-grain-sized amount of fluoride toothpaste when toothbrushing for children ages zero to three years (British Columbia Dental Association, 2019; Canadian Dental Association, 2019).

*Home remedies and Traditional Chinese Medicine.*

The Traditional Chinese Medicine concept of “excessive internal heat” (“上火”) as a cause for symptoms of inflammation, including dental swelling, sore throat and fever, was described by many parents in this study as well as those in previous research (Dong et al., 2007;
Wong et al., 2005). The use of home remedies based from TCM, however, was mainly used by parent participants to supplement regular oral health care for children. Many parents explained that the purpose of using TCM-based home remedies was for promotion of general and oral health, and only to a lesser extent, temporary relief of dental discomfort. These findings support previous research that found that use of TCM by Chinese immigrant families was for prevention of illness and promotion of health (Dong et al., 2007; Wong et al., 2005).

**Professional dental care access and utilization.**

The ages for children’s first dental visits varied widely among the Chinese immigrant families in this study with about half of the parents brought children to first dental visits before two years of age. In particular, a small number of parent participants conveyed the view that the dentist was a repairer who should be visited only when there was dental discomfort and for treatment purposes. These findings were consistent with previous research that found similar misconceptions towards preventive dental care among Chinese immigrant families (Hilton et al., 2007; Wong et al., 2005).

The different perceptions of purposes of professional dental care among Chinese immigrant parents highlighted potential different oral health norms between Mainland China and Canada. Supporting the potential differences in oral health norms between the two countries, the rates of dental care service utilization differed significantly for children and adolescents in Mainland China (15-21%) and Canada (91%) (Health Canada, 2010a; Xia, 2010). Consistent with the finding of lack of emphasis on preventive dental care, less than 40% of children and adolescents visited a dentist for preventive purposes in Mainland China based on a Chinese national oral epidemiological survey (Qu et al., 2011; Xia, 2010).
Another complexity related to professional dental care utilization was that some parents reported receiving conflicting information from different sources regarding the best age to start bringing children for dental visit in Canada. Inconsistency of dental messages provided to parents from different health care providers in Canada was also confirmed by dental professionals in this study.

In terms of preventive dental procedures, especially professional dental cleaning for children, most of the parents reported having neither prior knowledge nor experiences with dental cleaning before moving to Canada. After learning about dental cleaning as an important preventive dental procedure, there was improved awareness among most parents of the necessity and acceptability of dental cleaning for children. However, some parents and grandparents held the belief that dental cleaning was invasive and not safe for children’s teeth. In particular, a few parents decided against bringing children to regular preventive dental care out of concern that the procedure was too invasive. Some parents also described resistance from grandparents in bringing children to dental cleaning for safety concerns. These findings were consistent with the previous research that found that Chinese immigrants often had the perception that dental cleaning would scratch and loosen teeth and that good self-care practices would render preventive dental visits unnecessary (Hilton et al., 2007; Wong et al., 2005).

In terms of dental treatment, parents generally accepted dental fillings as necessary and important for children’s dental outcomes. However, some parents had doubts and concerns regarding necessity and safety of primary tooth extraction and dental treatment under general anesthesia that led to the decision to decline or delay treatments for their children. These concerns voiced by parent participants supported the previous finding of common uncertainty
and doubt of Chinese immigrant parents towards the necessity and safety of dental treatment under general anesthesia for young children (Amin et al., 2006; Wong et al., 2005).

**Influencing factors and supports to help improve oral health care.**

**Targeting immigrant communities for information promotion.**

Parents in this study generally described having limited prior oral health care knowledge before immigrating to Canada. Many parents reported that they never received good oral health care and suffered from poor dental outcomes as children. This finding is consistent with previous studies that found that many Chinese immigrant parents either never visited a dentist in China or sought professional care only for emergency treatments in their childhood (Amin et al., 2006; Wong et al., 2005). The limited promotion of oral health care information and the prevailing oral health norms regarding professional dental care in China together contributed to previous misconceptions about oral health and care for many Chinese immigrant parents of young children in this study.

In carrying out oral health care practices for children, parents in this study relied on the direct participation of family members, including grandparents, spouses and children’s siblings, in oral health home care routines. Family members often participated by modelling positive habits and cooperating with parents’ efforts to practice oral health care for children. In addition to involvement from family members, parents in this study also described that members of parents’ social networks were important sources of oral health care information and consultation when they needed to make dental-related decisions for their children. Multiple studies have also confirmed the value of extended family members and social circle of parents in providing assistance and support in different aspects of children’s oral health care (Amin & Harrison, 2007; Hilton et al., 2007; Wong et al., 2005).
Generally, parents in the present study trusted and relied upon family members and their broader social networks in assisting with children’s oral health care. These findings suggest that promotion of oral health care information should target not only immigrant parents with young children, but more generally members of Chinese immigrant communities. As family members and social networks of new immigrant parents often share similar cultural backgrounds as the parents, they likely have also experienced limited oral health care promotion effort in Mainland China and may hold oral health norms different than those commonly accepted in Western dentistry (Arora et al., 2012; Hilton et al., 2007; Wong et al., 2005). The need to expand the reach of oral health information delivery and promotion was confirmed by dental professionals and community agency members in this study, who strongly advocated for the inclusion of family members into regular dental visits and community events. Several previous studies also supported promoting dental messages to a wider audience so that consistent oral health care information can be received by all members of immigrant families and their social network, in turn helping immigrant families better promote oral health for children (Arora et al., 2012; Dong et al., 2011; Poureslami et al., 2013).

**Innovative ways to deliver translated information.**

Following immigration to Canada, many parents in this study indicated improvements in their knowledge and understandings about oral health. However, a number of parents experienced difficulties in communications and access to oral health care information as a result of language barriers. Parents with limited English language proficiency described that oral health information was often provided only in English making it difficult to understand and follow. Similarly, dental professionals in this study also described that language barriers created challenges in communications during dental visits and delivery of oral health information to
parents. Multiple previous studies have supported the need for translated oral health messages and information in native languages spoken by immigrant families in order to facilitate access to and acceptance of such information by families (Arora et al., 2012; Dong et al., 2011; Poureslami et al., 2013).

Despite the language barriers that parents have experienced when accessing dental care and information, they generally found that hands-on demonstration of practical oral health knowledge, such as toothbrushing techniques, the use of body language, and visual aids were very useful in helping parents troubleshoot home care issues encountered. This finding is consistent with a previous study that also found that parents generally preferred practical knowledge and hands-on demonstration of various oral health care practices in helping improve oral health care routines for young children (Amin & Harrison, 2007).

Moreover, previous research has shown that delivery of oral health care messages and information through hands-on demonstration and family-specific counselling to be much more effective than using the traditional formats of printed pamphlets and brochures (Amin & Harrison, 2007; Lai et al., 2015; Watt, 2012). In particular, a number of parents in this study expressed the need for more communication channels through which to receive practice-oriented oral health care information, including web-based and social media platforms. Keeping into consideration the resource limitations and ethical requirements for using various newer communication platforms, dental professionals and community agency members in this study also agreed on the need to promote practical oral health knowledge through a wide range of communication means and social marketing strategies to both reach a broader audience and facilitate access to information.
**Collaboration and consistent dental messaging across health professions.**

Some parents in this study described the challenge of receiving conflicting information from different health care providers regarding oral health care and, as a result, having difficulty in making dental-related decisions for their children. The phenomenon of conflicting oral health information provided by different health care providers was cited by dental professionals in this and previous studies (Hilton et al., 2007; Wong et al., 2005).

The majority of parents in this study reported that they received initial oral health care information through participation in community programs or visits to other health care providers. Health and community service providers are often the first point of contact for many immigrant families to get to know and access professional dental care (Hilton et al., 2007; Quinonez et al., 2014; Zhu et al., 2019). Findings from both the present study and previous research suggest the importance of consistent dental messaging to ensure the accuracy of oral health care information received by parents of young children (Murphy & Moore, 2018; Quinonez et al., 2014; Zhu et al., 2019).

A challenge is that there appears to be disagreement among health care professionals about the content of key messages. For example, the recommended starting age of first dental visits is the earlier of one year of age or when the first primary tooth erupts (BC Dental Association, n.d.; Canadian Dental Association, 2019), however, many pediatric general physicians would refer families to visit a dentist at a later age than the recommended best age to start in both the present and earlier studies (Quinonez et al., 2014; Zhu et al., 2019). Moreover, dental professionals in the present study reported that they experienced resistance in their attempts to encourage consistent dental messaging with other health professions, especially from general practitioners. Similar findings from previous studies also suggest the difficulty with
promoting consistent dental messaging across health professions, especially with pediatricians, often leading to under-referrals and delay in referrals of young children to dental clinics (Jackson et al., 2015; Quinonez et al., 2014; Zhu et al., 2019).

Interventions including the incorporation of oral health care curricula into the undergraduate training of both medical and dental students has encouraged collaboration and cross-referrals between health specialties in the United States (Jackson et al., 2015). Moreover, the encouragement of interprofessional collaboration in all aspects of having consistent policy and guidelines, providing adequate support for cross-referrals between health professions, and increasing ongoing communications among health professionals, have been shown to be effective in the promotion of consistent dental messages across professions in both the United States and the United Kingdom (Jackson et al., 2015; Murphy & Moore, 2018; Quinonez et al., 2014; Zhu et al., 2019).

Creating a positive oral health culture.

Parents in this study reported a mix of positive and negative social and cultural influences on their oral health knowledge and practices. Parents found that in their current contexts, cautious societal attitudes towards sugar snacking and the social norm of regular dental visits, combined with abundant community resources to promote positive oral health care habits, were facilitators in parents’ efforts to promote oral health for children. On the other hand, the wide availability of sugary snacks and foods on the market and shared by members of parents’ social circle and in children’s schools created significant challenges in some parents’ efforts to practice good oral health care for children. The potential for both positive and negative influences from dominant oral health norms and values in communities and cultural groups points to the
importance of oral health culture on children’s oral health care and dental outcomes (Adair et al., 2004; Amin & Harrison, 2007; Pattussi et al., 2006b, 2006a; Wong et al., 2005).

Overall, the study findings suggest the need for promotion of a more positive culture around oral health in the communities and Chinese cultural groups with whom immigrant parents are affiliated. More focused attention could be placed on oral health care information delivery and promotion in Chinese immigrant communities more generally and also facilitation of consistent dental messaging across health and other professionals working closely with immigrant families.

Addressing dental fear and anxiety.

Dental fear and anxiety were reported as key psychological barriers for many immigrant parents in this study, resulting from past negative dental experiences of undergoing painful dental procedures. Although some parents described negative dental experiences in both Mainland China and Canada, the majority of parents had more negative experiences with dentistry in Mainland China than in Canada, with reports that dental professionals had less consideration for patient’s comfort level during dental procedures and offered varying quality of dental treatment. The differences in care experiences in Mainland China and Canada reported in the present study are consistent with the stark contrasts in availability of dental health care resources between the two countries, as identified in the literature (Health Canada, 2010a; Wang, 2012). In Canada, the average dental professional-to-population ratio was one dental professional for every 1,000 to 1,500 residents (Health Canada, 2010a). On the other hand, the average dental professional-to-population ratio in Mainland China was one dental professional for every 10,000 residents (Wang, 2012). In other words, a dental professional in Mainland China could see as many as ten times more patients on average than a dental professional in Canada. Although not
directly inferred from the present study, the wide disparity in dental health care resources between the two countries likely contributed to the less positive experiences and poorer quality of dental care that Chinese immigrant parents received in Mainland China as compared to in Canada.

Having dental fear and distrust towards dentistry is a key factor preventing parents from accessing regular dental care for children and themselves as found in previous studies (Hilton et al., 2007; Hooley et al., 2012; Wong et al., 2005). Parents in this study also described initial hesitation and unwillingness to bring children to visit the dentist owing to their fears of putting children through similar negative experiences as their own. Fortunately, the majority of parents were able to overcome dental fear and anxiety through later positive dental experiences of their children or themselves in Canada. Many of the parents appreciated the family-friendly services and settings of dental service agencies and dental staff working well with their children; this helped to alleviate the fears that parents had towards dentistry and made dental visit experiences positive for their young children.

Given the high prevalence of dental fear among Chinese immigrant parents in the present study and parents’ significant differences in experiences with dentistry in Mainland China and Canada, dental and community service providers may require better information and awareness on the oral health care history and associated psychological barriers immigrant parents may have, as these may have impacts on parents’ decision-making regarding their children’s oral health care. With improved awareness and understanding of the significance and origins of dental fear common among immigrant parents, dental professionals and community agency members may be able to provide more appropriate care and consultation to Chinese immigrant families to help remove the psychological barriers for parents to access care for their children.
**Increasing funding to support continuity in care.**

Financial difficulties were described by many parents in this study. Financial difficulties may influence oral health home care through the mediating effects of sub-optimal living conditions, high levels of parental stress, and lower parental locus of control over children’s uncooperative behaviors (Adair et al., 2004; Amin & Harrison, 2009; Gao et al., 2010; Hooley et al., 2012). Parents in this study did not extensively describe the financial hardship experienced and its impact on oral health home care despite generally having a lower-to-middle family income. However, many parents described the evolving challenges of children’s lack of cooperation and their own busy schedules that created significant difficulties in their efforts to establish and maintain oral health care practices for their children. On the other hand, dental professionals in this study recognized the influence of child-level and contextual factors, yet, emphasized on the lack of parental efficacy and permissive parenting styles as barriers to parents’ success in practicing regular home care for children.

The dichotomy in parents’ and dental professionals’ perspectives regarding the main sources of difficulty stalling parents’ efforts to practice regular oral health home care for their children supported findings from other previous studies indicating that both children’s temperament and parents’ locus of control were important factors influencing parental success in establishing oral health care habits for children (Adair et al., 2004; Gao et al., 2010; Hooley et al., 2012; Silva-Sanigorski et al., 2013).

The challenges in practicing regular home care because of financial difficulties faced by immigrant families were often ongoing and persistent. Dental professionals and community agency members in this study recognized the multiple persistent challenges facing immigrant families and made much effort to provide continuous care and support, such as through long-
term follow-up appointments, regular reminders to parents about upcoming visits, and giving advice to help troubleshoot oral home care issues encountered by parents. However, given the resource limitations that dental health and community agency members had in their respective service agencies, additional financial support from across levels of governments were needed to help service providers ensure continuity in care and ongoing support to parents and their children.

**Improving understanding about inter-generational parenting.**

In addition to parenting challenges, community agency members described the common phenomenon among Chinese immigrant families of extended family members, especially grandparents, being heavily involved in sharing childcare responsibilities as a result of unaffordability of childcare services to lower-to-middle income families in British Columbia. Findings from multiple studies have also highlighted the common extensive involvement of grandparents in shouldering childcare responsibilities in Chinese immigrant families (Arora et al., 2012; Hilton et al., 2007; Wong et al., 2005). Some parents in the present study described sending their children back to Mainland China to be cared for by grandparents; however, most parents in the present study took on the responsibilities of caring for their children independently.

For some families in this study, there was heavy reliance on grandparents in childcare, which created unique inter-generational parenting challenges for immigrant families. The differences in parenting styles and understandings of oral health care could lead to conflicts and disagreements between parents and children’s grandparents, which could negatively affect the oral health care and dental outcomes of children as described by both parents and professionals in this study and in the previous literature (Arora et al., 2012; Hilton et al., 2007; Wong et al., 2005).
Dental and community service providers in this study suggested that in order to help resolve inter-generational parenting challenges for immigrant families, oral health care information needed to be provided to immigrant families in culturally-appropriate ways that all generations from the immigrant family could access and accept (Arora et al., 2012; Wong et al., 2005). In particular, the development of oral health information needs to take into account the wide influence of concepts of health and illness in Traditional Chinese Medicine, which are prevalent in Chinese communities worldwide, and the potential differences between the views on the causes and appropriate interventions of oral health and dental diseases based on Traditional Chinese Medicine and modern dentistry (Arora et al., 2012; Dong et al., 2007; Hilton et al., 2007; Wong et al., 2005). Also, dental and community service providers expressed the need for additional information to help understand the family dynamics associated with inter-generational parenting in order to provide consultation to families that could help reduce inter-generational conflicts with respect to children’s oral health care and other aspects of childcare.

**Provision of dental coverage alternatives.**

Financial challenges directly affected access to regular preventive dental care for a number of families in this study. Many parents with lower-to-middle family income struggled to ensure access to regular dental care for their children and/or for themselves. In addition to unaffordability of regular dental care in Canada, a number of parents also experienced unavailability of preventive dental care for both children and themselves when seeking dental care in Mainland China. Dental professionals and community agency members described much effort to help immigrant families identify and connect with affordable dental care for their children; however, they struggled with limited availability of financial resources and few options
of affordable dental services across British Columbia (Dedyna, 2013; Quinonez et al., 2007; Shaw & Farmer, 2015).

Both parents and professionals in this study suggested further financial assistance from the government in the forms of subsidized dental insurance plans for purchase for middle-income families, increasing coverage of the Healthy Kids program to cover dental expenses –100% for low-income families, and provision of universal dental care for all children regardless of family income levels. The evidence in support of increasing public financing of dental health care delivery is substantial, with reported outcomes ranging from high rates of dental care service utilization to reduction in dental caries prevalence in children accessing timely preventive dental care (Birch & Anderson, 2005b; Ismail & Sohn, 2001; Leake, 2006). The provision of universal dental health care has been shown to promote high rates of preventive dental visits. In one previous study in the province of Nova Scotia, Canada, children who first visited a dentist for preventive checkup and later visited a dentist for at least once a year had lower risk and severity of dental caries than children who did not (Ismail & Sohn, 2001).

Ensuring access to regular preventive dental care for children is a key step to achieving equity and equality in oral health care and dental outcomes according to multiple frameworks on social determinants of oral health (Fisher-Owens et al., 2007; Lee & Divaris, 2014; Watt, 2012; Watt & Sheiham, 2012). By increasing public funding to help remove financial barriers in accessing professional dental care, immigrant families would get one step closer to achieving a level of oral health care and dental outcomes comparable to those of non-immigrant children in Canada.
Strengths and Limitations of the Study

A major strength of this study is that the sample of Chinese immigrant parents varied in terms of their socio-economic circumstances, length of residency in Canada, age, and places of residence within the Greater Vancouver Area. The variation among study participants was achieved through purposeful sampling and recruitment through a range of community and health service agencies that served immigrant populations and families diverse in socio-economic status, places of origin, and length of immigration in Canada. The variation among study participants helped me to explore a broad range of perspectives on and experiences in oral health care for children. It also allowed for the identification of common themes and understandings shared across diverse experiences, which worked well within the social constructivist framework where multiple subjective meanings of and contextual influences on a social phenomenon are sought (Creswell, 2007; Patton, 2002). Another strength was that all parent interviews were conducted in parents’ preferred Mandarin Chinese language without the use of interpreters. Being able to have interview conversations in parents’ native language allowed for the natural flow of conversations without minimal interruption and also promotion of enhanced accuracy in data analyses that were based directly on data collected in the parents’ preferred language. The interview process in a shared language helped me discover and explore topics in oral health care more for children more in-depth that otherwise with the use of external interpretation.

Another strength of the study is the inclusion of voices and perspectives of dental professionals and community agency members with extensive experiences providing support and services to Chinese immigrant families with young children. These perspectives helped to supplement the perspectives of parents and provided key contexts and background information to parents’ narratives. The background knowledge and information provided by dental
professionals and community agency members helped place the study findings into the broader contexts of the Canadian dental health care system and immigration experiences more generally to give a more comprehensive and well-rounded understanding about the oral health care experiences and practices of Chinese immigrant parents for their young children than what could be achieved otherwise. Additionally, as described in Chapter Two, the triangulation of perspectives is an important way to ensure credibility of study findings by minimizing the possibilities of chance associations and systemic biases that can occur if only interviewing a homogenous group of participants (Creswell, 2007; Maxwell, 2008).

This study also comes with three main limitations. The first limitation is the potential volunteer bias in the selection of parent participants. As all of the Chinese immigrant parents included in this study were recruited through one of the six community and dental health service agencies described in Chapter Two, all but one of the parents were already accessing professional dental care for their children and many of them also participated in community dental programs. Therefore, I was not able to include the oral health care perspectives and experiences of Chinese immigrant families who were not accessing professional dental care, despite best efforts to recruit parents through community and health service agencies that served diverse immigrant families in terms of socio-economic status and dental care experiences. Fortunately, many of the parents in this study had the experience of transitioning from not knowing the necessity of professional dental care to later regularly arranging and attending preventive dental care for their children. While future studies focusing on the experiences of Chinese immigrant parents with young children who have been denied access or were unable to access professional dental care for other reasons are needed, this study did help reveal the
experience of a subset of parents for whom the reason for not accessing professional dental care initially was the lack of oral health care knowledge and awareness.

Another aspect of the volunteer bias was that all but one of the parents recruited were mothers of children, despite efforts to invite both mothers and fathers into the study. The phenomenon of having significantly more mother than father participants was also found in previous research studies (Amin & Harrison, 2009; Arora et al., 2012; Hilton et al., 2007; Wong et al., 2005). The unequal gender distribution may be partly explained by mothers traditionally playing a more primary role in day-to-day childcare responsibilities than fathers. In this study, however, a number of mothers described that children’s fathers and other extended family members were also involved in assisting mothers to carry out oral health care for children.

To a lesser extent, another study limitation is the potential for recall bias. The age of children included in this study varied widely. As a result, parents with older children or multiple children may have had trouble recalling earlier events in their children’s oral health care journey, including ages when starting to visit a dentist, weaning off night feeding, and starting toothbrushing. To help mitigate the recall bias, I asked parents to give the age range instead of the exact age at which events happened. An example would be the age range for starting first dental visit in Table 2 (page 70). Although it would be helpful to know the exact ages when oral health care events happened, it was not a focus of this study and an age range was sufficient to provide context for the discussion of parents’ experiences and understanding about their children’s oral health care practices.

Lastly, a common criticism for qualitative research is the lack of generalizability of results to other study settings. To address the issue of generalizability, I have followed the principle of analytic generalizability to provide an accurate account of the study design and steps
taken and a detailed explanation for the supporting evidence and arguments so that readers have appropriate and sufficient information needed to decide whether or not and to what extent findings from this study can be applied to their specific settings and contexts (Kvale & Brinkmann, 2015).

**Significance and Practical Implications of the Study**

Findings from this study may help dental professionals and community agency members gain further understanding and insight into the oral health care experiences and practices of Chinese immigrant parents for their young children, especially the ongoing challenges and barriers faced by parents in promoting oral health for their children. Specifically, findings from this study are suggestive of the need for potential improvements and changes in practice and policy in the areas of informational promotion, financial support, and support in language and communication.

To better promote oral health care information and knowledge access for Chinese immigrant parents and families, concerted efforts are required from across health professions to provide and spread consistent oral health care messages and information. Dental and other health professionals could consider adopting and/or continuing efforts to incorporate hands-on demonstration and one-on-one counselling to help families understand and accept information and advice on oral health care practices. The relative advantages of practical support over the distribution of information printouts and lecturing on oral health care topics are supported by this study and previous studies (Amin & Harrison, 2007, 2009; Lai et al., 2015; Watt, 2012).

In addition, dental professionals and community agency members could consider the potential benefits of using newer social and web-based media platforms as more innovative ways to deliver and promote oral health care information. This may help facilitate parents’ ease of
access to information and the reach of information to a wider audience. When evaluating options of innovative communication channels to deliver oral health care messages, the constraints of resource limitations of respective organizations and professional ethical standards need to be taken into consideration as well.

Related to oral health information promotion and communications, there is the need to mobilize community and public resources to develop and translate culturally-appropriate oral health care informational materials into more languages. Although many materials may be translated and available in diverse languages, findings from this study suggest that these resources are not reaching parents. These resources could be made available through a wider range of communication channels to help immigrant parents access and absorb oral health care information with more ease (Arora et al., 2012; Dong et al., 2011; Poureslami et al., 2013). Similarly, more efforts are needed to improve availability of and access to quality interpretation services during dental visits to facilitate the communication and understandings between health care providers and immigrant parents.

To address the financial barriers and challenges that many lower-to-middle income families were experiencing in effort to access regular dental care, advocacy work would be needed from both community/health service providers and the immigrant communities to encourage the provincial government to examine and put forward feasible ways to increase funding levels for dental coverage. Increased funding would be needed to both improve the existing dental benefit programs for low-income families and develop fiscally-sound alternatives to expand dental coverage to include more children from middle-income families who did not have either public or private dental coverage.
The proposed inclusion of dental care into the universal health care coverage has been shown to improve access and utilization of regular professional dental care (Birch & Anderson, 2005b; Ismail & Sohn, 2001; Leake, 2006). Although having universal dental care coverage alone would not address the disparities in dental outcomes between immigrant and non-immigrant children in Canada, it could help remove the financial barrier to access dental care for many immigrant families. The removal of financial barrier in access to dental care, together with concerted efforts to improve oral health care information promotion, may greatly facilitate immigrant parents’ efforts to practice good oral health care and promote oral health for their children from the beginning of life and onward, eventually leading to improved dental outcomes for immigrant children over the life course.

**Future Research Considerations**

This study contributes to the research community by adding to a body of scientific literature on immigrant oral health and social determinants of oral health for children. This qualitative exploratory study specifically examined the multi-level factors influencing oral health care practices for young children (ages 0-6) from newly-arrived Chinese immigrant families in Vancouver and Richmond, British Columbia. Given the specificity of the study setting and the characteristics of qualitative research, future studies conducted in other settings and with other immigrant populations in Canada are needed to confirm and further the findings and conclusions drawn from this study.

As mentioned previously in limitations, this study did not include Chinese immigrant families who were not actively participating in community dental programs or accessing professional dental care. Future studies that compare and contrast the differences in oral health care practices and experiences of Chinese immigrant families who have access to professional
dental care versus those who do not would help to develop better understandings about barriers to and impacts of access to dental care on oral health care of children.

In this study, the perspectives of community agency members and dental professionals were only used to supplement the perspectives of Chinese immigrant parents to provide contextual and background information to parents’ narratives. Through the narratives of parents, many expressed deep appreciation for the support and services received from various community and health service agencies. Future studies could focus on the extensive experiences and knowledge of community agency members and dental professionals and the challenges they face in their work to provide service and support to immigrant families so that better solutions can be developed. In particular, this study did not include the perspectives of dental professionals working in private dental practices, whose opinions and perspectives could help provide further insights into the issues and challenges in access to dental care faced by many Chinese immigrant families.

An important characteristic of oral health care practices and challenges was that they tended to evolve over time with children’s developmental stages. Hence future longitudinal studies that follow Chinese immigrant families with young children over time could help explore the changing needs and challenges in oral health practice as experienced by immigrant families. With further insights into the evolving challenges faced by Chinese immigrant families, support services could be developed or modified to be aligned with and sensitive to families’ needs for oral health care as they may change over time.

Lastly, given the specificity of setting and qualitative nature of this study, more qualitative, quantitative and mixed-method studies are needed to explore the oral health care practices and experiences of children from other immigrant populations to further the
understanding about disparities in oral health care between immigrant children and non-immigrant children in Canada, as well as the challenges faced and supports needed by immigrant families.

Conclusion

This qualitative exploratory study revealed that Chinese immigrant parents with young children (ages 0-6) had generally good understandings about oral health and made much effort to practice oral health care for their children. Parents also received and appreciated support from a wide variety of sources including family members, social networks, community, and the government. However, parents experienced ongoing challenges including financial barriers to access professional dental care, insufficient and conflicting information about oral health care, and language and communications barriers. In order to overcome the challenges that parents experienced in these areas, concerted collective efforts are needed from across different levels of governments, health professions and community stakeholders to offer improved financial assistance, deliver consistent oral health care information from across health professions and disciplines using more innovative communication channels, and provide more translation and interpretation services. Future studies are also needed to help further understand oral health disparities between immigrant and non-immigrant children in other locations, settings and in different immigrant populations in Canada.

With improved support and services to immigrant families in Canada, immigrant parents would be better able to promote oral health for their children so that their children could achieve a level of oral health comparable to non-immigrant children in Canada in the near future.
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Appendices

Appendix A: Interview Guide- Parents

At the beginning of the interview, I will go through each section of the consent form with the participant to ensure full understanding of the consent by the participant. After the participant reviews and signs the consent form, the interview will begin.

I. Introduction

“Once again, I’d like to assure you that your name and personal information will be kept confidential and will not appear in any report or publication. I will audio record our interview and type up our conversation later for analysis purposes. Do you have any questions for me before we begin?”

II. Demographics

“First, I’d like to ask you a few questions about yourself and your family.”

Parent

1. When did you come to Canada?
2. How long have you resided in Vancouver/Richmond?
3. How old are you?
4. What is the highest level of education you have completed? (e.g. high school, postsecondary education, etc.)
5. What is the range of your family income this year? (i.e. below $30,000, between $30,000 and $50,000, above $50,000)
6. How many family members are in your household? Who are they?

Child

7. How many children do you have?
8. How old are they?

“For the rest of this interview, we will focus on your child/children under the age of six.”

9. Is your child a boy or a girl?
10. Where was your child born?
11. (If not born in Canada) At what age did your child come to Canada?

III. Practices Promoting Oral Health
“In this section of the interview, I’d like to ask some questions about how you care for your child’s teeth.”

1. Can you describe to me your child’s dental health condition?
   Probes:
   a) Has your child experienced discomfort/pain in the mouth?
   b) Has your child had cavities?
      ▪ If so, have they been treated?

2. Can you tell me about what you usually do to help care for your child’s teeth?
   Probes:
   a) What are the brushing habits of your child?
      ▪ How often (e.g. once or twice a day)?
      ▪ How do you help with brushing?
   b) What are the sugar-snacking habits of your child?
      ▪ How often (e.g. once, twice, or a few times a day)?
      ▪ Have you tried helping your child rinse mouth with water after snacking?
   c) What were the feeding habits of your child?
      ▪ How often did you child use a bottle at night (e.g. as frequently as needed, only when going to sleep)?
      ▪ What was in the bottle?
   d) Do you know of any home remedies (e.g. cooling tea, herbal medicine) for relieving dental problems? Have you tried using them when your child experienced a dental problem?

3. Can you tell me about a recent experience your child has had with a dental health care provider (e.g. dentist, dental public health nurse, hygienist)?
   Probes:
   a) When was that?
   b) Where was that? (In Canada? In China? How would you compare the experiences in the two countries?)
   c) What dental work did your child receive at that time?
   d) What were the reasons that your child visited the dental care provider? (e.g. referred by GP or paediatrician, child complained about dental pain or discomfort, etc.)
e) How often do you bring your child to see a dental care provider?

IV. Factors Influencing Oral Health Care Practices

“In this section, I’d like to ask for your thoughts and opinions on oral health and oral health care for children more generally.”

A. Understanding of Oral Health and Care

1. Can you describe to me what you think good oral health is like for a child (e.g. a child that is of the same age as your own child?)
   Probes:
   a) What do you think is the purpose of baby teeth?
   b) Do you think tooth decay is preventable?
   c) Do you think there are ways to help prevent tooth decay in children?

2. What do you think are the most important things to do to care for your child’s teeth?
   Probes:
   a) How often do you think a parent and a child should do this?
   b) How easy or difficult do you think it is for a parent and a child to do this on a regular basis?
   c) What kind of support would be helpful for you to do this for your child?
   d) Why do you think this is important to do?

3. How important do you believe it is for a child to visit a dentist?
   Probes:
   a) What do you think is an appropriate age to bring a child to see the dentist?
   b) What do you think dental visits for children should be for? (i.e. for treatment, prevention, or both)

4. Who do you think is primarily responsible for a child’s dental health? (e.g. parent, dental professionals, the child, others)

B. Facilitating Factors and Barriers in Adopting Oral Health Care Practices

“In this final section, I’d like to ask about your experiences and ideas of caring for your own child’s oral health and what can be done to improve things.”

1. What do you think is going well in terms of caring for your child’s teeth?
   Probes:
a) Can you tell me about any support you have received that helped you care for your child’s teeth?
   ▪ Who was the support from? Or where did you receive the support? (e.g. from spouse, the child’s sibling, friends, at home, in the community, etc.)

b) Can you tell me about any difficulties you have experienced in caring for your child’s teeth?
   ▪ Was (language/ time/ money) an issue? How so?

2. How easy or difficult is it to find information about oral health care for your child?
   ▪ Where have you found useful information? (e.g. TV, internet, radio, newspaper, family members and friends, dental clinics and organizations in Canada, dentists and dental clinics in China)

3. Are there other people involved in caring for your child’s teeth?
   Probes:
   a. Who are they? (e.g. your spouse, the child’s sibling, grandparent, friends, neighbors, etc.)
   b. What do they help with? (e.g. booking dental appointments, brushing, etc.)

4. Are there people that you would consult in making oral health care decisions for your child?

5. How do you pay for your child’s dental visits?
   ▪ Do you know of any public assistance program that can help cover the cost of dental care for children? Would you consider using it?

6. What have been your own experiences going to the dentist?
   ▪ Have your own experiences going to the dentist influenced your decision to bring your child to see a dental health care provider? How so?

V. Summary

1. On a scale of one to ten, how well supported do you feel in caring for your child’s oral health? Could you explain the reasoning for the rating?

2. What other supports would you like to have to help you better promote oral health for your child?

IV. Wrap-Up
“That is all the questions that I have. Is there anything else important that you would like to add before we conclude this interview? Or do you have any other questions for me?”

VI. Conclusion

“This concludes our interview. Thank you very much for your time! Please accept this tooth cleaning kit for your child as a token of appreciation. I will use the audio recording to transcribe our interview today. As we discussed before the interview, I would like you to review the transcript of our interview and let me know if it accurately reflects what we said today. I will send you the copy via e-mail shortly. Thank you again for your participation!”
Appendix B: Interview Guide- Dental Professionals

I. Introduction

“Once again, I’d like to assure you that your name and personal information will be kept confidential and will not appear in any report or publication. I will audio record our interview and type up our conversation later for analysis purposes. Do you have any questions for me before we begin?”

II. Experiences Providing Dental Care

1. Can you tell me about some of your experiences providing dental care to young children from Chinese immigrant families?
   Probes:
   a) How old have the children been, on average, when they first started visiting you for dental care?
   b) On average, how often do children from Chinese immigrant families visit you on an annual basis?
   c) Have the Chinese immigrant families described any challenges in attending an appointment for their child’s dental visit in your clinic? What types of challenges?
      ▪ What has been your experience in parents’ abilities to schedule appointments for their child’s dental visit? (e.g. parents/children need to take time off from work/school)
      ▪ What have you found to be parents’ reactions to the cost of dental procedures?
      ▪ How would you describe the ease of communication with Chinese immigrant families during visits (e.g. regarding dental procedures or treatment options)?
      ▪ Have you ever encountered any difficulties in communicating with parents? Could you provide some examples?
      ▪ What has been your experience with the involvement of extended family members and friends during a child’s dental visit?
   d) What were some common practices that Chinese immigrant parents adopted to care for their children’s teeth?
      ▪ What are the strengths of what they did to care for their children’s teeth?
      ▪ What could be improved?
What challenges do you think Chinese immigrant parents experience in caring for their children’s teeth?

e) What have you found to be parents’ understandings of their children’s oral health?

- How consistent are parents’ understandings with best practices in promoting oral health?
- Are there any common misunderstandings that parents have? What are some examples?

III. Dental Health Care System and Access to Dental Care

2. Based on your experiences, what supports do Chinese immigrant families have in accessing professional dental care for their children?

Probes:

- Financial considerations and support in dental care
  
a) In your experience, what have been Chinese immigrant parents’ financial considerations with dental visit and treatment for their children?

b) Can you tell me some examples of the things you have done in the past, or continue to do now, to help families address their financial considerations?

c) What has been your experience with Chinese immigrant parents making use of dental insurance for their children’s dental care?

d) What has been your experience with Chinese immigrant parents making use of public assistance programs, for example, the Healthy Kids program, for their children’s dental care?

- Cultural and language support in dental care provision
  
“We spoke earlier about communications with Chinese immigrant families.”

e) Have any additional cultural and language issues arisen in providing care to Chinese immigrant children? Could you describe them in more detail?

f) To what extent do you feel prepared to provide care to young children from Chinese immigrant families in your clinic? Could you explain?

- To what extent do you feel supported by others (e.g., other providers, extended family members of patients, organizations) to provide care to Chinese immigrant children and children from other minority cultural groups?
• Have you participated in any learning opportunities about ways to be sensitive to language and culture in providing care to children from immigrant families (e.g. training programs, workshops, and information sessions)? Could you describe them in more detail?
• Do you have any additional or alternative professional development opportunities that you would recommend for dental health professionals?

3. Based on your experiences, what other supports do Chinese immigrant families need to access dental services for their children?

IV. Dental Health Care System and Promotion of Oral Health

“We talked earlier about oral health practices that parents adopt to care for their children’s teeth and parents’ understandings of their children’s oral health.”

4. Based on your experiences, what supports do Chinese immigrant parents have in promoting oral health for their children?

   Probes:
   a) What are some things that have helped Chinese immigrant families promote oral health for their children?
   b) What are some things that may have hindered the parents’ ability to promote oral health for their children?

5. What else can be done in the current dental health care system to facilitate Chinese immigrant families to promote oral health for their children?

V. Wrap-up and Conclusion

“That is all the questions that I have. Is there anything else important that you would like to add before we conclude this interview? Or do you have any questions for me?”

... 

This concludes our interview. Thank you very much again for your time! I will use the audio recording to type up our interview today. As we discussed before the interview, I would like you to review the transcript of our interview and let me know if it accurately reflects what we said today. I will send you the copy via e-mail shortly.”
Appendix C: Interview Guide- Members of Community Agencies

I. Introduction

“Once again, I’d like to assure you that your name and personal information will be kept confidential and will not appear in any report or publication. I will audio record our interview and type up our conversation later for analysis purposes. Do you have any questions for me before we begin?”

II. Immigration Experiences and Challenges of Chinese Immigrant Families

1. Can you describe to me some of your experiences helping new Chinese immigrant families with young children settle in Vancouver/Richmond?
   Probes:
   a) How did you support the families in settling and adjusting to their new life in Canada?
   b) Based on your experiences, what were some major challenges the families faced?
   c) How do you (or your organization) support families to face these challenges?
   d) In your opinion, are there areas where families are not getting enough support? Can you describe these areas?

III. Immigration and Access to Dental Services

2. Do you have experiences helping Chinese immigrant families access dental care services for their young children? Can you share a few examples of your experiences?
   Probes:
   a) How have you supported Chinese immigrant families to access dental services for their young children?
   b) What supports do Chinese immigrant families have that facilitate their children’s access to dental services? In your experience, how helpful do you think these supports have been?
   c) What additional supports do Chinese immigrant families need to access dental services for their young children?

IV. Immigration and Oral Health Care

3. What were some common practices that Chinese immigrant parents adopted to care for their young children’s teeth?
Probes:

a) What are the strengths of what they did to care for their children’s teeth?

b) What could be improved?

c) What challenges do you think Chinese immigrant parents experience in caring for their young children’s teeth?

4. What support and/or services would be helpful in facilitating parents’ efforts to care for their children’s teeth?

V. Wrap-up and Conclusion

“That is all the questions that I have. Is there anything else important that you would like to add before we conclude this interview? Or do you have any questions for me?”

…

This concludes our interview. Thank you very much again for your time! I will use the audio recording to type up our interview today. As we discussed before the interview, I would like you to review the transcript of our interview and let me know if it accurately reflects what we said today. I will send you the copy via e-mail shortly.”