

**Family Medicine Residents' Oral Health-Related Training, Attitudes, and Practices
Towards Infant Oral Health**

by

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BDS, Riyadh Colleges of Dentistry and Pharmacy, 2012

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

Master of Science

in

THE FACULTY OF GRADUATE AND POSTDOCTORAL STUDIES
(Craniofacial Science)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

December 2018

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The following individuals certify that they have read, and recommend to the Faculty of Graduate and Postdoctoral Studies for acceptance, a thesis entitled:

Family Medicine Residents' Oral Health-Related Training, Attitudes, and Practices Towards Infant Oral Health

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Master of Science _____ in Craniofacial science

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Abstract

Objectives: To evaluate family medicine residency curricula content pertaining to, and residents' training in, infants' oral health in Canada.

Methods: Two brief self-administered online surveys were developed using Research Electronic Data Capture (REDCap). One survey targeted all the 17 Canadian family medicine training program directors, and another target the currently enrolled residents within these programs. Questions focused on training, attitudes and practices towards infant oral health. Statistical tests were performed using SPSS version 22 with a confidence interval of 95% and a significance level of 0.05.

Results: A total of 11 family medicine directors and 155 family medicine residents responded to the survey. The vast majority 90% (N=10) of the directors indicated that clinical oral health screening was not incorporated into the curriculum, particularly around early childhood caries. Over half the residents (53%, n=82) reported that they did not feel their training was adequate to identify dental caries in children. As 41% (n=63) of the residents described the quality of their training in oral health-related topics during their residency to be poor, more than two thirds (62%, n=96) of them seldom performed a visual examination of the children's teeth. Although family medicine residents felt that physicians have an important role in promoting oral health among infants and toddlers, the majority (72%, n=112) of them reported lack of knowledge and training as the main barriers to performing oral health-related practices.

Conclusion: Most of the Family Physicians training programs in Canada do not include infant

oral health screening in their curriculum. While the majority of family medicine residents felt that physicians have an important role in promoting oral health amongst children, the reported lack of knowledge and training were hindering them from performing various oral health-related practices.

Lay Summary

Early childhood caries can have serious effects on children's quality of life, their families, and the healthcare system. Early detection and prevention of this disease aims to reduce its incidence and negative consequences. Integrating oral health into the primary care setting, particularly within family physician training programs, can improve a child's quality of life as these professionals have the opportunity to see children at an early age more frequently than a dental provider. This study aimed to assess the current status of the oral health curriculum in family medicine training programs in Canada, as well as the attitudes and practices of family medicine trainees towards early childhood caries and infants' oral health. Results showed that most Family Physicians training programs in Canada did not include infant oral health discussion in their curriculum, although the majority of family medicine residents felt that physicians have an important role in promoting oral health amongst children.

Preface

This thesis is an original intellectual product of author A. Abushanan. Ethical approval for this study was granted by The University of British Columbia Behavioural Research Ethics Board (BREB) (Certificate number H17-00453) and the University of Alberta Research Ethics Board (REB) (Certificate number Pro00085423).

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List of Abbreviations

AAP: American Academy of Pediatrics

AAPD: American Academy of Pediatric Dentistry

BCCHR: British Columbia Children's Hospital Research Institute

BRE(B): Behavioural Research Ethics (Board)

CDA: Canadian Dental Association

CFPC: College of Family Physicians Canada

CPS: Canadian Pediatric Society

CI: Confidence Interval

dmft: decayed, missing, filled teeth

ECC: Early Childhood Caries

ENT: Ear Nose and Throat

OR: Odds Ratio

PGYI/II: Post Graduate Year I/II

REDCap: Research Electronic Data Capture

RBR: Rourke Baby Record

UBC: University of British Columbia

Acknowledgements

I would like to express my utmost gratitude to my supervisor Dr. Mario Brondani, for his continuous support and mentorship throughout this project, his dedication and work ethics were remarkable.

I would like to show my appreciation to Dr. Quynh Doan whose advice and guidance in this project were invaluable and helped shape this project, and to my committee member Dr. Karen Campbell for her valuable feedback. I also thank Dr. Jolanta Aleksejuniene for her efforts and guidance in the statistical part of the study.

I would like to thank my co-residents and the amazing staff at the British Columbia Children's Hospital Department of Dentistry and departments of Pediatric Dentistry and Orthodontics at the University of British Columbia for their support throughout my training

Finally, special thanks to my family, their words of encouragement kept me going. Without them this would have not been possible.

Dedication

This thesis is dedicated to my loving parents Fahad and Haya, who despite the long distance supported me and provided me with much needed guidance as if they were here with me.

To my role model and wise brother Turkey, who believed in me when no one did. To my beautiful sisters Bashayer, Ghada, Yara, and Norah for their unconditional love. And lastly to Zeus and Hera, coming home to you made everything easy.

Chapter 1: Introduction

Early childhood caries (ECC) is the most common childhood disease; it is 5 times more prevalent than asthma and 7 times more frequent than hay fever (Surgeon General, 2000). It is often accompanied by serious comorbidities affecting children's quality of life, their families, the community and the health care system as a whole. Oral health, defined by the World Health Organization as "*a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects, periodontal disease, tooth decay and tooth loss*" (World Health Organization, 2012), is an essential element to the overall health. Integrating oral health into primary care can improve a child's quality of life tremendously. In turn, it is essential to convey to primary health care professionals the knowledge regarding infant oral health care so they can be an allied profession in identifying ECC. These professionals can also play an important role in reducing the incidence of ECC and preventing its costly surgical treatment.

1.1 Early Childhood Caries

Early childhood caries is defined by the Canadian Dental Association (CDA) as "*the presence of 1 or more decayed (noncavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth in a preschool-age child (i.e. 71 months of age or younger)*" (Canadian Dental Association, 2010). It is estimated that 57% of Canadian children 6 to 11 years of age have experienced dental decay, with an average of 2.5 teeth affected by decay per child. Although in certain urban areas of Canada the prevalence of ECC in preschool children is 6% to 8%, in some disadvantaged Indigenous communities the prevalence of decay exceeds 90% (Rowan-Legg, 2013). According to the CDA, treatment for ECC under general anesthesia is the

most common day surgery under general anesthesia at most pediatric hospitals in Canada, it costs annually more than \$21.18 million to the tax payers, and burdens the child's quality of life (Schroth, Quiñonez, Shwart, & Wagar, 2016). Despite its high prevalence, ECC is highly preventable through dietary changes, oral hygiene, and topical fluoride therapies, for example. Early ECC identification allows for reduction in its burden, arrest of incipient lesions and even prevent the disease progression.

1.2 Use of Fluoride in Caries Prevention

The use of fluoride in dentistry has proved to be effective in preventing, remineralizing and arresting decay. Fluoride is widely available in different forms; almost all food and naturally occurring water contain some fluoride. Furthermore, community water fluoridation at a concentration of 0.7 mg/L(milligrams per litre) seems to be optimal for the daily uptake of fluoride (Rabb-Waytowich, 2009) while being one of the 10 greatest public health achievements of the 20th century (Centers for Disease Control and Prevention, 2000). However, as of 2017 only 38.7% of Canadian provinces and territories have fluoridated water; 1.17% of British Columbians have fluoridated water (Public Health Agency of Canada, 2018). A way to supplement (and probably overcome) this low reach of fluoridated water is the periodic professional application of different forms of fluoride in infants and children, particularly those at high risk for ECC. Professionally applied fluoride along with over-the-counter fluoride-containing toothpastes, gels, and rinses can offer significant cariostatic properties that contribute positively in reducing ECC (Lawrence et al., 2008; Weyant et al., 2013).

1.3 Access to Oral Health Care and Primary Care

The American Academy of Pediatric Dentistry (AAPD) and the CDA recommends that dental assessment of infants should be carried out within 6 months of the eruption of the first tooth, no later than year 1 of age (American Academy of Pediatric Dentistry, 2017; Canadian Dental Association, 2010). However, there has been limited uptake on this recommendation. The Canadian dental care delivery system is complex and costly, and remains mostly privately financed and administered (Rowan-Legg, 2013). Many studies have then advocated for primary care physicians to play a more active role in the prevention and early detection of ECC (Douglass, Douglass, & Silk, 2005; Lewis et al., 2009; Lewis, Grossman, Domoto, & Deyo, 2000; Prakash et al., 2006). Given that oral health is an essential element to the overall health, integrating oral health into pediatric primary care can only improve the overall quality of life of a child while integrating care holistically.

By the age of 3, a child is believed to be seen more than 10 times by a family physician than by a pediatrician, and much less so by a dental professional (Hale, 2003; Prakash et al., 2006). Such visits can benefit the oral health of the child, optimize the utilization of fluoride, and help to decrease the incidence of ECC (Weatherspoon, Horowitz, & Kleinman, 2016). As found by Kranz and colleagues, kindergarten children with 4 or more physician-based preventive oral health services during the well-baby visits had lower decayed, missing, filled teeth (dmft) compared to children without these visits, 1.82 and 2.21 respectively (Kranz, Preisser, & Rozier, 2015). In turn, early assessment of the oral health as well as oral health promotion can be achieved during well-baby visits together with general health assessment. There are different well-baby visit resources, one of which is the Rourke baby record (RBR) as shown in Appendix

A. This record was developed by Leslie and James Rourke in 1979 and enables family physicians and pediatricians to track the development of infants by charting data collected during well-baby visits and assesses different milestones such as immunizations and diet, and thus provides a comprehensive care to the child (Riverin, Li, Rourke, Leduc, & Rourke, 2015). Although comprehensive, it does not provide adequate dental screening and only lists dental care in the ‘*other*’ section as part of the ‘*education and advice*’ domain; oral health status is not included in the ‘*physical examination*’ domain. The extent to which this ‘*other*’ section is used and the periodicity in which dental screening is performed by primary care physicians remains unknown.

Another assessment tool developed by the American Academy of Pediatrics (AAP) that can be used for the oral health risk assessment is shown in Appendix B. This tool covers all the aspects of a risk assessment that helps guide the health care professional in determining those at high risk and the appropriate decisions thereafter (American Academy of Pediatrics, 2014). A self-management sheet is also available that aids in the process of anticipatory guidance of parents and caregivers while guiding them towards setting self-management goals that can be tracked in terms of oral health care, dental visits, and dietary modifications (Ramos-Gomez & Ng, 2011) (Appendix C).

The utilization of interdisciplinary collaboration (by crossing the set boundaries and norms of different health and medical professional practices) is much needed to further enhance children’s oral health and have a positive influence on their quality of life (Nancarrow et al., 2013). Such interprofessional collaboration could include not only pediatric physicians, but also general physicians and community health nurses. In terms of pediatric primary care physicians delivering

preventive oral health care regimen, studies have concluded that they are able to apply fluoride varnish and accurately identify children with carious teeth after receiving training in infant oral health care (Pierce, Rozier, & Vann, 2002). Considering the potential role of allied professionals in promoting oral health, integrating an oral health component in the residency training of primary health care professionals' curriculum is recommended (Hale, 2003; Indira, Dhull, & Nandlal, 2015; Prakash et al., 2006). In fact, Pahel *et al.* supports the findings of the study done by Pierce *et al.* in which medical office-based preventive dentistry program for children can effectively reduce dental-related treatment needs (Pahel, Rozier, Stearns, & Quinonez, 2011). Hence, in 2014 Silk and Deutchman developed an educational module to deliver oral health preventive practices to health care professionals that could be carried out in a pediatric primary health care setting (Silk & Deutchman, 2014). This module entails assessing the caries risk of the child, performing oral exams and applying fluoride varnish. In 2018 Nicolae et al. designed an oral health office-based screening tool to help primary care providers identify ECC with images depicting the progress of tooth decay (Appendix D). This tool provides guidance on how to properly lift the lip and check for tooth decay on an easy to understand and quick to apply manner (Nicolae et al., 2018).

1.4 Oral Health Knowledge of Health Care Professionals

Studies from the United States (Brickhouse, Unkel, Kancitis, Best, & Davis, 2008; Herndon, Tomar, Lossius, & Catalanotto, 2010; Lewis et al., 2009; Lewis et al., 2000; Long et al., 2012; Long, Quinonez, Rozier, Kranz, & Lee, 2014; Okunseri, Szabo, Jackson, Pajewski, & Garcia, 2009; Pierce et al., 2002; Schulte, Druyan, & Hagen, 1992; Slade, Rozier, Zeldin, & Margolis,

2007), Europe (Bottenberg, Van Melckebeke, Louckx, & Vandenplas, 2008; dela Cruz, Rozier, & Slade, 2004; Ismail, Nainar, & Sohn, 2003; Sánchez, Childers, Fox, & Bradley, 1997; Sezer, Paketci, & Bozaykut, 2013), and India (Indira et al., 2015; Nammalwar & Rangeeth, 2012) have examined the knowledge, attitudes, and practices of primary care physicians towards infant oral health. Allied health care professionals are well positioned to provide anticipatory guidance and referral for dental care prior to any progression of disease given that they have the opportunity to see children at an early age (Ryan-Wenger, 2007).

In particular, Schulte *et al.* surveyed 298 pediatricians in the greater Chicago area, and found that 96% of the participants refer children to the dentist once decay has been diagnosed, of those pediatricians, about 65% of them recommended changes to dietary habits (Schulte et al., 1992). In 1997, Sánchez *et al.* conducted a similar survey targeting pediatricians' and family physicians' knowledge and attitudes towards preventive dental care in children. The authors hypothesized that primary care physicians are not well-informed about preventive dental care likely due to the lack of information received during the residency training given that only 68% of the participants thought that children should have their first dental visit by the age of 3 (Sánchez et al., 1997). On a large national study of 1600 pediatricians in the U.S., Lewis *et al.* found that 90% of participants agreed about their role in identifying dental problem and counseling families on the prevention of caries. Nevertheless, only 9% correctly answered all four knowledge questions regarding ECC (Lewis et al., 2000). In 2009, the same research group (Lewis et al., 2009) did another national survey of pediatricians, which demonstrated that 54% of participants reported examining the teeth of their 0 to 3-year-old patients. Only 4% of the respondents actively applied fluoride varnish. However, the authors reported little change from

the previous survey in terms of the number of pediatricians who refer children to the dentist by their first birthday.

Similarly, Ismail *et al.* conducted a survey targeting pediatricians and family physicians involving case-based questions regarding ECC. Almost all the respondents were in agreement that they should screen children for dental caries; about 76% of family physicians reported they screened for ECC (Ismail et al., 2003). In a survey of 118 primary care clinicians investigating their dental screening and referral of young children, dela Cruz and coworkers found that 78% of the participants were likely to refer children who had signs of ECC or were at high risk for future disease to a dental professional (dela Cruz et al., 2004). In a more recent survey of Maryland physicians, results showed that participants still held some uncertainties around dental caries etiology and prevention (Weatherspoon et al., 2016).

There have been studies on this topic outside the U.S. as well. In 2008, Bottenberg *et al.* examined the knowledge of Flemish pediatricians in regards to oral health of children to find that only 7% of pediatricians prescribed fluoride supplements, but that 73% were aware of ECC (Bottenberg et al., 2008). Sezer *et al.* studied the awareness of Turkish pediatricians towards children's oral health to find that only 13.9% of the participants referred children younger than one year of age to a dental professional, while 10.3% of the participants prescribed fluoride supplements to their patients (Sezer et al., 2013). In a survey of pediatricians' knowledge, attitude, and practice towards infant oral healthcare in India, only 48% of the respondents would refer their patients to a pediatric dentist, while 43% of them were aware of the recommended first dental visit by the age of 1, and more than 90% of them examined infants for ECC (Indira et al., 2015).

In Canada, similar studies are sparse. More than a decade ago, Prakash *et al.* conducted a national study on pediatricians' and family physicians' knowledge, practices and training towards early childhood caries and infant oral health. They found that 46% of Canadian pediatricians and family physicians were not aware that white spots on tooth surfaces were the first signs of tooth decay. Furthermore, only 1.8% of pediatricians and 0.7% of family physicians answered all knowledge questions correctly and despite being knowledgeable about some aspects of ECC, they were not able to identify ECC or to incorporate oral health promotion in their practices (Prakash et al., 2006). Since 2006, various initiatives have been developed in attempts to include oral health into primary care, and other general health care programs. Douglass *et al.* developed an infant oral health training program to pediatric and family medicine residents and found that participants' knowledge and practices regarding prescribing fluoride were modest (Douglass et al., 2005). Similarly, Caspary *et al.* found that most pediatric residents believed that they should be conducting oral health-risk assessments and screenings but lack the skills to do so; they had limited to no oral health training during their residency (Caspary, Krol, Boulter, Keels, & Romano-Clarke, 2008). In 2013 Golinveax *et al.* had pediatric nurse practitioner students participating in an interdisciplinary and multifaceted oral health educational intervention; around 83% of the participants were actively incorporating oral health service as a part of their routine child care (Golinveaux et al., 2013). Furthermore, the American Academy of Family Physicians has endorsed a web-based comprehensive oral health curriculum titled "Smiles for Life" that offers free CME credits upon completing the modules. Smiles for Life consists of eight 45-minute modules, one specific for child oral health and another for caries risk assessment, fluoride varnish and counselling (Clark et al., 2010). In fact, the Smiles of Life module on 'Child Oral Health' has been adapted exclusively to the Canadian context after 2010,

and oral health care education has been endorsed by various health care professions in Canada including family physicians, public health nurses, and pediatricians. In turn, the knowledge, attitudes, and practices of primary care physicians towards infant oral health in Canada needed to be reexamined given the many initiatives that have been developed to bring oral health into primary care since 2006.

1.5 Objectives

1. To evaluate the current content pertaining to infant oral health within the curricula of family medicine residency training in Canada.
2. To assess the attitudes and practices of family medicine residents towards infants' oral health care.
3. To identify barriers faced by family medicine residents for performing various oral health-related practices.

1.6 Research Questions

1. What is the current infant oral health content within the curricula of family medicine residency training?
2. What is the status of the family medicine residents' oral health education training?
3. What are the attitudes and practices of family medicine residents towards infants' oral health care?
4. What are the barriers facing family medicine residents for performing various oral health related-practices?

1.7 Hypotheses

1. There is a lack of formal oral-health related education in the family medicine curricula.
2. Family medicine residents are not well-informed on preventive dental care and oral health-related practices due to a lack of oral health-related education during residency training.
3. Preventive dental care for infants is not carried out routinely in a primary care setting.
4. Family medicine residents are not referring infants to dentists routinely.

Chapter 2: Materials and Methods

2.1 Research Design and Methods

A survey of family medicine residency directors (including directors of rural training centers) and family medicine residents in Canada was conducted using a self-administered questionnaire (please see description ahead, and Appendix E and **Error! Reference source not found.**, respectively). Research Electronic Data Capture - REDCap was used as a method of collecting and managing the data hosted by the British Columbia Children's Hospital Research Institute (BCCHR). REDCap is a secure web-based application for managing online surveys and databases (Harris et al., 2009). The sample frame was all the 17 Family Medicine residency programs in Canada using a list obtained through the College of Family Physicians of Canada (CFPC) and included the University of Alberta, University of British Columbia, University of Calgary, Dalhousie University, Laval University, McGill University, McMaster University, University of Manitoba, Memorial University, University of Montreal, Northern Ontario School of Medicine, University of Ottawa, Queen's University, University of Saskatchewan, University of Sherbrooke, University of Toronto, and University of Western Ontario; some of the programs had more than one identified director in cases there was a rural/remote setting location, for example. While the directors were identified through each residency programs' website, the residents survey was distributed through the department of family medicine at each program.

The directors' survey (**Error! Reference source not found.**) consisted of 19 multiple choice, open-ended, agreement/ disagreement, and yes/no questions. The residents survey (Appendix E)

consisted of 23 multiple choice, open-ended, agreement/ disagreement, and yes/no questions.

Both surveys were developed from the existing literature and from informal conversations with pediatricians and public health specialists. The content of the surveys included integration of oral health-related subjects in the curriculum, and the residents' attitudes and practices towards the infants' the oral health along with some demographic characteristics of the training programs and the residents themselves.

A pilot study was conducted among 5 graduate dental students and 5 pediatrics residents at the University of British Columbia who evaluated the questions of the survey. Upon analysis of the pilot study, appropriate revisions to the survey were made, including adding a question about the number of children seen during rotations, and removing the redundant questions. Prior to data collection, ethics approval was obtained from the University of British Columbia (#H17-00453), as well as the University of Alberta (#Pro00085423).

2.2 Study Procedures

2.2.1 Directors' Survey

REDCap was used to send a standardized e-mail (Appendix G) to all programs directors (including rural sites) from the 17 family medicine programs in Canada to a total of 21 directors including the remote and rural sites. The directors were informed about the nature of the study including the background, rationale, objectives, and the rights associated with their decision to participate or decline as study subjects. The e-mail also contained a unique link generated by REDCap to the online survey questionnaire inviting them to participate in the survey. Upon clicking the link, potential participants received a consent cover letter explaining the nature of

the survey and the time required to complete it which was around 10 minutes, along with the questionnaire to complete. Participation was voluntary. REDCap tracked if each participant had responded to the survey or not. Data collection commenced in July 2018; reminder e-mails were sent to subjects who have not yet responded at 2 weeks, 1 month, and 2 months, following the original invitation.

Although participation status was tracked using unique links, there was no attempt to identify the participants or to match their responses with the respective program; surveys were coded numerically. Once data entry and validation were completed, the unique responder tracking identification was removed to prevent further linkages. Only de-identified data were analyzed and used for this thesis. No financial incentive for survey completion was offered to the directors of the programs. Data collection was completed by September 2018.

2.2.2 Residents' Survey

From the total possible sample of the 3217 residents enrolled within the college of family physicians in 2018 (College of Family Physicians of Canada), 565 residents were excluded from the two French-speaking programs as the survey was in English only. From the 2652 residents from 15 remaining programs, not all of them received the email with the survey link as at least 7 programs informed that they only distributed the survey to a smaller number of residents; these programs did not offer any reason as to why only a certain number of residents were contacted and the remaining 8 programs did not clarify on whether all their residents received the survey. The sample frame for the residents was not more than 2652 and the sample size calculation was

estimated at 388 residents. And unlike the directors' survey, REDCap did not track if each participant had responded to the survey or not.

Similarly to Directors' survey, a standardized e-mail was sent to each of the 17 family medicine residency program coordinators (Appendix G) via REDCap asking for the participation of their family medicine residents, and informing them of the nature of the study, including the background, rationale, objectives, and their rights associated with their decision to participate or decline as study subjects. The e-mail also contained a unique link to the online survey questionnaire. Upon clicking the link, each participant received a cover letter explaining the nature of the survey and the time required to complete it which was about 10 minutes, along with the questionnaire to complete.

Data collection commenced in July 2018, a reminder e-mail was sent to subjects at 2 weeks, 1 month, and 2 months via their program coordinator, following the original invitation. There were no attempts to identify individual participants for any other reasons, and surveys were coded numerically. Participation was voluntary and anonymous. No financial incentive for survey completion was offered to the residents. Data collection was completed by September 2018.

2.3 Data Collection and analysis

De-identified demographic information including age, gender and city of residence were asked for characterization of the participants only. The variables defined and explored in the survey instrument are outlined as follows:

The variables of interest for the directors' survey were related to the total hours of didactic oral health training the residents receive during their family medicine training, the methods of

evaluation of the residents' oral health knowledge, and the perceived barriers towards teaching oral health related topics, the oral health-related topics included in the family medicine curriculum (oral health screening, dental disease prevention and early intervention, ECC, oral and general health interaction, pregnancy and oral health, and fluoride varnish) and the oral health-related topics taught in during well-baby visits (oral and teeth assessments, dietary habits, parental counselling, and dental referrals).

The independent variables for the residents' survey were related to age, gender, the postgraduate year they were in, the frequency of children seen per week, the frequency of which they saw children with tooth decay, the quality of the training received, their perceived barriers towards performing oral health-related practices, availability of government-sponsored dental coverage, the availability of shared primary care services with pediatricians, and their attitudes towards (the use of fluoride toothpaste, importance of primary dentition, adequacy of training on oral health, and importance of physicians' role on promoting oral health).

The outcome variables were the various oral health-related practices (visually examining the child's teeth, counselling parents on teething and dental care, assessing the child's risk for tooth decay, advising the parents or caregivers on teeth cleaning methods, discuss the use of fluoridated toothpastes, and referring to a dentist). In the bivariate analyses, the importance of the physicians' role was dichotomized as not/less important (strongly disagree/ neutral) and important (agree, strongly agree). Similarly, for the multivariate analyses, the responses 'good and excellent' and 'disagreed, strongly disagreed and neutral' were collapsed together due to low number of responses.

Data collected via RECap were generated using Microsoft Excel (Excel 2015, Microsoft

Corporation, Redmond, WA.) spreadsheet. Descriptive analysis was computed, and bivariate analyses were performed to assess the association between family medicine residents' attitudes and oral health-related practices and factors such as their postgraduate year, area of residency, children seen per month, dental caries observed during well-baby visits, quality of training, perceived barriers to carrying out preventive dental practices. Bivariate analyses (Chi-Square test, and Fischer's Exact), and logistic regression tests were performed for categorical variables. The statistical analysis was performed using SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Macintosh, Version 22.0. Armonk, NY: IBM Corp.) and tests were conducted at a confidence interval (CI) of 95%, and a significance level of 0.05.

Chapter 3: Results

Out of the 21 directors from the 17 residency programs (please see Study Procedures above) that received the survey invitation, a total of 11 completed the survey (52% of response rate).

Although the number of residents who actually received the survey is unknown, a total of 155 responses were received (less than <1% of response rate given the original enrolment number of 2652).

3.1 Descriptive Statistics

3.1.1 Family Medicine Oral Health Curriculum and training

Figure 1 demonstrates whether specific oral health-related topics were included in the family medicine curriculum. From the directors' responses, ten (90%) indicated that clinical oral health screening was not incorporated in the curriculum, while 72% (n=8) of the directors indicated that their curriculum did not include dental disease prevention, early intervention, and ECC.

Similarly, the interaction between oral health and general health as well as pregnancy and oral health was not included in 72% of the programs (n=8). All directors indicated that fluoride varnish was discussed in the curriculum. More than half of the directors (n=6) said that their residents received approximately 1-3 hours of didactic information on oral health-related topics during their entire training.

Family medicine residency directors were also asked about specific oral health-related topics taught during the residents training (Figure 2). Nearly two thirds (63%, n=7) of the directors indicated that the visual examination of the oral cavity and the child's teeth and the child's risk assessment of tooth decay were taught didactically. Over half the directors (54%, n=6) indicated

that they only didactically teach their residents on discussing nocturnal bottle feeding, and fluoride toothpaste with the parents/caregivers as well as referring children to a local dentist. About 63% of them (n=7) indicated that their residents received both didactic and clinical information on the application of topical fluoride products, while 45% of them (n=5) also reported teaching their residents both didactically and clinically on prescribing fluoride supplements. The most common barriers reported by family medicine directors towards teaching infant oral health-related practices to their residents were competing priorities, knowledge and family physician’s scope of practice (63%, n=7), and time (45%, n=5). Furthermore, the majority of directors (81%, n= 9) indicated that they have no method of evaluation of their resident’s oral health knowledge.

Figure 1 – Oral health-related topics included in family medicine curriculum

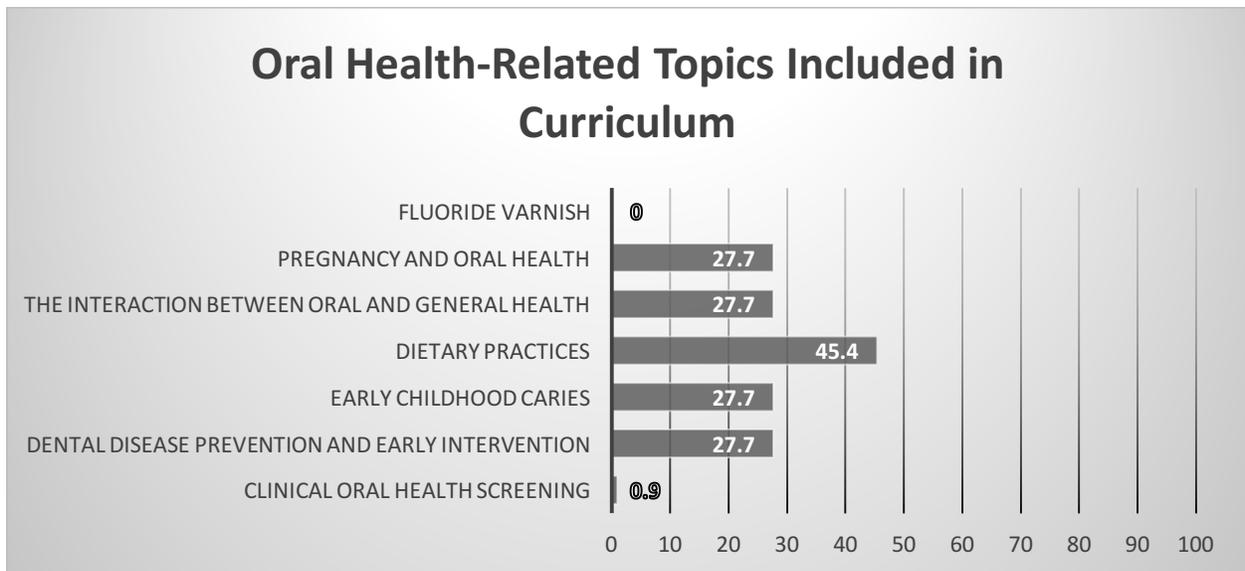
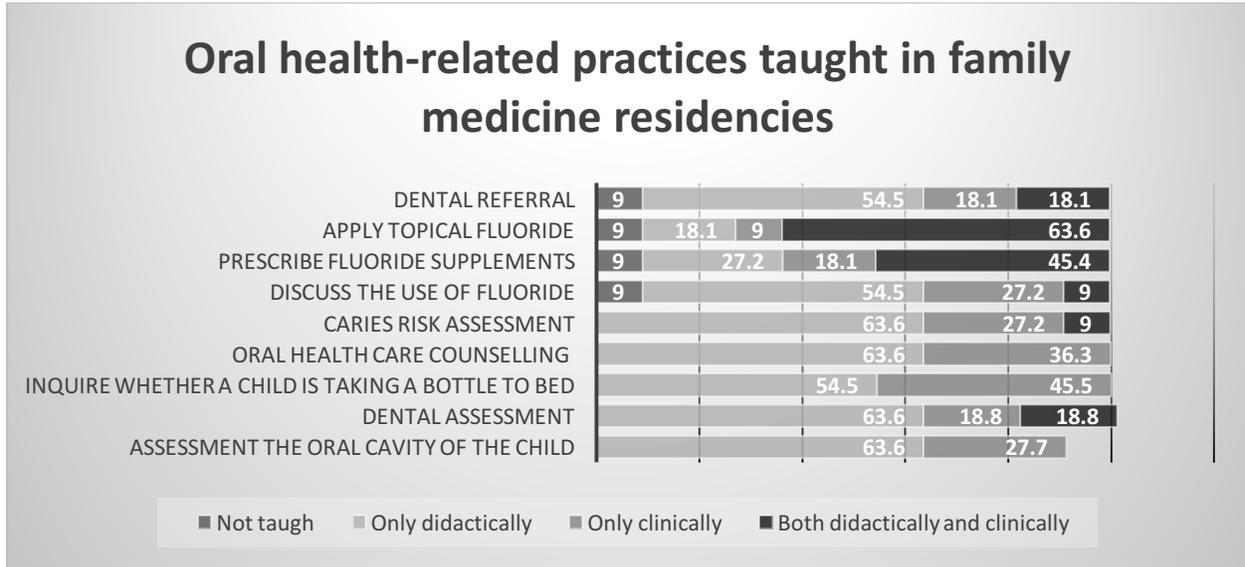


Figure 2 – Oral health-related practices formally taught in family medicine curriculum



3.1.2 Residents' Demographics and Practice Characteristics

Demographic information and practice characteristics are presented in Table 1. Female residents comprised the majority of the respondents to the survey (83%, n=128). Seventy percent (n=108) of respondents were based in the eastern provinces; with 50% (n=78) of the total responses coming from residents training in Ontario. About 52% (n=80) were in their second year of training while 46% of them (n=71) were in their first year of training; mean age of the participants was 29 years. The vast majority of the residents (90%, n=140) reported that they utilized the Rourke Baby Record. The majority of the residents (75%, n=117) seldom saw children younger than 3 years of age, while 76% of them (n=118) had not seen a child with tooth decay.

Table 1 – Characteristics of the residents

Demographics and Practice Information	N (%)
Total: 155	
Gender	
Male	27 (17.0)
Female	128 (83.0)
Province of training	
Alberta	17 (11.0)
British Columbia	6 (4.0)
Manitoba	8 (5.0)
New Brunswick	5 (3.0)
Newfoundland	3 (2.0)
Nova Scotia	11 (7.0)
Ontario	78 (50.0)
Prince Edward Island	1 (1.0)
Quebec	11 (7.0)
Saskatchewan	15 (10.0)
Year of Residency	
PGY1	71 (46.0)
PGY2	80 (52.0)
PGY3	4 (3.0)
Utilization of Rourke Baby Record	
Yes	140 (90.3)
No	15 (10.0)
Availability of provincial dental coverage	
Yes	24 (15.0)
No	131 (85.0)
Frequency of weekly pediatric assessment (age 0-3years)	
None	3 (2.0)
Seldom (1-5 children/ week)	117 (75.0)
Frequently (> 5 children/ week)	35 (23.0)
Frequency of pediatric tooth decay identification/week	
None	118 (76.0)
Seldom (1-5 children/ week)	35 (23.0)
Frequently (> 5 children/ week)	2 (1.0)

3.1.3 Oral Health-Related Practices of Family Medicine Residents

As shown in Table 2, residents were asked about the frequency to which they performed certain oral health-related practices for children aged 1-3 years-old. A total of 96 (62%) of the respondents seldom performed a visual examination of the teeth of the children, while nearly half (48%, n=75) of the residents frequently counseled parents or caregivers regarding teething and dental care; not more than 46% of the respondents (n=72) reported advising the parents or caregivers on teeth cleaning methods. Over half the respondents (53%, n=82) assessed the child's risk for developing tooth decay. When asked about discussing the use of fluoride toothpaste with the parents or caregivers, and referring children aged 1-3 years old to a local dentist, the residents reported that they seldom did these activities (40%, n=62; 43%, n=67, respectively). Around 52% of the residents (n=81) indicated that if dental caries was observed, they would refer the child to the dentist, but only 11% (n=17) would make a formal referral. Lastly, half the respondents (n=79) reported recommending bottle weaning between 12 and 24 months of age.

Table 2 – Family medicine residents’ oral health-related practices

Oral Health-Related Practices of Residents	N (%)
Dental assessment of the child’s teeth	
Never	18 (11.6)
Seldom	96 (61.8)
Frequently	29 (18.7)
Always	12 (7.7)
Counsel parents/ caregivers regarding teething and dental care	
Never	9 (6.0)
Seldom	48 (31.0)
Frequently	75 (48.0)
Always	23 (15.0)
Caries risk assessment of the child’s teeth	
Never	37 (24.0)
Seldom	82 (53.0)
Frequently	28 (18.0)
Always	8 (5.0)
Advise parents/ caregivers on teeth cleaning methods	
Never	39 (25.0)
Seldom	72 (46.0)
Frequently	36 (23.0)
Always	8 (5.0)
Discuss the use of fluoride toothpaste with parents and/or caregivers	
Never	58 (37.0)
Seldom	62 (40.0)
Frequently	30 (19.0)
Always	5 (3.0)
Dental referral	
Never	48 (31.0)
Seldom	67 (43.0)
Frequently	33 (21.0)
Always	7 (5.0)

3.1.4 Resident's Attitudes Towards Oral Health-Related Topics

Table 3 shows the attitudes of family medicine residents towards oral health-related statements.

One third of the residents (33%, n=51) *agreed* that fluoride toothpaste should be used for children under the age of 3, while 49% (n=76) *strongly agreed* that primary teeth were important even if they exfoliate. When asked if physicians have an important role in prompting oral health among infants and toddlers, 61% (n=94) of the residents *agreed*.

Table 3 – Family medicine residents’ attitudes towards oral health-related statements

Oral Health-Related Statements	N (%)
Total: 155	
Fluoride toothpaste should be used for children under the age of 3	
Strongly Disagree	5 (3.0)
Disagree	36 (23.0)
Neither agree or disagree	48 (31.0)
Agree	51 (33.0)
Strongly Agree	15 (10.0)
Baby teeth are important even though they fall out	
Strongly Disagree	
Disagree	0 (0.0)
Neither agree or disagree	0 (0.0)
Agree	3 (2.0)
Strongly Agree	76 (49.0)
	76 (49.0)
I feel my training is adequate for me to identify dental caries in children	
Strongly Disagree	32 (21.0)
Disagree	82 (53.0)
Neither agree or disagree	27 (17.0)
Agree	11 (7.0)
Strongly Agree	3 (2.0)
Physicians have an important role in promoting oral health among infants and toddlers	
Strongly Disagree	0 (0.0)
Disagree	1 (1.0)
Neither agree or disagree	13 (8.0)
Agree	94 (61.0)
Strongly Agree	47 (30.)

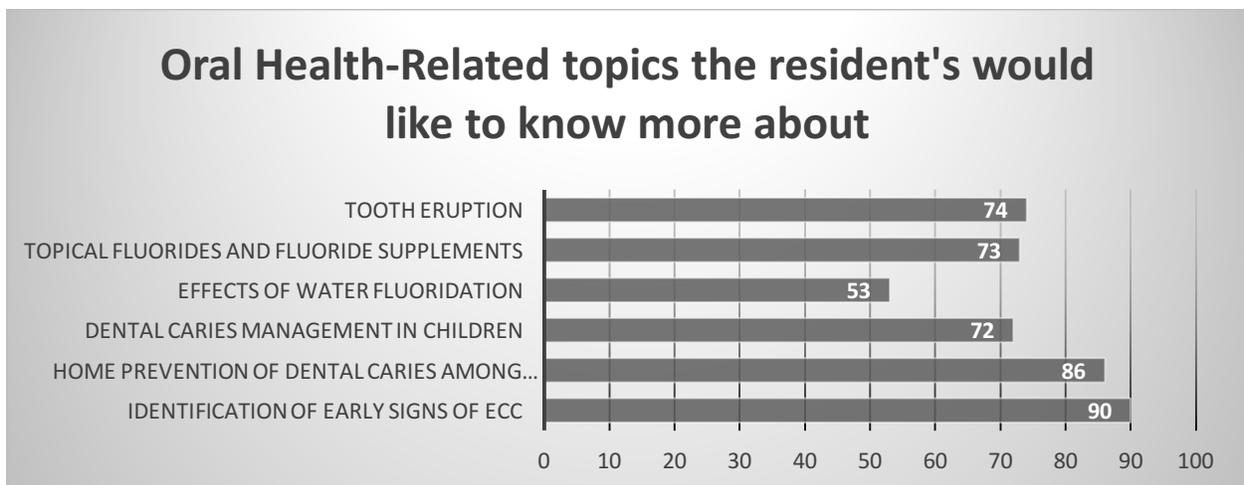
3.1.5 Resident's Oral Health-Related Training and Education

Over half the respondents (53%, n=82) reported that they did not feel their training was adequate to identify dental caries in children (Table 3). More than 40% (n=63) of the family medicine residents reported that the quality of their training in oral health-related topics was poor and 39% (n=60) stated that they did not receive any oral health-related training (Figure 3). Furthermore, when asked about potential barriers to perform oral health-related practices, the majority (72%, n=112) of the respondents reported a lack of knowledge or training. By using free-texted narrative, respondents also expanded on the barriers to perform oral health-related practices by mentioning “*less than one week was spent on combined oral health and ear nose and throat (ENT) in medical school, with no clinical correlation*”, “*the amount of training we have makes it difficult to feel confident in this area*”, and “*we had one lecture on teeth (it wasn't even focused on oral hygiene - but more on anatomy and location of teeth)*”. Additionally, the vast majority (95%, n=148) of the residents reported that they would like to have more information/resources on identifying dental conditions and disease in infants. They further indicated that they specifically would like to know more about ECC (90%, n=140), and oral home care (86%, n=133) (Figure 4).

Figure 3 – Family medicine residents’ quality of training in oral health-related topics



Figure 4 – Oral health-related topics the family medicine residents would like to know more about



3.2 Inferential Statistics

Bivariate analysis was performed. In the question about resident's attitude towards the importance of physician's role in promoting oral health to infants and toddlers, Likert scale responses (strongly disagree to strongly agree) were dichotomized to important and not/ less important (Table 4). Significant association was found between residents who felt that physicians had an important role in promoting oral health to infants and toddlers, and who counseled parents or caregivers regarding teething and dental care ($p=0.006$), and who discussed fluoride toothpaste use with parents or caregivers ($p=0.023$).

Table 5 shows that a significant association was found between family medicine residents' attitudes towards the importance of primary dentition and various oral health-related practices. There was a significant association between residents who felt that primary dentition was important and performing an assessment of the child's teeth ($p= <0.001$), counselling parents ($p=0.008$), assessing the child's risk for developing caries ($p=0.001$), advising the parents on teeth cleaning methods ($p=0.003$), and discussing the use of fluoridated toothpastes ($p=0.025$). There was no significant association between the residents' attitudes and referrals to a dentist.

When comparing the residents' reported frequency of seeing children between 1 and 3 years of age and their oral health-related practices, no significant association was found (data not shown). Nonetheless, as shown in Table 6, there was a significant association between residents who reported observing dental caries and performing an assessment of the child's teeth ($p=0.003$), as well as referring children to a dentist ($p=0.047$). The reported year of training (PGY1, PGY2) indicated that residents in their first year were less likely to visually examine the child's teeth

($p=0.035$) and discuss the use of fluoridated toothpastes with the parents ($p=0.050$) than those in year 2 of their training (Table 7).

A comparison between residents from the Canadian east and west provinces, and their attitudes towards the importance of physicians' role in promoting oral health among infants and toddlers, the frequency of seeing children between 1 and 3 years of age, and the reported frequency of observed dental caries among children 1-3 years of age revealed no significant association. Similarly, no significant association was found between residents from the Canadian east and west provinces and their oral health-related practices (data not shown). There were also no significant differences in any of the practice patterns between the residents perceiving different barriers for their oral health-related practices (Table 8).

Table 9 presents the analysis of the explanatory variables associated with the residents performing dental assessments on children. In regards to the importance of the physicians' role in promoting oral health to infants, the scores of good and excellent were collapsed together as there was only one respondent who indicated their training quality was excellent. This logistic regression model indicates that the residents who reported their training quality as poor were significantly less likely to perform a dental assessment of the children's teeth ($OR=0.38$; $CI=0.15, 0.99$). Furthermore, residents who strongly agreed to the importance of their role in promoting oral health to infants were 6 times more likely to perform a dental assessment ($OR=6.09$; $CI=1.12, 33.0$). Residents who were training in provinces where some level of dental coverage was provided by the provincial government, and where pediatricians were providing

primary care services for children were more likely to perform a dental assessment (OR=1.23; CI=0.39, 3.90, and OR=1.41; CI=0.60, 3.31 respectively).

Table 10 shows the findings of the testing of the explanatory variables associated with the residents providing oral health counselling to parents or caregivers. Residents who strongly agreed to the importance of promoting oral health to infants were significantly 5 times more likely to provide oral health counselling (OR=4.91; CI=1.21, 19.8).

Table 4 – Association between residents with different attitudes about their role in promoting oral health and performing oral health-related practices

PRACTICE PATTERNS	PHYSICIAN'S ROLE		Significance[#]
	Not/Less important N (% of total)	Important N (% of total)	
Dental assessment of the child's teeth			
Never/seldom	12 (85.7)	102 (72.3)	0.279
Frequently/always	2 (14.3)	39 (27.7)	
Parental counselling			
Never/seldom	10 (71.4)	47 (33.3)	0.006*
Frequently/always	4 (28.6)	94 (66.7)	
Caries risk assessment			
Never/seldom	12 (85.7)	107 (75.9)	0.406
Frequently/always	2 (14.3)	34 (24.1)	
Advise parents about tooth cleaning			
Never/seldom	13 (92.9)	98 (69.5)	0.065
Frequently/always	1 (7.1)	43 (30.5)	
Discuss the use of fluoride			
Never/seldom	14 (100.0)	106 (75.2)	0.023*
Frequently/always	0 (0.0)	35 (24.8)	
Dental referral			
Never/seldom	13 (92.9)	102 (72.3)	0.094
Frequently/always	1 (7.1)	39 (27.7)	

Chi square test or Fischer's Exact test

* p <0.005

Table 5 – Association between physicians with different attitudes about the importance of primary dentition and oral health-related practices

PRACTICE PATTERNS	IMPORTNACE OF PRIMARY DENTITION		Significance[#]
	Not/Less important N (% of total)	Very important N (% of total)	
Dental assessment of the child’s teeth			
Never/seldom	69 (87.3)	45 (59.2)	<0.001*
Frequently/always	10 (12.7)	31 (40.8)	
Parental counselling			
Never/seldom	37 (46.8)	20 (26.3)	0.008*
Frequently/always	42 (53.2)	56 (73.7)	
Caries risk assessment			
Never/seldom	69 (87.3)	50 (65.8)	0.001*
Frequently/always	10 (12.7)	27 (34.2)	
Advise parents about tooth cleaning			
Never/seldom	65 (82.3)	46 (60.5)	0.003*
Frequently/always	14 (17.7)	30 (39.5)	
Discuss the use of fluoride			
Never/seldom	67 (84.8)	53 (69.7)	0.025*
Frequently/always	12 (15.2)	23 (30.3)	
Dental referral			
Never/seldom	61 (77.2)	54 (71.1)	0.381
Frequently/always	18 (22.8)	22 (28.9)	

Chi square test

* p <0.005

Table 6 – Association between physicians who observed and did not observe caries and oral health-related practices

PRACTICE PATTERNS	PHYSICIAN OBSERVED DENTAL DECAY		Significance [#]
	NO N (% of total)	YES N (% of total)	
Dental assessment of the child's teeth			
Never/seldom	94 (79.7)	20 (54.1)	0.003*
Frequently/always	24 (20.3)	17 (45.9)	
Parental counselling			
Never/seldom	45 (38.1)	12 (32.4)	0.336
Frequently/always	73 (61.9)	25 (67.6)	
Caries risk assessment			
Never/seldom	93 (78.8)	26 (70.3)	0.196
Frequently/always	25 (21.2)	11 (29.7)	
Advise parents about tooth cleaning			
Never/seldom	83 (70.3)	28 (75.7)	0.343
Frequently/always	35 (29.7)	9 (24.3)	
Discuss the use of fluoride			
Never/seldom	93 (78.8)	27 (73.0)	0.298
Frequently/always	25 (21.2)	10 (27.0)	
Dental referral			
Never/seldom	92 (78.0)	23 (62.2)	0.047*
Frequently/always	26 (22.0)	14 (37.8)	

Chi square test

*p<0.005

Table 7 – Association between physicians in different years of training and their oral health-related practices

PRACTICE PATTERNS	PHYSICIAN Training Year		Significance [#]
	PGY1 N (% of total)	PGY2 N (% of total)	
Dental assessment of the child's teeth			
Never/seldom	47 (66.2)	65 (81.3)	0.035*
Frequently/always	24 (33.8)	15 (18.8)	
Parental counselling			
Never/seldom	28 (39.4)	28 (35.0)	0.573
Frequently/always	43 (60.6)	52 (65.0)	
Caries risk assessment			
Never/seldom	55 (77.5)	61 (76.3)	0.860
Frequently/always	16 (22.5)	19 (23.8)	
Advise parents about tooth cleaning			
Never/seldom	54 (76.1)	54 (67.5)	0.245
Frequently/always	17 (23.9)	26 (32.5)	
Discuss the use of fluoride			
Never/seldom	60 (84.5)	57 (71.3)	0.050*
Frequently/always	11 (15.5)	23 (28.7)	
Dental referral			
Never/seldom	54 (76.1)	58 (72.5)	0.681
Frequently/always	17 (23.9)	22 (27.5)	

Chi square test

*p<0.005

Table 8 – Association between residents’ perceived barriers and their oral health-related practices

Practice patterns	Physicians: Perceived barriers			Significance [#]
	Time N (% of total)	Training N (% of total)	Other [^] N (% of total)	
Dental assessment of the child’s teeth				
Never/seldom	15 (83.3)	79 (70.5)	20 (80.0)	0.378
Frequently/always	3 (16.7)	33 (29.5)	5 (20.0)	
Parental counselling				
Never/seldom	8 (44.4)	43 (38.4)	6 (24.0)	0.311
Frequently/always	10 (55.6)	69 (61.6)	19 (76.0)	
Caries risk assessment				
Never/seldom	14 (77.8)	83 (74.1)	22 (88.0)	0.329
Frequently/always	4 (22.2)	29 (25.9)	3 (12.0)	
Advise parents about tooth cleaning				
Never/seldom	15 (83.3)	78 (69.6)	18 (72.0)	0.489
Frequently/always	3 (16.7)	34 (30.4)	7 (28.0)	
Discuss the use of fluoride				
Never/seldom	16 (88.9)	88 (78.6)	16 (64.0)	0.134
Frequently/always	2 (11.1)	24 (21.4)	9 (36.0)	
Dental referral				
Never/seldom	11 (61.1)	82 (73.2)	22 (88.0)	0.125
Frequently/always	7 (38.9)	30 (26.8)	3 (12.0)	

[^]Competing priorities, access to care, family’s financial ability

[#] Chi square test

Table 9 – Multivariate logistic regression model of variables associated with dental assessment

	Adjusted OR [95% CI] Dental Assessment
Training quality	
No training	Ref
Poor	0.38 (0.15, 0.99) *
Fair	0.81 (0.25, 2.64)
Good/ Excellent	9.14 (0.97, 85.6)
Importance of physicians' role in oral health promotion	
Disagree/ Neutral	Ref
Agree	1.80 (0.34, 9.52)
Strongly agree	6.09 (1.12, 33.0) *
Time as a perceived barrier to oral health-related practices	1.40 (0.48, 4.10)
Availability of provincial dental coverage	1.23 (0.39, 3.90)
Shared primary care services with pediatricians	1.41 (0.60, 3.31)

OR: Odds ratio

CI: Confidence interval

*p<0.005

Table 10– Multivariate logistic regression model of variables associated with oral health counselling

	Adjusted OR [95% CI] Dental Assessment
Training Quality	
No training	Ref
Poor	1.76 (0.78, 3.98)
Fair	1.54 (0.53, 4.44)
Good/ Excellent	4.76 (0.51, 44.1)
Importance of physicians’ role in oral health promotion	
Disagree/ Neutral	Ref
Agree	3.21 (0.86, 12.0)
Strongly agree	4.91 (1.21, 19.8) *
Time as a perceived barrier to oral health-related practices	0.53 (0.21, 1.36)
Availability of provincial dental coverage	0.67 (2.58, 1.75)
Shared primary care services with pediatricians	1.69 (0.83, 3.44)

OR: Odds ratio

CI: Confidence interval

*p<0.005

Chapter 4: Discussion, future directions and conclusions

This study sought to 1) evaluate the current content pertaining to infant oral health within the family medicine residency programs in Canada; 2) assess the attitudes, and practices of family medicine residents towards infants' oral health care, and 3) identify barriers faced by family medicine residents for performing various oral health-related practices.

The results of this study indicated that there seemed to still exist a lack of oral health education within the family medicine residents' training in Canada as it was in 2006, which is in concurrence with the existing literature. The majority of the directors stated a lack of inclusion of clinical oral health screening, dental disease prevention and intervention, ECC, interaction between oral and general health, pregnancy and oral health and fluoride varnish in the residents' curricula. Half of the respondents stated that their residents received approximately 1-3 hours of didactic training on oral health education during their entire training, and included didactic sessions on how to visually examine children's teeth, how to assess the child's risk for development of dental caries, the effects of nocturnal bottle feeding, and the use of fluoridated toothpastes. A previous study reported that oral health education in a medical setting need to be designed in an efficient way, as didactic teaching alone does not suffice to ensure efficacy of the oral health training (de la Cruz et al., 2004).

Most of the directors reported competing priorities, lack of knowledge, and lack of time as the perceived barriers to teaching these oral health-related topics to their residents. A recent study by Silk et al. reported similar findings as only half the programs reported having 1-3 hours of oral health component to cover the use of fluoride, oral health prevention, and oral screening (Silk,

Savageau, Sullivan, Sawosik, & Wang, 2018). Similarly, Prakash et al. investigated practicing Canadian family physicians in 2006, and found that one third of them reported 1-3 hours of oral health training during residency and that the vast majority had either no oral health training or felt that it was poor (Prakash et al., 2006); this can be an indication that in the past 12 years there has been no changes to the oral health training in family medicine residency programs in Canada. The vast majority of the directors reported no methods of evaluation of their residents' oral health knowledge. The residents' responses can be reflective of the aforementioned findings from the directors, as over half the residents reported a feeling of inadequacy towards their training in identifying dental caries. Furthermore, the findings reported herein were supported by the perceived need for more information/resources in dental diseases (95%, n=148), with the vast majority identifying ECC and oral home care as two topics they would like to know more about as also found in 2006 (Prakash et al., 2006).

The lack of oral health training makes it difficult for family medicine residents and physicians to help out in curbing the impact of untreated ECC. The various competing priorities, and lack of faculty expertise in oral health makes it challenging to have a positive oral health involvement in the residents' training. Although 90% of our respondents use the RBR, many reported the lack of resources or guidelines as perceived barriers to the ability to, and comfort in, performing various oral health-related practices. This can be explained by the fact that although the RBR is endorsed by both the CFPC and the CPS and it is a component of their certification examination in family medicine, the lack of utilization of the dental part might be related to the inadequate oral health training during residency.

This study highlighted differences on the family medicine resident's perceived attitudes towards oral health given that almost 40% of the respondents agreed with the importance of fluoridated toothpastes in children younger than 3 years, while the other 60% did not agree. Such discrepancy might be explained by conflicting resources currently available. For instance, the CPS in its 'Caring for Kids' website recommends the use of fluoridated toothpastes only after 3 years of age (Canadian Pediatric Association, July 2018), while the CDA recommends its use in children younger than 3 years based on the caries risk (Canadian Dental Association, 2012). The findings also showed that the residents who felt that they hold an important role in promoting oral health amongst infants and toddlers were more likely to counsel parents on teething and dental care, to discuss the use of fluoride, and to recognize the importance of primary dentition. These findings were in concurrence with previous studies in the literature (Casparly et al., 2008; Prakash et al., 2006). Although it is reassuring that the vast majority of family medicine residents' attitudes were positive towards various oral health-related topics, their lack of training and knowledge might be a hindering factor in fully integrating oral health prevention and promotion into their practices.

The majority of respondents did not perform oral health-related practices during well-baby visits including assessing the child's teeth and caries risk, and referring to dental professionals. The residents also reported that they rarely or never saw children 3 years or younger. This can be explained by the fact that family medicine residents might have different clinical rotations throughout their residency and depending on their year of training, they might not see children at all. Furthermore, depending on the province of which the residents are training, pediatricians

might not be serving as specialists and thus, might be seeing more children than family physicians (Canadian Pediatric Association, July 2018).

Another finding revealed that over two thirds of the residents reported never observing dental caries on children 0-3 years of age, which can be explained by the fact that the majority of the respondents did not see children and when they saw, they might not have lifted the lip and know what to look for due to lack of knowledge and training. However, residents also indicated that if dental caries was observed, they most would have advised the parents/caregivers to take the child to the dentist, although only a few would actually make a formal referral to a dental professional. Despite the results from this study, family physicians are a valuable position to accurately assess and refer children with ECC (Pierce et al., 2002), and in also providing preventive dental services (Slade et al., 2007).

Surveys remain an important health research method to provide information on attitudes, knowledge, as well as evaluating policies and curricula (Burns et al., 2008; Wiebe, Kaczorowski, & MacKay, 2012). Yet there were several limitations to this study. The response rate was low (n=155) given that it was difficult to access all family medicine residents across Canada as the CFPC does not endorse third-party or external project surveys to its members. Also, the survey did not have a French version which limited the accessibility to French speaking universities and residents. Moreover, there was no accurate measure in place to guarantee that all the enrolled residents in the family medicine programs in Canada received the survey, especially in those family medicine residency programs with multiple sites run by different administrators. In terms of the limitations with the survey itself, residents might have completed the survey based on

what they believed the investigators would like to know rather than what they believed was right to answer, which limits the generalizability of the study. The survey was based on self-reported answers, therefore this might not be an accurate representation of the actual training and practices of the residents.

For the directors' survey, the 11 responses also limit generalizability to all residency programs in Canada or elsewhere, especially when considering that there were different sites for each program and each training site might have a director that might not be aware of oral health components of the full curriculum.

FUTURE DIRECTIONS

Future studies in collaboration with the CFPC are recommended to further understand the gaps in oral health training and education in family medicine residencies, and investigate whether web-based oral health curriculums such as Smiles for life is utilized by family medicine programs in Canada.

Another area that needs to be investigated is the perspective of the health care users (i.e. parents and caregivers), as their insight on their beliefs on oral hygiene and fluoride use would provide great value in understanding the prevalence of early childhood caries.

Furthermore, it would be of great interest to explore the dental professionals and their attitudes, beliefs, and practices on pediatric and infants' oral health care, and their actual level of comfort in examining and providing preventive health services to infants and the pediatric population, this in turn will help provide an understanding of the actual root of the problem and in turn will be beneficial in end goal of prevention of early childhood caries.

CONCLUSIONS

Early childhood caries remains the most common childhood disease, it is often accompanied by serious comorbidities affecting children's quality of life, and is the main reason for hospitalization under general anesthesia for children under 3-years of age. Therefore, it is essential to convey to primary health care professionals the knowledge regarding infant oral health care so they can be an allied profession in identifying ECC. However, most of the Family Physicians training programs in Canada seemed to not include enough infant oral health screening in their curriculum. While the majority of family medicine residents felt that physicians have an important role in promoting oral health amongst children (i.e. assessment of the child's teeth, referring to dentists), the reported lack of knowledge and training is hindering them from performing various oral health-related practices. Efforts should be made to increase interprofessional collaboration between dentistry and family medicine curricula; this in turn will help reduce the incidence and severity of ECC. Allied health care professionals remain well positioned to provide anticipatory guidance and referral for dental care prior to any progression of disease given the way the Canadian public health care system is structured with oral health care remaining privately financially and administered.

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Appendices

Appendix A – Rourke Baby Record

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Revised February 20, 2014
www.rourkebabyrecord.ca



Pregnancy/Birth remarks/Appar:		Risk factors/Family history:		Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance GUIDE I: 0–1 mo					
				NAME: _____ Birth Day (d/m/yy): _____ M F					
				Gestational Age: _____ Birth Length: _____ cm Birth Wt: _____ g Head Circ: _____ cm Discharge Wt: _____ g					
DATE OF VISIT	within 1 week			2 weeks (optional)			1 month		
GROWTH ¹ use WHO growth charts. Correct age until 24–36 months if < 37 weeks gestation	Length	Weight	HC (avg 35 cm)	Length	Weight (regains BW 1–3 weeks)	Head Circ.	Length	Weight	Head Circ.
	PARENT/CAREGIVER CONCERNS								
For each <input type="checkbox"/> item discussed, indicate “✓” for no concerns, or “X” if concerns									
NUTRITION ¹	<input type="checkbox"/> Breastfeeding (exclusive) ¹ <input type="checkbox"/> Vitamin D 400 IU/day ¹ <input type="checkbox"/> Formula Feeding (iron-fortified)/preparation ¹ [150 mL(5 oz)/kg/day ¹] <input type="checkbox"/> Stool pattern and urine output			<input type="checkbox"/> Breastfeeding (exclusive) ¹ <input type="checkbox"/> Vitamin D 400 IU/day ¹ <input type="checkbox"/> Formula Feeding (iron-fortified)/preparation ¹ [150 mL(5 oz) /kg/day ¹] <input type="checkbox"/> Stool pattern and urine output			<input type="checkbox"/> Breastfeeding (exclusive) ¹ <input type="checkbox"/> Vitamin D 400 IU/day ¹ <input type="checkbox"/> Formula Feeding (iron-fortified)/preparation ¹ [450–750 mL(15–25 oz) /day ¹] <input type="checkbox"/> Stool pattern and urine output		
EDUCATION AND ADVICE Injury Prevention	<input type="checkbox"/> Car seat (infant) ¹ <input type="checkbox"/> Carbon monoxide/Smoke detectors ¹			<input type="checkbox"/> Safe sleep (position, room sharing, avoid bed sharing, crib safety) ¹ <input type="checkbox"/> Hot water <49°C ¹ <input type="checkbox"/> Choking/safe toys ¹ <input type="checkbox"/> Pacifier use ¹			<input type="checkbox"/> Firearm safety ¹		
Behaviour and family issues	<input type="checkbox"/> Crying ² <input type="checkbox"/> Parenting/bonding			<input type="checkbox"/> Healthy sleep habits ² <input type="checkbox"/> Parental fatigue/postpartum depression ²			<input type="checkbox"/> Night waking ² <input type="checkbox"/> Family conflict/stress		
Environmental Health	<input type="checkbox"/> Second hand smoke ¹ <input type="checkbox"/> Sun exposure ¹								
Other Issues	<input type="checkbox"/> No OTC cough/cold medicine ¹ <input type="checkbox"/> Temperature control and overdressing			<input type="checkbox"/> Inquiry on complementary/alternative medicine ¹ <input type="checkbox"/> Fever advice/thermometers ¹					
DEVELOPMENT ² (Inquiry and observation of milestones) Tasks are set after the time of normal milestone acquisition. Absence of any item suggests consideration for further assessment of development. NB—Correct for age if < 37 weeks gestation				<input type="checkbox"/> Sucks well on nipple <input type="checkbox"/> No parent/caregiver concerns			<input type="checkbox"/> Focuses gaze <input type="checkbox"/> Startles to loud noise <input type="checkbox"/> Calms when comforted <input type="checkbox"/> Sucks well on nipple <input type="checkbox"/> No parent/caregiver concerns		
PHYSICAL EXAMINATION An appropriate age-specific physical examination is recommended at each visit. Evidence-based screening for specific conditions is highlighted.	<input type="checkbox"/> Skin (jaundice, dry) <input type="checkbox"/> Fontanelles ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Ears (TMs) Hearing inquiry/screening ¹ <input type="checkbox"/> Tongue mobility ¹ <input type="checkbox"/> Heart/Lungs <input type="checkbox"/> Umbilicus <input type="checkbox"/> Femoral pulses <input type="checkbox"/> Hips ¹ <input type="checkbox"/> Muscle tone ¹ <input type="checkbox"/> Testicles <input type="checkbox"/> Male urinary stream/foreskin care <input type="checkbox"/> Patency of anus			<input type="checkbox"/> Skin (jaundice, dry) <input type="checkbox"/> Fontanelles ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Ears (TMs) Hearing inquiry/screening ¹ <input type="checkbox"/> Tongue mobility ¹ <input type="checkbox"/> Heart/Lungs <input type="checkbox"/> Umbilicus <input type="checkbox"/> Femoral pulses <input type="checkbox"/> Hips ¹ <input type="checkbox"/> Muscle tone ¹ <input type="checkbox"/> Testicles <input type="checkbox"/> Male urinary stream/foreskin care			<input type="checkbox"/> Skin (jaundice) <input type="checkbox"/> Fontanelles ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Corneal light reflex ¹ <input type="checkbox"/> Hearing inquiry/screening ¹ <input type="checkbox"/> Tongue mobility ¹ <input type="checkbox"/> Heart <input type="checkbox"/> Hips ¹ <input type="checkbox"/> Muscle tone ¹		
PROBLEMS AND PLANS									
INVESTIGATIONS/IMMUNIZATION Discuss immunization pain reduction strategies ³	<input type="checkbox"/> Newborn screening as per province <input type="checkbox"/> Hemoglobinopathy screen (if at risk) ¹ <input type="checkbox"/> Universal newborn hearing screening (UNHS) ¹ <input type="checkbox"/> If HBsAg-positive parent/sibling Hep B vaccine #1 ³ <input type="checkbox"/> Record Vaccines on Guide V			<input type="checkbox"/> Record Vaccines on Guide V			<input type="checkbox"/> If HBsAg-positive parent/sibling Hep B vaccine #2 ³ <input type="checkbox"/> Record Vaccines on Guide V		
Signature									

Strength of recommendation is based on literature review using the classification: Good (bold type); Fair (italic type); Inconclusive evidence/Consensus (plain type). See literature review table at www.rourkebabyrecord.ca
¹see Rourke Baby Record Resources 1: General ²see Rourke Baby Record Resources 2: Healthy Child Development ³see Rourke Baby Record Resources 3: Immunization/Infectious Diseases

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Past problems/Risk factors:		Family history:		Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance GUIDE II: 2–6 mos					
				NAME: _____ Birth Day (d/m/yy): _____ M F					
				Gestational Age: _____ Birth Length: _____ cm Birth Wt: _____ g Birth Head Circ: _____ cm					
DATE OF VISIT	2 months			4 months			6 months		
GROWTH ¹ use WHO growth charts. Correct age until 24–36 months if < 37 weeks gestation	Length	Weight	Head circ.	Length	Weight	Head Circ.	Length	Weight (x2 BW)	Head Circ.
PARENT/CAREGIVER CONCERNS									
For each <input type="checkbox"/> item discussed, indicate “✓” for no concerns, or “X” if concerns									
NUTRITION ¹	<input type="checkbox"/> Breastfeeding (exclusive) ¹ <input type="checkbox"/> Vitamin D 400 IU/day ¹ <input type="checkbox"/> Formula Feeding (iron-fortified)/preparation ¹ [600–900 mL(20–30 oz)/day ¹]			<input type="checkbox"/> Breastfeeding (exclusive) ¹ <input type="checkbox"/> Vitamin D 400 IU/day ¹ <input type="checkbox"/> Formula Feeding (iron-fortified)/preparation ¹ [750–1080 mL(25–36 oz)/day ¹] <input type="checkbox"/> Discuss future introduction of solids ¹			<input type="checkbox"/> Breastfeeding ¹ – introduction of solids <input type="checkbox"/> Vitamin D 400 IU/day ¹ <input type="checkbox"/> Formula Feeding – iron-fortified/preparation ¹ [750–1080 mL(25–36 oz)/day ¹] <input type="checkbox"/> Iron containing foods ¹ (iron fortified infant cereals, meat, tofu, legumes, poultry, fish, whole eggs) <input type="checkbox"/> Fruits, vegetables and milk products (yogurt, cheese) to follow <input type="checkbox"/> No honey ¹ <input type="checkbox"/> Choking/safe food ¹ <input type="checkbox"/> Avoid sweetened juices/liquids <input type="checkbox"/> No bottles in bed		
EDUCATION AND ADVICE	<input type="checkbox"/> Car seat (infant) ¹ <input type="checkbox"/> Safe sleep (position, room sharing, avoid bed sharing, crib safety) ¹ <input type="checkbox"/> Electric plugs/cords <input type="checkbox"/> Carbon monoxide/Smoke detectors ¹ <input type="checkbox"/> Hot water < 49°C/bath safety ¹ <input type="checkbox"/> Falls (stairs, change table, unstable furniture/TV, no walkers) ¹ <input type="checkbox"/> Choking/safe toys ¹ <input type="checkbox"/> Pacifier use ¹			<input type="checkbox"/> Poisons ¹ ; PCC# ¹ <input type="checkbox"/> Firearm safety ¹					
Behaviour and family issues	<input type="checkbox"/> Crying ² <input type="checkbox"/> Healthy sleep habits ² <input type="checkbox"/> Night waking ² <input type="checkbox"/> Soothability/responsiveness <input type="checkbox"/> High risk infants/assess home visit need ² <input type="checkbox"/> Siblings <input type="checkbox"/> Parenting/bonding <input type="checkbox"/> Parental fatigue/postpartum depression ² <input type="checkbox"/> Family conflict/stress <input type="checkbox"/> Child care ² /return to work <input type="checkbox"/> Family healthy active living/sedentary behaviour ²								
Environmental Health	<input type="checkbox"/> Second hand smoke ¹ <input type="checkbox"/> Sun exposure/sunscreens/insect repellent ¹ <input type="checkbox"/> Pesticide exposure ¹								
Other Issues	<input type="checkbox"/> Teething/Dental cleaning/Fluoride ¹ <input type="checkbox"/> OTC cough/cold medicine ¹ <input type="checkbox"/> Fever advice/thermometers ¹ <input type="checkbox"/> Temperature control and overdressing <input type="checkbox"/> OTC/complementary/alternative medicine ¹ <input type="checkbox"/> Encourage reading ²								
DEVELOPMENT ² (Inquiry and observation of milestones) Tasks are set after the time of normal milestone acquisition. Absence of any item suggests consideration for further assessment of development. NB—Correct for age if < 37 weeks gestation	<input type="checkbox"/> Follows movement with eyes <input type="checkbox"/> Coos – throaty, gurgling sounds <input type="checkbox"/> Lifts head up while lying on tummy <input type="checkbox"/> Can be comforted & calmed by touching/rocking <input type="checkbox"/> Sequences 2 or more sucks before swallowing/breathing <input type="checkbox"/> Smiles responsively <input type="checkbox"/> No parent/caregiver concerns			<input type="checkbox"/> Follows a moving toy or person with eyes <input type="checkbox"/> Responds to people with excitement (leg movement/panting/vocalizing) <input type="checkbox"/> Holds head steady when supported at the chest or waist in a sitting position <input type="checkbox"/> Holds an object briefly when placed in hand <input type="checkbox"/> Laughs/smiles responsively <input type="checkbox"/> No parent/caregiver concerns			<input type="checkbox"/> Turns head toward sounds <input type="checkbox"/> Makes sounds while you talk to him/her <input type="checkbox"/> Vocalizes pleasure and displeasure <input type="checkbox"/> Rolls from back to side <input type="checkbox"/> Sits with support (e.g., pillows) <input type="checkbox"/> Reaches/grasps objects <input type="checkbox"/> No parent/caregiver concerns		
PHYSICAL EXAMINATION An appropriate age-specific physical examination is recommended at each visit. Evidence-based screening for specific conditions is highlighted.	<input type="checkbox"/> Fontanelles ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Corneal light reflex ¹ <input type="checkbox"/> Hearing inquiry/screening ¹ <input type="checkbox"/> Heart <input type="checkbox"/> Hips ¹ <input type="checkbox"/> Muscle tone ¹			<input type="checkbox"/> Anterior fontanelle ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Corneal light reflex ¹ <input type="checkbox"/> Hearing inquiry/screening ¹ <input type="checkbox"/> Hips ¹ <input type="checkbox"/> Muscle tone ¹			<input type="checkbox"/> Anterior fontanelle ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Corneal light reflex/Cover-uncover test & inquiry ¹ <input type="checkbox"/> Hearing inquiry/screening ¹ <input type="checkbox"/> Hips ¹ <input type="checkbox"/> Muscle tone ¹		
PROBLEMS AND PLANS									
INVESTIGATIONS/IMMUNIZATION Discuss immunization pain reduction strategies ³	<input type="checkbox"/> Record Vaccines on Guide V			<input type="checkbox"/> Record Vaccines on Guide V			<input type="checkbox"/> Hemoglobin (if at risk) ¹ <input type="checkbox"/> Inquire about risk factors for TB <input type="checkbox"/> If HBsAg-positive parent/sibling Hep B vaccine #3 ³ <input type="checkbox"/> Record Vaccines on Guide V		
Signature									

Strength of recommendation is based on literature review using the classification: Good (bold type); Fair (italic type); Inconclusive evidence/Consensus (plain type). See literature review table at www.rourkebabyrecord.ca
¹see Rourke Baby Record Resources 1: General ²see Rourke Baby Record Resources 2: Healthy Child Development ³see Rourke Baby Record Resources 3: Immunization/Infectious Diseases

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Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance GUIDE III: 9–15 mos

NAME: _____ Birth Day (d/m/yy): _____ M | F |
 Gestational Age: _____ Birth Length: _____ cm Birth Wt: _____ g Birth Head Circ: _____ cm

Past problems/Risk factors:	Family history:								
DATE OF VISIT	9 months (optional)			12–13 months			15 months (optional)		
GROWTH ¹ use WHO growth charts. Correct age until 24–36 months if < 37 weeks gestation	Length	Weight	Head circ.	Length	Weight (x3 BW)	HC (avg 47cm)	Length	Weight	Head Circ.
PARENT/CAREGIVER CONCERNS									
For each <input type="checkbox"/> item discussed, indicate “✓” for no concerns, or “X” if concerns									
NUTRITION ¹	<input type="checkbox"/> Breastfeeding ¹ /Vitamin D 400 IU/day ¹ <input type="checkbox"/> Formula Feeding – iron-fortified/preparation ¹ [720–960 mLs(24–32 oz) /day ¹] <input type="checkbox"/> No bottles in bed <input type="checkbox"/> Cereal, meat/alternatives, fruits, vegetables <input type="checkbox"/> Cow’s milk products (e.g., yogurt, cheese, homogenized milk) <input type="checkbox"/> No honey ¹ <input type="checkbox"/> Choking/safe foods ¹ <input type="checkbox"/> Avoid sweetened juices/liquids <input type="checkbox"/> Encourage change from bottle to cup			<input type="checkbox"/> Breastfeeding ¹ ± Vitamin D 400 IU/day ¹ <input type="checkbox"/> Homogenized milk [500–750 mLs(16–24 oz) /day ¹] <input type="checkbox"/> Appetite reduced <input type="checkbox"/> Choking/safe foods ¹ <input type="checkbox"/> Avoid sweetened juices/liquids <input type="checkbox"/> Promote open cup instead of bottle <input type="checkbox"/> Inquire re: vegetarian diets ¹			<input type="checkbox"/> Breastfeeding ¹ ± Vitamin D 400 IU/day ¹ <input type="checkbox"/> Homogenized milk [500–750 mLs(16–24 oz) /day ¹] <input type="checkbox"/> Choking/safe foods ¹ <input type="checkbox"/> Avoid sweetened juices/liquids <input type="checkbox"/> Promote open cup instead of bottle <input type="checkbox"/> Inquire re: vegetarian diets ¹		
EDUCATION AND ADVICE Injury Prevention	<input type="checkbox"/> Car seat (infant) ¹ <input type="checkbox"/> Carbon monoxide/Smoke detectors ¹ Childproofing, including: <input type="checkbox"/> Electric plugs/cords			<input type="checkbox"/> Poisons ¹ ; PCC# ¹ <input type="checkbox"/> Hot water <49°C/bath safety ¹ <input type="checkbox"/> Falls (stairs, change table, unstable furniture/TV, no walkers) ¹			<input type="checkbox"/> Firearm safety ¹ <input type="checkbox"/> Pacifier use ¹ <input type="checkbox"/> Choking/safe toys ¹		
Behaviour and Family Issues	<input type="checkbox"/> Crying ² <input type="checkbox"/> Healthy sleep habits ² <input type="checkbox"/> Night waking ² <input type="checkbox"/> Soothability/responsiveness <input type="checkbox"/> High risk children/assess home visit need ² <input type="checkbox"/> Siblings <input type="checkbox"/> Parenting ² <input type="checkbox"/> Parental fatigue/depression ² <input type="checkbox"/> Family conflict/stress <input type="checkbox"/> Child care ² /return to work <input type="checkbox"/> Family healthy active living/sedentary behaviour ² <input type="checkbox"/> Pesticide exposure ¹								
Environmental Health	<input type="checkbox"/> Second hand smoke ¹ <input type="checkbox"/> Sun exposure/sunscreens/insect repellent ¹ <input type="checkbox"/> Serum lead if at risk ¹								
Other Issues	<input type="checkbox"/> Teething/Dental cleaning/Fluoride/Dentist ¹ <input type="checkbox"/> Fever advice/thermometers ¹			<input type="checkbox"/> Complementary/alternative medicine ¹ <input type="checkbox"/> Encourage reading ²			<input type="checkbox"/> No OTC cough/cold medicine ¹ <input type="checkbox"/> Footwear ¹		
DEVELOPMENT ² (Inquiry and observation of milestones) Tasks are set after the time of normal milestone acquisition. Absence of any item suggests consideration for further assessment of development. NB—Correct for age if < 37 weeks gestation	<input type="checkbox"/> Looks for an object seen hidden <input type="checkbox"/> Babbles a series of different sounds (e.g., baba, duhdud) <input type="checkbox"/> Responds differently to different people <input type="checkbox"/> Makes sounds/gestures to get attention or help <input type="checkbox"/> Sits without support <input type="checkbox"/> Stands with support when helped into standing position <input type="checkbox"/> Opposes thumb and fingers when grasps objects <input type="checkbox"/> Plays social games with you (e.g., nose touching, peek-a-boo) <input type="checkbox"/> Cries or shouts for attention <input type="checkbox"/> No parent/caregiver concerns			<input type="checkbox"/> Responds to own name <input type="checkbox"/> Understands simple requests, (e.g., Where is the ball?) <input type="checkbox"/> Makes at least 1 consonant/vowel combination <input type="checkbox"/> Says 3 or more words (do not have to be clear) <input type="checkbox"/> Crawls or ‘bum’ shuffles <input type="checkbox"/> Pulls to stand/walks holding on <input type="checkbox"/> Shows distress when separated from parent/caregiver <input type="checkbox"/> Follows your gaze to jointly reference an object <input type="checkbox"/> No parent/caregiver concerns			<input type="checkbox"/> Says 5 or more words (words do not have to be clear) <input type="checkbox"/> Picks up and eats finger foods <input type="checkbox"/> Walks sideways holding onto furniture <input type="checkbox"/> Shows fear of strange people/places <input type="checkbox"/> Crawls up a few stairs/steps <input type="checkbox"/> Tries to squat to pick up toys from the floor <input type="checkbox"/> No parent/caregiver concerns		
PHYSICAL EXAMINATION An appropriate age-specific physical examination is recommended at each visit. Evidence-based screening for specific conditions is highlighted.	<input type="checkbox"/> Anterior fontanelle ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Corneal light reflex/Cover-uncover test & inquiry ¹ <input type="checkbox"/> Hearing inquiry/screening ¹ <input type="checkbox"/> Hips ¹			<input type="checkbox"/> Anterior fontanelle ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Corneal light reflex/Cover-uncover test & inquiry ¹ <input type="checkbox"/> Hearing inquiry/screening ¹ <input type="checkbox"/> Tonsil size/sleep-disordered breathing ¹ <input type="checkbox"/> Teeth ¹ <input type="checkbox"/> Hips ¹			<input type="checkbox"/> Anterior fontanelle ¹ <input type="checkbox"/> Eyes (red reflex) ¹ <input type="checkbox"/> Corneal light reflex/Cover-uncover test & inquiry ¹ <input type="checkbox"/> Hearing inquiry/screening ¹ <input type="checkbox"/> Tonsil size/sleep-disordered breathing ¹ <input type="checkbox"/> Teeth ¹ <input type="checkbox"/> Hips ¹		
PROBLEMS AND PLANS									
INVESTIGATIONS/IMMUNIZATION Discuss immunization pain reduction strategies ³	<input type="checkbox"/> If HBsAg positive mother check HBV antibodies and HBsAg ³ (at 9 or 12 months) <input type="checkbox"/> Hemoglobin (if at risk) ¹ <input type="checkbox"/> Record Vaccines on Guide V						<input type="checkbox"/> Record Vaccines on Guide V		
Signature									

Strength of recommendation is based on literature review using the classification: Good (bold type); Fair (italic type); Inconclusive evidence/Consensus (plain type). See literature review table at www.rourkebabyrecord.ca
¹See Rourke Baby Record Resources 1: General ²See Rourke Baby Record Resources 2: Healthy Child Development ³See Rourke Baby Record Resources 3: Immunization/Infectious Diseases

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Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance GUIDE IV: 18 mo–5 yr (National)

NAME: _____ Birth Day (d/m/yy): _____ M [] F []
 Gestational Age: _____ Birth Length: _____ cm Birth Wt: _____ g Birth Head Circ: _____ cm

DATE OF VISIT	18 months	2–3 years	4–5 years
GROWTH¹ use WHO growth charts. Correct age until 24–36 months if < 37 weeks gestation	Length Weight Head circ.	Height Weight HC if prior abN	Height Weight
PARENT/CAREGIVER CONCERNS			
For each <input type="radio"/> item discussed, indicate “✓” for no concerns, or “X” if concerns			
NUTRITION¹	<input type="radio"/> Breastfeeding ¹ = Vitamin D 400 IU/day ¹ <input type="radio"/> Homogenized milk [500–750 mLs(16–24 oz)/day ¹] <input type="radio"/> Avoid sweetened juices/liquids <input type="radio"/> No bottles	<input type="radio"/> Breastfeeding ¹ <input type="radio"/> Skim, 1% or 2% milk [~ 500 mLs(16 oz)/day ¹] <input type="radio"/> Avoid sweetened juices/liquids <input type="radio"/> Gradual transition to lower fat diet ¹ <input type="radio"/> Inquire re: vegetarian diets ¹ <input type="radio"/> Canada's Food Guide ¹	<input type="radio"/> Skim, 1% or 2% milk [~ 500 mLs(16 oz)/day ¹] <input type="radio"/> Avoid sweetened juices/liquids <input type="radio"/> Inquire re: vegetarian diets ¹ <input type="radio"/> Canada's Food Guide ¹
EDUCATION AND ADVICE Injury Prevention	<input type="radio"/> Car seat (child) ¹ <input type="radio"/> Bath safety ¹ <input type="radio"/> Choking/safe toys ¹ <input type="radio"/> Falls (stairs, change table, unstable furniture/TV) ¹ <input type="radio"/> Wean from pacifier ¹	<input type="radio"/> Car seat (child/booster) ¹ <input type="radio"/> Carbon monoxide/smoke detectors ¹ <input type="radio"/> Falls (stairs, unstable furniture/TV, trampolines) ¹	<input type="radio"/> Bike helmets ¹ <input type="radio"/> Matches <input type="radio"/> Water safety ¹ <input type="radio"/> Firearm safety ¹
Behaviour	<input type="radio"/> Parent/child interaction <input type="radio"/> Discipline/Parenting skills programs ² <input type="radio"/> Healthy sleep habits ²	<input type="radio"/> Parent/child interaction <input type="radio"/> Parental fatigue/depression ²	<input type="radio"/> Discipline/parenting skills programs ² <input type="radio"/> Family conflict/stress <input type="radio"/> High-risk children ² <input type="radio"/> Siblings
Family	<input type="radio"/> Parental fatigue/stress/depression ² <input type="radio"/> High-risk children ² <input type="radio"/> Family healthy active living/sedentary behaviour ¹ <input type="radio"/> Encourage reading ² <input type="radio"/> Socializing/peer play opportunities	<input type="radio"/> Healthy sleep habits ² <input type="radio"/> Family healthy active living/sedentary behaviour ² <input type="radio"/> Socializing opportunities	<input type="radio"/> Assess child care /preschool needs/school readiness ² <input type="radio"/> Encourage reading ²
Environmental Health	<input type="radio"/> Second-hand smoke ¹ <input type="radio"/> Serum lead if at risk ¹ <input type="radio"/> Sun exposure/sunscreens/insect repellent ¹	<input type="radio"/> Second-hand smoke ¹ <input type="radio"/> Pesticide exposure ¹ <input type="radio"/> Sun exposure/sunscreens/insect repellent ¹	<input type="radio"/> Serum lead if at risk ¹
Other	<input type="radio"/> Dental care/Dentist ¹ <input type="radio"/> Toilet learning ²	<input type="radio"/> Dental cleaning/Fluoride/Dentist ¹ <input type="radio"/> Complementary/alternative medicine ¹	<input type="radio"/> No pacifiers ¹ <input type="radio"/> Toilet learning ² <input type="radio"/> No OTC cough/cold medicine ¹
DEVELOPMENT² (Inquiry and observation of milestones) Tasks are set after the time of normal milestone acquisition. <u>Absence of any item suggests consideration for further assessment of development.</u> NB—Correct for age if < 37 weeks gestation	Social/Emotional <input type="radio"/> Child's behaviour is usually manageable <input type="radio"/> Interested in other children <input type="radio"/> Usually easy to soothe <input type="radio"/> Comes for comfort when distressed Communication Skills <input type="radio"/> Points to several different body parts <input type="radio"/> Tries to get your attention to show you something <input type="radio"/> Turns/responds when name is called <input type="radio"/> Points to what he/she wants <input type="radio"/> Looks for toy when asked or pointed in direction <input type="radio"/> Imitates speech sounds and gestures <input type="radio"/> Says 20 or more words (words do not have to be clear) <input type="radio"/> Produces 4 consonants, (e.g., B D G H N W) Motor Skills <input type="radio"/> Walks alone <input type="radio"/> Feeds self with spoon with little spilling Adaptive Skills <input type="radio"/> Removes hat/socks without help <input type="radio"/> No parent/caregiver concerns	2 years <input type="radio"/> Combines 2 or more words <input type="radio"/> Understands 1 and 2 step directions <input type="radio"/> Walks backward 2 steps without support <input type="radio"/> Tries to run <input type="radio"/> Puts objects into small container <input type="radio"/> Uses toys for pretend play (e.g., give doll a drink) <input type="radio"/> Continues to develop new skills <input type="radio"/> No parent/caregiver concerns 3 years <input type="radio"/> Understands 2 and 3 step directions (e.g., “Pick up your hat and shoes and put them in the closet.”) <input type="radio"/> Uses sentences with 5 or more words <input type="radio"/> Walks up stairs using handrail <input type="radio"/> Twists lids off jars or turns knobs <input type="radio"/> Shares some of the time <input type="radio"/> Plays make-believe games with actions and words (e.g., pretending to cook a meal, fix a car) <input type="radio"/> Turns pages one at a time <input type="radio"/> Listens to music or stories for 5–10 minutes <input type="radio"/> No parent/caregiver concerns	4 years <input type="radio"/> Understands 3-part directions <input type="radio"/> Asks and answers lots of questions (e.g., “What are you doing?”) <input type="radio"/> Walks up/down stairs alternating feet <input type="radio"/> Undoes buttons and zippers <input type="radio"/> Tries to comfort someone who is upset <input type="radio"/> No parent/caregiver concerns 5 years <input type="radio"/> Counts out loud or on fingers to answer “How many are there?” <input type="radio"/> Speaks clearly in adult-like sentences most of the time <input type="radio"/> Throws and catches a ball <input type="radio"/> Hops on 1 foot several times <input type="radio"/> Dresses and undresses with little help <input type="radio"/> Cooperates with adult requests most of the time <input type="radio"/> Retells the sequence of a story <input type="radio"/> Separates easily from parent/caregiver <input type="radio"/> No parent/caregiver concerns
PHYSICAL EXAMINATION An appropriate age-specific physical examination is recommended at each visit. Evidence-based screening for specific conditions is highlighted.	<input type="radio"/> Anterior fontanelle closed ¹ <input type="radio"/> Eyes (red reflex) ¹ <input type="radio"/> Corneal light reflex/Cover-uncover test & inquiry ¹ <input type="radio"/> Hearing inquiry <input type="radio"/> Tonsil size/sleep-disordered breathing ¹ <input type="radio"/> Teeth ¹	<input type="radio"/> Blood pressure <input type="radio"/> Eyes (red reflex)/Visual acuity ¹ <input type="radio"/> Corneal light reflex/Cover-uncover test & inquiry ¹ <input type="radio"/> Hearing inquiry <input type="radio"/> Tonsil size/sleep-disordered breathing ¹ <input type="radio"/> Teeth ¹	<input type="radio"/> Blood pressure <input type="radio"/> Eyes (red reflex)/Visual acuity ¹ <input type="radio"/> Corneal light reflex/Cover-uncover test & inquiry ¹ <input type="radio"/> Hearing inquiry <input type="radio"/> Tonsil size/sleep-disordered breathing ¹ <input type="radio"/> Teeth ¹
PROBLEMS AND PLANS			
INVESTIGATIONS/IMMUNIZATION Discuss immunization pain reduction strategies ³	<input type="radio"/> Record Vaccines on Guide V	<input type="radio"/> Record Vaccines on Guide V	<input type="radio"/> Record Vaccines on Guide V
Signature			

Strength of recommendation is based on literature review using the classification: **Good (bold type)**; *Fair (italic type)*; Inconclusive evidence/Consensus (plain type). See literature review table at www.rourkebabyrecord.ca
¹see Rourke Baby Record Resources 1: General ²see Rourke Baby Record Resources 2: Healthy Child Development ³see Rourke Baby Record Resources 3: Immunization/Infectious Diseases

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For additional information, refer to the [National Advisory Committee on Immunization](#) website.

Provincial guidelines vary and are available at the [Public Health Agency of Canada \(PHAC\)](#).

Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance **GUIDE V: Immunization**
 Childhood Immunization Guide as per NACI Recommendations (as of December 16, 2013)

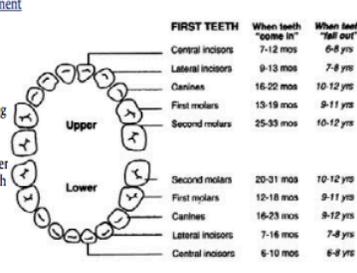
NAME: _____ Birth Day (d/m/yy): _____ M | F |

Vaccine	NACI recommendations	Date given	Injection site	Lot number	Expiry date	Initials	Comments
Rotavirus ³ 2 or 3 doses # doses varies with manufacturer	dose #1 (6 weeks–14 weeks/6 days)						
	dose #2						
	± dose #3 (by 8 months/0 days)						
DTaP/IPv ³ 4 doses (2, 4, 6, 18 months) Hib ³	dose #1 (2 months)						
	dose #2 (4 months)						
	dose #3 (6 months)						
	dose #4 (18 months)						
Pneu-Conj ³ 4 doses (2, 4, 6, 12–15 months)	dose #1 (2 months)						
	dose #2 (4 months)						
	dose #3 (6 months)						
	dose #4 (12–15 months)						
Men-Conjugate ³ MCV-C: 1 dose at 12 months MCV-C or MCV-4:1 dose at 12 years or during adolescence MCV-C: 2 doses at 2 and 4 months only if at increased risk	MCV-C: 2 doses at 2 and 4 months only if at increased risk ± dose #1 (2 months) ± dose #2 (4 months)						
	MCV-C: 1 dose at 12 months						
	MCV-C or MCV-4: 1 dose at 12 years or during adolescence						
Hepatitis B ³ 3 doses in infancy OR 2–3 doses preteen/teen	dose #1						
	dose #2						
	± dose #3						
MMR or MMRV ³ 2 doses (12 months, 18 months OR 4 years)	dose #1 (12 months)						
	dose #2 (18 months OR 4 years)						
Varicella ³ 2 doses (12 months–12 years – MMRV or univalent) OR 2 doses (> 13 years–univalent)	dose #1						
	dose #2						
DTaP/IPv ³	1 dose (4–6 years)						
HPV ³ 9–26 years, 3 doses at 0, 2, and 6 months	dose #1						
	dose #2						
	dose #3						
dTap ³	1 dose (14–16 years)						
Influenza ³ 1 dose annually (6–23 months and high risk > 2 years) First yr only for < 9 years – give 2 doses 1 month apart							
Other							

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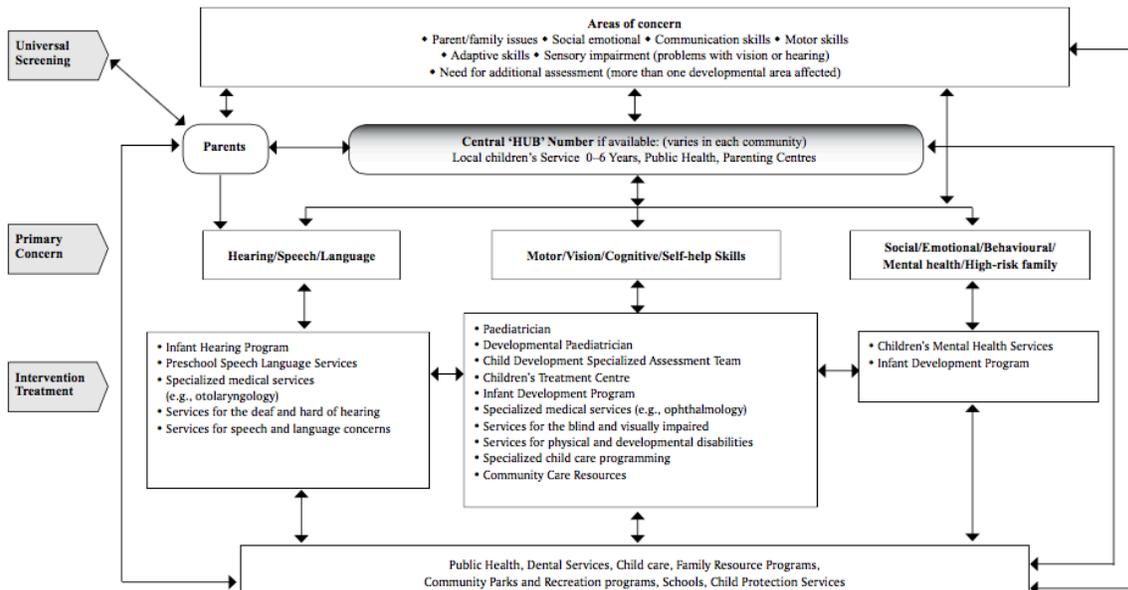
³see Rourke Baby Record Resources 3: Immunization/Infectious Diseases

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<p>GROWTH</p> <ul style="list-style-type: none"> • Important: Corrected age should be used at least until 24 to 36 months of age for premature infants born at <37 weeks gestation. • Measuring growth – The growth of all term infants, both breastfed and non-breastfed, and preschoolers should be evaluated using Canadian growth charts from the 2006 World Health Organization Child Growth Standards (birth to 5 years) with measurement of recumbent length (birth to 2–3 years) or standing height (≥ 2 years), weight, and head circumference (birth to 2 years). CPS Position Statement WHO Growth Charts Adapted for Canada 	<p>ENVIRONMENTAL HEALTH</p> <ul style="list-style-type: none"> • Second-hand smoke exposure: contributes to childhood illnesses such as URTI, middle ear effusion, persistent cough, pneumonia, asthma, and SIDS. • Sun exposure/sunscreens/insect repellents: Minimize sun exposure. Wear protective clothing, hats, properly applied sunscreen with SPF ≥ 30 for those > 6 months of age. No DEET in < 6 months; 6–24 months 10% DEET apply max once daily; 2–12 years 10% DEET apply max TID. • Pesticides: Avoid pesticide exposure. Encourage pesticide-free foods. QCPEP review • Lead Screening is recommended for children who: CFP article: Lead and Children <ul style="list-style-type: none"> - in the last 6 months lived in a house or apartment built before 1978; - live in a home with recent or ongoing renovations or peeling or chipped paint; - have a sibling, housemate, or playmate with a prior history of lead poisoning; - live near point sources of lead contamination; - have household members with lead-related occupations or hobbies; - are refugees aged 6 months–6 years, within 3 months of arrival and again in 3–6 months. • Even for blood levels less than 10µg/dL, evidence suggests an association, and perhaps partial causal relationship with lower cognitive function in children. CPS article: Lead levels in Canadian children: Do we have to review the standard? • Ankyloglossia and breastfeeding – CPS Position Statement - Maternal medications when breastfeeding – TOXNET, US National Library of Medicine - Motherisk - Weaning CPS Position Statement 																																																				
<p>NUTRITION – Nutrition for healthy term infants: 0–6 months 6–24 months CPS Practice Point 0–6 months</p> <ul style="list-style-type: none"> - Ontario Society of Nutrition Professionals in Public Health NutriSTEP® Dietitians of Canada • Breastfeeding: Exclusive breastfeeding is recommended for the first six months of life for healthy term infants. Breast milk is the optimal food for infants, and breastfeeding (with complementary foods) may continue for up to two years and beyond unless contraindicated. Breastfeeding reduces gastrointestinal and respiratory infections and helps to protect against SIDS. Maternal support (both antepartum and postpartum) increases breastfeeding and prolongs its duration. Early and frequent mother-infant contact, rooming in, and banning handouts of free infant formula increase breastfeeding rates. <ul style="list-style-type: none"> - Breastfeeding Committee for Canada - Ankyloglossia and breastfeeding – CPS Position Statement - Maternal medications when breastfeeding – TOXNET, US National Library of Medicine - Motherisk - Weaning CPS Position Statement • Routine Vitamin D supplementation of 400 IU/day (800 IU/day in high-risk infants) is recommended for all breastfed infants until the diet provides a sufficient source of Vitamin D (~ 1–2 years). Breastfeeding mothers should continue to take Vitamin D supplements for the duration of breastfeeding. CPS Position Statement • Infant formula – formula composition and use Alberta Health Services <ul style="list-style-type: none"> - Formula preparation and handling – Health Canada • Milk consumption range is consensus only & is provided as an approximate guide. • Soy-based formula is not recommended for routine use in term infants as an equivalent alternative to cow's milk formula, or for cow milk protein allergy, and is contraindicated for preterm infants. CPS Position Statement • Colic – CPS Position Statement • Introduction of solids should be led by the infant's signs of readiness – a few weeks before to just after 6 months. • Iron containing foods: At ~6 months, start iron containing foods to avoid iron deficiency. • Allergenic foods: Delaying the introduction of priority food allergens is not currently recommended to prevent food allergies, including for infants at risk of atopy. CPS Position Statement • Avoid honey until 1 year of age to prevent botulism. • Dietary fat content: Restriction of dietary fat during the first 2 years is not recommended since it may compromise the intake of energy and essential fatty acids, required for growth and development. A gradual transition from the high-fat infant diet to a lower-fat diet begins after age 2 years as per Canada's Food Guide. • Encourage a healthy diet as per Canada's Food Guide • Vegetarian diets – CPS Position Statement • Fish consumption: 2 servings/week of low mercury fish – Health Canada 	<ul style="list-style-type: none"> • Complementary and alternative medicine (CAM): Questions should be routinely asked on the use of homeopathy and other complementary and alternative medicine therapy or products, especially for children with chronic conditions. CPS Position Statement - Homeopathy CPS Position Statement • Fever advice/thermometers: Fever ≥ 38°C in an infant < 3 months needs urgent evaluation. Ibuprofen and acetaminophen are both effective antipyretics. Acetaminophen remains the first choice in acetaminophen under 6 months of age; thereafter ibuprofen or acetaminophen may be used. Alternating acetaminophen with ibuprofen for fever control is not recommended in primary care settings as this may encourage fever phobia, and the potential risks of medication error outweigh measurable clinical benefit. CPS Position Statement • Footwear: Shoes are for protection, not correction. Walking barefoot develops good toe gripping and muscular strength. CPS Position Statement 																																																				
<p>INJURY PREVENTION: In Canada, unintentional injuries are the leading cause of death in children and youth. Most of these preventable injuries are caused by motor vehicle collisions, drowning, choking, burns, poisoning, and falls.</p> <ul style="list-style-type: none"> - Parachute, About Injuries CPS Position Statement • Transportation in motor vehicles: AAP article • Children < 13 years should sit in the rear seat. Keep children away from all airbags. Install and follow size recommendations as per specific car seat model and keep child in each stage as long as possible. Use rear-facing infant/child seat that is manufacturer approved for use until age 2 years. Use forward-facing child seat after 2 years for as long as manufacturer specifications will allow. After this, use booster seat up to 145 cm (4'9"). Use lap and shoulder belt in the rear middle seat for children over 8 years who are at least 36 kg (80 lb) and 145 cm (4' 9") and fit vehicle restraint system. • Bicycle: wear bike helmets and advocate for helmet legislation for all ages. Replace if heavy impact or damage. CPS Position Statement • Drowning: CPS Position Statement <ul style="list-style-type: none"> - Bath safety: Never leave a young child alone in the bath. Do not use infant bath rings or bath seats. - Water safety: Recommend adult supervision, training for adults, 4-sided pool fencing, lifejackets, swimming lessons, and boating safety to decrease the risk of drowning. • Choking: Avoid hard, small and round, smooth and sticky solid foods until age 3 years. Use safe toys, follow minimum age recommendations, and remove loose parts and broken toys. • Burns: Install smoke detectors in the home on every level. Keep hot water at a temperature < 49°C. • Poisons: Keep medicines and cleaners locked up and out of child's reach. Have Poison Control Centre number handy. Use of <i>ipeac</i> is contraindicated in children. • Falls: Assess home for hazards – never leave baby alone on change table or other high surface; use window guards and stair gates. Baby walkers are banned in Canada and should never be used. Ensure stability of furniture and TV. Advise against trampoline use at home. CPS Position Statement • Safe sleeping environment: CPS Position Statement <ul style="list-style-type: none"> - Sleep position and SIDS/Positional plagiocephaly: Healthy infants should be positioned on their backs for sleep. Their heads should be placed in different positions on alternate days. Sleep positioners should not be used. While awake, infants should have supervised tummy time. Counsel parents on the dangers of other contributory causes of SIDS such as overheating, maternal smoking or second-hand smoke. - Bed sharing: Advise against bed sharing which is associated with an increased risk for SIDS. - Crib safety/Room sharing: Encourage putting infant in a crib, cradle or bassinette, that meets current Health Canada regulations in parents' room for the first 6 months of life. Room sharing is protective against SIDS. • Pacifier use may decrease risk of SIDS and should not be discouraged in the 1st year of life after breastfeeding is well established, but should be restricted in children with chronic/recurrent otitis media. CPS Position Statement • Firearm safety: Advise on removal of firearms from home or safe storage to decrease risk of unintentional firearm injury, suicide, or homicide. CPS Position Statement 	<p>OTHER</p> <ul style="list-style-type: none"> • Dental Care: <ul style="list-style-type: none"> - Dental Cleaning: As excessive swallowing of toothpaste by young children may result in dental fluorosis, children 3–6 years of age should be supervised during brushing and only use a small amount (e.g., pea-sized portion) of fluoridated toothpaste twice daily. Children under 3 years of age should have their teeth and gums brushed twice daily by an adult using either water (if low risk for tooth decay) or a rice grain sized portion of fluoridated toothpaste (if at caries risk). - Systemic fluoride and/or fluoride varnish should be considered based on caries risk assessment. American Academy of Pediatric Dentistry Assessment tool, CDA Position Statement - To prevent early childhood caries: avoid sweetened juices/liquids and constant sipping of milk or natural juices in both bottle and cup.  <table border="1" data-bbox="1023 840 1380 1113"> <thead> <tr> <th></th> <th>FIRST TEETH</th> <th>When teeth "come in"</th> <th>When teeth "fall out"</th> </tr> </thead> <tbody> <tr> <td>Central incisors</td> <td></td> <td>7-12 mos</td> <td>6-8 yrs</td> </tr> <tr> <td>Lateral incisors</td> <td></td> <td>9-13 mos</td> <td>7-8 yrs</td> </tr> <tr> <td>Canines</td> <td></td> <td>16-22 mos</td> <td>10-12 yrs</td> </tr> <tr> <td>First molars</td> <td></td> <td>13-18 mos</td> <td>9-11 yrs</td> </tr> <tr> <td>Second molars</td> <td></td> <td>25-33 mos</td> <td>10-12 yrs</td> </tr> <tr> <td>Upper</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Lower</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Second molars</td> <td></td> <td>20-31 mos</td> <td>10-12 yrs</td> </tr> <tr> <td>First molars</td> <td></td> <td>12-18 mos</td> <td>9-11 yrs</td> </tr> <tr> <td>Canines</td> <td></td> <td>16-23 mos</td> <td>9-12 yrs</td> </tr> <tr> <td>Lateral incisors</td> <td></td> <td>7-16 mos</td> <td>7-8 yrs</td> </tr> <tr> <td>Central incisors</td> <td></td> <td>6-10 mos</td> <td>6-8 yrs</td> </tr> </tbody> </table>		FIRST TEETH	When teeth "come in"	When teeth "fall out"	Central incisors		7-12 mos	6-8 yrs	Lateral incisors		9-13 mos	7-8 yrs	Canines		16-22 mos	10-12 yrs	First molars		13-18 mos	9-11 yrs	Second molars		25-33 mos	10-12 yrs	Upper				Lower				Second molars		20-31 mos	10-12 yrs	First molars		12-18 mos	9-11 yrs	Canines		16-23 mos	9-12 yrs	Lateral incisors		7-16 mos	7-8 yrs	Central incisors		6-10 mos	6-8 yrs
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<p>DISCLAIMER: Given the constantly evolving nature of evidence and changing recommendations, the Rourke Baby Record is meant to be used as a guide only. Financial support has been provided by the Government of Ontario. For fair use authorization, see www.roukebabyrecord.ca.</p>	<p>PHYSICAL EXAMINATION</p> <ul style="list-style-type: none"> • Fontanelles – The posterior fontanelle is usually closed by 2 months and the anterior by 18 months. • Vision inquiry/screening: CPS Position Statement <ul style="list-style-type: none"> - Check Red Reflex for serious ocular diseases such as retinoblastoma and cataracts. - Corneal light reflex/cover-uncover test & inquiry for strabismus: With the child focusing on a light source, the light reflex on the cornea should be symmetrical. Each eye is then covered in turn, for 2–3 seconds, and then quickly uncovered. The test is abnormal if the uncovered eye "wanders" OR if the covered eye moves when uncovered. - Check visual acuity at age 3–5 years. • Hearing inquiry/screening – Any parental concerns about hearing acuity or language delay should prompt a rapid referral for hearing assessment. Formal audiology testing should be performed in all high-risk infants, including those with normal UNHS. Older children should be screened if clinically indicated. • Inspect tongue mobility for ankyloglossia. CPS Position Statement • Tonsil size/sleep-disordered breathing – Screen for sleep problems (behavioural sleep problems and snoring in the presence of sleep-disordered breathing which warrants assessment re obstructive sleep apnea). AAP article • Muscle tone – Physical assessment for spasticity, rigidity, and hypotonia should be performed. • Hips – There is insufficient evidence to recommend routine screening for developmental dysplasia of the hips, but examination of the hips should be included until at least one year, or until the child can walk. AAP article <p>INVESTIGATIONS/SCREENING</p> <ul style="list-style-type: none"> • Anemia screening: All infants from high-risk groups for iron deficiency anemia require screening between 6 and 12 months of age, e.g., Lower SES; Asian; First Nations children; low-birth-weight and premature infants, and infants fed whole cow's milk during their first year of life. • Hemoglobinopathy screening: Screen all neonates from high-risk groups: Asian, African & Mediterranean. • Universal newborn hearing screening (UNHS) effectively identifies infants with congenital hearing loss and allows for early intervention & improved outcomes. CPS Position Statement 																																																				

<p>DEVELOPMENT Milestones are based on the Nipissing District Development Screen™ and other developmental literature. They are not a developmental screen, but rather an aid to developmental surveillance. They are set after the time of normal milestone acquisition. Thus, absence of any one or more items is considered a high-risk marker and indicates consideration for further developmental assessment, as does parental or caregiver concern about development at any stage.</p> <ul style="list-style-type: none"> - Best Start website contains resources for maternal, newborn, and early child development - OCFP Healthy Child Development: Improving the Odds publication: toolkit for primary healthcare providers - Centre of Excellence for Early Childhood Development Encyclopedia on Early Childhood Development - CPS Position Statements: Getting it right at 18 months Measuring in support of early childhood development 	<p>PARENTAL/FAMILY ISSUES – HIGH RISK INFANTS/CHILDREN</p> <ul style="list-style-type: none"> • Maternal depression – Physicians should have a high awareness of maternal depression, which is a risk factor for the socio-emotional and cognitive development of children. Although less studied, paternal factors may compound the maternal-infant issues. CPS Position Statement • Fetal alcohol spectrum disorder (FASD). CPS Position Statement • Adoption/Foster care – Children newly adopted or entering foster care are a high risk population with special needs for health supervision. CPS Position Statement • Prevention of child maltreatment – USPSTF current recommendations - Assess home visit need: There is good evidence for home visiting by nurses during the perinatal period through infancy for first-time mothers of low socioeconomic status, single parents or teenaged parents to prevent physical abuse and/or neglect. CMAJ article - Risk factors for physical abuse: low SES; young maternal age (<19 years); single parent family; parental experiences of own physical abuse in childhood; spousal violence; lack of social support; unplanned pregnancy or negative parental attitude towards pregnancy. - Risk factors for sexual abuse: living in a family without a natural parent; growing up in a family with poor marital relations between parents; presence of a stepfather; poor child-parent relationships; unhappy family life.
<p>BEHAVIOUR Crying: Excessive crying may be caused by behavioral or physical factors or be the upper limit of the normal spectrum. Evaluation of these etiologic factors and of the burden for parents is essential and raises awareness of the potential for the shaken baby syndrome. Abusive head trauma: CPS Position Statement National Center on Shaken Baby Syndrome Assess healthy sleep habits: Normal sleep (quality and quantity for age) is associated with normal development and leads to better health outcomes. National Sleep Foundation, Children and Sleep Night waking: occurs in 20% of infants and toddlers who do not require night feeding. Counselling around positive bedtime routines (including training the child to fall asleep alone), removing nighttime positive reinforcers, keeping morning awakening time consistent, and rewarding good sleep behaviour has been shown to reduce the prevalence of night waking, especially when this counselling begins in the first 3 weeks of life. MJA article PubMed article Swaddling: Proper swaddling of the infant for the first 2 months of life may promote longer sleep periods but could be associated with adverse events (hyperthermia, SIDS, or development of hip dysplasia) if misapplied. A swaddled infant must always be placed supine with free movement of hips and legs, and the head uncovered. AAP article</p>	<p>NONPARENTAL CHILD CARE Inquire about current child care arrangements. High quality child care is associated with improved paediatric outcomes in all children. Factors enhancing quality child care include: practitioner general education and specific training; group size and child/staff ratio; licensing and registration/accreditation; infection control and injury prevention; and emergency procedures.</p> <ul style="list-style-type: none"> - CPS Position Statement: Health implications of children in child care centres Part A and Part B - CPS guide to child-care in Canada Well Beings
<p>PARENTING/DISCIPLINE Inform parents that warm, responsive, flexible & consistent discipline techniques are associated with positive child outcomes. Over reactive, inconsistent, cold & coercive techniques are associated with negative child outcomes. CPS Position Statement</p> <ul style="list-style-type: none"> - OCFP Toolkit, Improving the Odds: Healthy Child Development (section 3) <p>Refer parents of children at risk of, or showing signs of, behavioral or conduct problems to structured parenting programs which have been shown to increase positive parenting, improve child compliance, and reduce general behaviour problems. Access community resources to determine the most appropriate and available research-structured programs. (e.g., The Incredible Years, Right from the Start, COPE program) CEECD Parenting Skills</p>	<p>AUTISM SPECTRUM DISORDER Specific screening for ASD at 18–24 months should be performed on all children with any of the following: failed items on the social/emotional/communication skills inquiry, sibling with autism, or developmental concern by parent, caregiver, or physician. Use the revised M-CHAT-R, and if abnormal, use the follow-up M-CHAT-R/F to reduce the false positive rate and avoid unnecessary referrals and parental concern. Electronic M-CHAT-R is available.</p>
<p>FAMILY HEALTHY ACTIVE LIVING/SEDENTARY BEHAVIOUR Encourage increased physical activity, with parents as role models, through interactive floor-based play for infants and a variety of activities for young children, and decreased sedentary pastimes. - CPS Position Statement CSEP guidelines for physical activity and sedentary behaviour - Media use – Counsel on appropriate screen time: <2 years avoid; 2–4 years <1 h/day. Less is better. Educational and prosocial programming is better.</p>	<p>TOILET LEARNING The process of toilet learning has changed significantly over the years and within different cultures. In Western culture, a child-centred approach is recommended, where the timing and methodology of toilet learning is individualized as much as possible. CPS Position Statement</p> <ul style="list-style-type: none"> - CPS article <p>LITERACY Encourage parents to read to their children within the first few months of life and to limit TV, video and computer games to provide more opportunities for reading. CPS Position Statement - AAP article Literacy Promotion in Primary Care Pediatrics: Can We Make a Difference? - BMJ article Reading aloud to children: the evidence</p>

Early Child Development and Parenting Resource System – National



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ROUTINE IMMUNIZATION

- See the [Canadian Immunization Guide](#) for recommended immunization schedules for infants, children and youth from the [National Advisory Committee on Immunization \(NACI\)](#)
- Provincial/territorial immunization schedules may differ based on funding differences. Provincial/territorial immunization schedules are available at the [Public Health Agency of Canada](#).
- Additional information for parents on vaccinations can be accessed through:
 - [CPS Parent website](#)
 - AAP article [Responding to Parental Refusals of Immunization of Children](#)
- Information for physicians on vaccine safety:
 - Presentation on vaccinations: [First Shots, Best Shot: Childhood vaccines at work in Canada](#)
 - CPS Canada's eight-step vaccine safety program: [Vaccine Literacy](#)
 - CPS Position Statement [Autism spectrum disorder: No causal relationship with vaccines](#)
- **Immunization pain reduction strategies:** During vaccination, pain reduction strategies with good evidence include breastfeeding or use of sweet-tasting solutions, use of the least painful vaccine brand, and consideration of topical anaesthetics. [CMAJ article Reducing the pain of childhood vaccination: an evidence-based clinical practice guideline](#)

VACCINE NOTES (Adapted from NACI website: December 16, 2013)

- **Diphtheria, Tetanus, acellular Pertussis and inactivated Polio virus vaccine (DTaP-IPV):** DTaP-IPV vaccine is the preferred vaccine for all doses in the vaccination series, including completion of the series in children < 7 years who have received ≥ 1 dose of DPT (whole cell) vaccine (e.g., recent immigrants).
- **Haemophilus influenzae type b conjugate vaccine (Hib):** Hib schedule shown is for the Haemophilus b capsular polysaccharide – PRP conjugated to tetanus toxoid (Act-HIBTM) or the Haemophilus b oligosaccharide conjugate – HbOC (HibTITERM) vaccines. This vaccine may be combined with DTaP in a single injection.
- **Measles, Mumps and Rubella vaccine (MMR):** A second dose of MMR is recommended, at least 1 month after the first dose, for the purpose of better measles protection. For convenience and high uptake rates, this second dose of MMR should be given with the 18 month or preschool dose of DTaP/IPV(\pm Hib) (depending on the provincial/territorial policy), or at any intervening age that is practical. The need for a second dose of mumps and rubella vaccine is not established but may benefit (given for convenience as MMR). MMR and varicella vaccines should be administered concurrently, at different sites if the MMRV [combined MMR/varicella] is not available, or separated by at least 4 weeks.
- **Varicella vaccine:** Children aged 12 months to 12 years who have not had varicella should receive 2 doses of varicella vaccine (univalent varicella or MMRV). Unvaccinated individuals ≥ 13 years who have not had varicella should receive two doses at least 28 days apart (univalent varicella only). Consult NACI guidelines for recommended options for catch-up varicella vaccination. Varicella and MMR vaccines should be administered concurrently, at different sites if the MMRV [combined MMR/varicella] vaccine is not available, or separated by at least 4 weeks. [CPS Position Statement](#)
- **Hepatitis B vaccine (Hep B):** Hepatitis B vaccine can be routinely given to infants or preadolescents, depending on the provincial/territorial policy. The first dose can be given at 2 months of age to fit more conveniently with other routine infant immunization visits. The second dose should be administered at least 1 month after the first dose, and the third at least 2 months after the second dose, but again may fit more conveniently into the 4- and 6-month immunization visits. A two-dose schedule for adolescents is an option. For infants born to chronic carrier mothers, the first dose should be given at birth (with Hepatitis B immune globulin). (See also SELECTED INFECTIOUS DISEASES RECOMMENDATIONS below.)
- **Pneumococcal conjugate vaccine 13-valent (Pneu-Conj):** Recommended schedule, number of doses and subsequent use of 23 valent polysaccharide pneumococcal vaccine depend on the age of the child, previous administration of -7 or -10 valent vaccine, if at high risk for pneumococcal disease, and when vaccination is begun. Consult NACI guidelines for maximizing coverage up to 59 months of age.
- **Meningococcal conjugate vaccine (MCV):** [CPS Position Statement](#) – Monovalent vaccine to Type C (MCV-C) is indicated for all ages, and quadravalent to Types A/C/W/Y (MCV-4) for age 2 years and over. Recommended vaccine, schedule and number of doses of meningococcal vaccine depend on the age of the child and vary between provinces/territories. Possible schedules include:
 - MCV-C: 1 dose at 12 months
 - OR
 - MCV-C: 2 doses at 2 and 4 months if at increased risk AND booster dose at 12 months
 MCV-C or MCV-4 booster dose should also be given at 12 years of age or during adolescence.
- **Diphtheria, Tetanus, acellular Pertussis vaccine – adult/adolescent formulation (dTdap):** a combined adsorbed “adult type” preparation for use in people ≥ 7 years of age, contains less diphtheria toxoid and pertussis antigens than preparations given to younger children and is less likely to cause reactions in older people. This vaccine should be used in individuals > 7 years receiving their primary series of vaccines.
- **Influenza vaccine:** Recommended for all children between 6 and 23 months of age, and for older high-risk children. Previously unvaccinated children up to 9 years of age require 2 doses with an interval of at least 4 weeks. The second dose is not required if the child has received one or more doses of influenza vaccine during the previous immunization season. Live attenuated influenza vaccine can be used at age 2 years and above, if no contraindication.
- **Rotavirus vaccine:** Universal rotavirus vaccine is recommended by NACI and CPS. Two oral vaccines are currently authorized for use in Canada: Rotarix (2 doses) and RotaTeq (3 doses). Dose #1 is given between 6 weeks and 14 weeks/6 days with a minimum interval of 4 weeks between doses. Maximum age for the last dose is 8 months/0 days. [CPS Position Statement](#)

SELECTED INFECTIOUS DISEASES RECOMMENDATIONS

[CPS position statements](#) of the Infectious Diseases and Immunization Committee

- **Hepatitis B immune globulin and immunization:**
 - Infants with HBsAg-positive parents or siblings require Hepatitis B vaccine at birth, at 1 month, and 6 months of age.
 - Infants of HBsAg-positive mothers also require Hepatitis B immune globulin at birth and follow-up immune status at 9–12 months for HBV antibodies and HBsAg.
 - Hepatitis B vaccine should also be given to all infants from high-risk groups, such as:
 - infants where at least one parent has emigrated from a country where Hepatitis B is endemic;
 - infants of mothers positive for Hepatitis C virus;
 - infants of substance-abusing mothers.
- **Human Immunodeficiency Virus type 1 (HIV-1) maternal infections:**
 - Breastfeeding is contraindicated for an HIV-1 infected mother even if she is receiving antiretroviral therapy.
- **Hepatitis A or A/B combined (when Hepatitis B vaccine has not been previously given):**
 - These vaccines should be considered when traveling to countries where Hepatitis A or B are endemic.
- **Tuberculosis – TB skin testing:**
 - For up-to-date information, see Canadian TB Standards: [7th Edition 2013](#) [PHAC TB Updates](#)

Appendix B – AAP Oral Health Risk Assessment Tool

Oral Health Risk Assessment Tool

The American Academy of Pediatrics (AAP) has developed this tool to aid in the implementation of oral health risk assessment during health supervision visits. This tool has been subsequently reviewed and endorsed by the National Interprofessional Initiative on Oral Health.

Instructions for Use

This tool is intended for documenting caries risk of the child, however, two risk factors are based on the mother or primary caregiver's oral health. All other factors and findings should be documented based on the child.

The child is at an absolute high risk for caries if any risk factors or clinical findings, marked with a  sign, are documented yes. In the absence of  risk factors or clinical findings, the clinician may determine the child is at high risk of caries based on one or more positive responses to other risk factors or clinical findings. Answering yes to protective factors should be taken into account with risk factors/clinical findings in determining low versus high risk.

Patient Name: _____ Date of Birth: _____ Date: _____														
Visit: <input type="checkbox"/> 6 month <input type="checkbox"/> 9 month <input type="checkbox"/> 12 month <input type="checkbox"/> 15 month <input type="checkbox"/> 18 month <input type="checkbox"/> 24 month <input type="checkbox"/> 30 month <input type="checkbox"/> 3 year <input type="checkbox"/> 4 year <input type="checkbox"/> 5 year <input type="checkbox"/> 6 year <input type="checkbox"/> Other _____														
RISK FACTORS	PROTECTIVE FACTORS	CLINICAL FINDINGS												
<p> Mother or primary caregiver had active decay in the past 12 months <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Mother or primary caregiver does not have a dentist <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Continual bottle/sippy cup use with fluid other than water <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Frequent snacking <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Special health care needs <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Medicaid eligible <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p> Existing dental home <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Drinks fluoridated water or takes fluoride supplements <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Fluoride varnish in the last 6 months <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Has teeth brushed twice daily <input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p> White spots or visible decalcifications in the past 12 months <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Obvious decay <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Restorations (fillings) present <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Visible plaque accumulation <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Gingivitis (swollen/bleeding gums) <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Teeth present <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p> Healthy teeth <input type="checkbox"/> Yes <input type="checkbox"/> No</p>												
ASSESSMENT/PLAN														
<p>Caries Risk: <input type="checkbox"/> Low <input type="checkbox"/> High</p> <p>Completed: <input type="checkbox"/> Anticipatory Guidance <input type="checkbox"/> Fluoride Varnish <input type="checkbox"/> Dental Referral</p>	<p>Self Management Goals:</p> <table border="0"> <tr> <td><input type="checkbox"/> Regular dental visits</td> <td><input type="checkbox"/> Wean off bottle</td> <td><input type="checkbox"/> Healthy snacks</td> </tr> <tr> <td><input type="checkbox"/> Dental treatment for parents</td> <td><input type="checkbox"/> Less/No juice</td> <td><input type="checkbox"/> Less/No junk food or candy</td> </tr> <tr> <td><input type="checkbox"/> Brush twice daily</td> <td><input type="checkbox"/> Only water in sippy cup</td> <td><input type="checkbox"/> No soda</td> </tr> <tr> <td><input type="checkbox"/> Use fluoride toothpaste</td> <td><input type="checkbox"/> Drink tap water</td> <td><input type="checkbox"/> Xylitol</td> </tr> </table>		<input type="checkbox"/> Regular dental visits	<input type="checkbox"/> Wean off bottle	<input type="checkbox"/> Healthy snacks	<input type="checkbox"/> Dental treatment for parents	<input type="checkbox"/> Less/No juice	<input type="checkbox"/> Less/No junk food or candy	<input type="checkbox"/> Brush twice daily	<input type="checkbox"/> Only water in sippy cup	<input type="checkbox"/> No soda	<input type="checkbox"/> Use fluoride toothpaste	<input type="checkbox"/> Drink tap water	<input type="checkbox"/> Xylitol
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Treatment of High Risk Children

If appropriate, high-risk children should receive professionally applied fluoride varnish and have their teeth brushed twice daily with an age-appropriate amount of fluoridated toothpaste. Referral to a pediatric dentist or a dentist comfortable caring for children should be made with follow-up to ensure that the child is being cared for in the dental home.

Adapted from Ramos-Gomez FJ, Crystal YO, Ng MW, Crall JJ, Featherstone JD. Pediatric dental care: prevention and management protocols based on caries risk assessment. *J Calif Dent Assoc.* 2010;38(10):746-761; American Academy of Pediatrics Section on Pediatric Dentistry and Oral Health. Preventive oral health intervention for pediatricians. *Pediatrics.* 2003; 122(6):1387-1394; and American Academy of Pediatrics Section of Pediatric Dentistry. Oral health risk assessment timing and establishment of the dental home. *Pediatrics.* 2003;111(5):1113-1116.
The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate. Copyright © 2011 American Academy of Pediatrics. All Rights Reserved. The American Academy of Pediatrics does not review or endorse any modifications made to this document and in no event shall the AAP be liable for any such changes.

American Academy of Pediatrics
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National Interprofessional Initiative
on Oral Health engaging clinicians
eradicating dental disease



Oral Health Risk Assessment Tool Guidance

Timing of Risk Assessment

The Bright Futures/AAP "Recommendations for Preventive Pediatric Health Care," (ie, Periodicity Schedule) recommends all children receive a risk assessment at the 6- and 9-month visits. For the 12-, 18-, 24-, 30-month, and the 3- and 6-year visits, risk assessment should continue if a dental home has not been established. View the Bright Futures/AAP Periodicity Schedule—http://brightfutures.aap.org/clinical_practice.html.

Risk Factors



Maternal Oral Health

Studies have shown that children with mothers or primary caregivers who have had active decay in the past 12 months are at greater risk to develop caries. **This child is high risk.**

Maternal Access to Dental Care

Studies have shown that children with mothers or primary caregivers who do not have a regular source of dental care are at a greater risk to develop caries. A follow-up question may be if the child has a dentist.

Continual Bottle/Sippy Cup Use

Children who drink juice, soda, and other liquids that are not water, from a bottle or sippy cup continually throughout the day or at night are at an increased risk of caries. The frequent intake of sugar does not allow for the acid it produces to be neutralized or washed away by saliva. Parents of children with this risk factor need to be counseled on how to reduce the frequency of sugar-containing beverages in the child's diet.

Frequent Snacking

Children who snack frequently are at an increased risk of caries. The frequent intake of sugar/refined carbohydrates does not allow for the acid it produces to be neutralized or washed away by saliva. Parents of children with this risk factor need to be counseled on how to reduce frequent snacking and choose healthy snacks such as cheese, vegetables, and fruit.

Special Health Care Needs

Children with special health care needs are at an increased risk for caries due to their diet, xerostomia (dryness of the mouth, sometimes due to asthma or allergy medication use), difficulty performing oral hygiene, seizures, gastroesophageal reflux disease and vomiting, attention deficit hyperactivity disorder, and gingival hyperplasia or overcrowding of teeth. Premature babies also may experience enamel hypoplasia.

Protective Factors

Dental Home

According to the American Academy of Pediatric Dentistry (AAPD), the dental home is oral health care for the child that is delivered in a comprehensive, continuously accessible, coordinated and family-centered way by a licensed dentist. The AAP and the AAPD recommend that a dental home be established by age 1. Communication between the dental and medical homes should be ongoing to appropriately coordinate care for the child. If a dental home is not available, the primary care clinician should continue to do oral health risk assessment at every well-child visit.

Fluoridated Water/Supplements

Drinking fluoridated water provides a child with systemic and topical fluoride exposure, a proven caries reduction intervention. Fluoride supplements may be prescribed by the primary care clinician or dentist if needed. View fluoride resources on the Oral Health Practice Tools Web Page <http://aap.org/oralhealth/PracticeTools.html>.

Fluoride Varnish in the Last 6 Months

Applying fluoride varnish provides a child with highly concentrated fluoride to protect against caries. Fluoride varnish may be professionally applied and is now recommended by the United States Preventive Services Task Force as a preventive service in the primary care setting for all children through age 5 <http://www.uspreventiveservicestaskforce.org/Page/Topic/recommendation-summary/dental-caries-in-children-from-birth-through-age-5-years-screening>. For online fluoride varnish training, access the Caries Risk Assessment, Fluoride Varnish, and Counseling Module in the Smiles for Life National Oral Health Curriculum, www.smilesforlifeoralhealth.org.

Tooth Brushing and Oral Hygiene

Primary care clinicians can reinforce good oral hygiene by teaching parents and children simple practices. Infants should have their mouths cleaned after feedings with a wet soft washcloth. Once teeth erupt it is recommended that children have their teeth brushed twice a day. For children under the age of 3 (until 3rd birthday) it is appropriate to recommend brushing with a smear (grain of rice amount) of fluoridated toothpaste twice per day. Children 3 years of age and older should use a pea-sized amount of fluoridated toothpaste twice a day. View the AAP Clinical Report on the use of fluoride in the primary care setting for more information <http://pediatrics.aappublications.org/content/early/2014/08/19/peds.2014-1699>.



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Appendix C – AAP Oral Health Self Management Goals

Oral Health Self Management Goals for Parents/Caregivers

Patient Name _____ DOB _____

 Regular dental visits for child	 Dental treatment for family	 Brush twice a day	 Brush with fluoride toothpaste
 Wean off bottle (no bottles for sleeping)	 Less or no juice	 Only water in sippy cups	 Drink tap water
 Healthy snacks	 Less or no junk food and candy	 No soda	 Use xylitol gum, spray, gel, or dissolving tablets
Important: The last thing that touches your child's teeth before bedtime is the toothbrush.			

Self Management Goals: 1) _____

2) _____

3) _____

On a scale of 1-10, how confident are you that you can accomplish these goals? 1 2 3 4 5 6 7 8 9 10

Parent/Caregiver Signature: _____

Practitioner Signature: _____

Adapted from Ramos-Gomez F, Ng MW. Into the future: keeping healthy teeth caries free: pediatric CAMBRA protocols. *J Calif Dent Assoc.* 2011 Oct;39(10):723-33. Visit www.aap.org/oralhealth for more information on children's oral health.

American Academy of Pediatrics



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Bright Futures.
prevention and health promotion for infants, children, adolescents, and their families™

National *interprofessional initiative* on Oral Health

*engaging clinicians
and the dental office*

Appendix D – Pediatric Dental Health Screening Guide



Paediatric Dental Health Screening Guide

STEP 1. LIFT -THE-LIP AND CHECK THE TEETH FOR EARLY CHILDHOOD TOOTH DECAY FOR ALL PATIENTS 5 YEARS OF AGE AND YOUNGER

Healthy Teeth



Shiny, white enamel

Tooth Decay - Reversible Damage



Chalky-white spots that will not brush off

Tooth Decay - Irreversible Damage



Brown or yellow spots that will not brush off, brown or black teeth, visible holes or broken teeth

STEP 2. NOTIFY PARENT/CAREGIVER OF ACTION REQUIRED

See a dentist by the child's first birthday or within 6 months

See a dentist within 2-4 weeks

See a dentist immediately

STEP 3. PROVIDE PARENT/CAREGIVER WITH A DENTAL REFERRAL FORM AND AN ORAL HEALTH EDUCATION RESOURCE

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Dental Services

Doctor's Office Stamp:

Date: _____

Child's Name: _____

Child's Age: _____

Reason for Referral:

- First dental visit - by 1st birthday
- Check-up (see a dentist within 6 months)
- Suspected cavity or cavities (see a dentist as per dental screening guide)
- Pain (see a dentist immediately)
- Swelling or abscess (see a dentist immediately)
- Bleeding or swollen gums (see a dentist immediately)
- Other

Comments:

Notes for parents/caregivers:

- Start improving your child's oral hygiene and feeding practices as advised by your primary care provider.
- Your child may be eligible to receive free dental care through public programs. Please contact your local public health unit to find out about dental public health programs in your area.



Oral Health Education for Parents/Caregivers

Oral Health Education for Parents/Caregivers			
Oral Hygiene:			
<p>Children 0 - 6 months of age:</p> <ul style="list-style-type: none"> Wipe baby's gums with a clean, damp cloth after feeding; When baby teeth start to appear, clean them with a small, soft toothbrush moistened in water. The most important time to brush is before bedtime. 	<p>Children 6 months - 3 years of age:</p> <ul style="list-style-type: none"> Brush baby's teeth only with water; Use very little fluoride toothpaste; (grain of rice amount), if the dentist recommends it; The most important time to brush is before bedtime. 		
<p>Children 3 - 6 years of age:</p> <ul style="list-style-type: none"> Supervise/assist the child during brushing; Use a pea-sized amount of fluoride toothpaste, if the child can spit it out. If not, use just water; The most important time to brush is before bedtime. 			
Nutrition Matters:	<ul style="list-style-type: none"> Breastfeeding is the best way to feed your child. Exclusive breastfeeding is recommended for the first 6 months of life and should be continued for 2 years or more; Avoid prolonged and/or frequent feedings during the night after the teeth appear in the mouth; If you decide to use a pacifier, it should not be dipped in anything sweet (e.g., sugar, honey, syrup, jam, etc.); Put only water in the bottle at naptime or bedtime, if necessary; Sippy or open cups and bottles between meals should contain just water; Do not give your child foods or drinks containing sugar often (e.g., candy, juice); Choose healthy, non-sugary snacks (e.g., cheese, milk, yogurt, hard-boiled eggs, nut butters, raw or cooked vegetables and fruit, whole grain crackers and bread, or unsweetened cereals). 		
Remember:		<ul style="list-style-type: none"> Lift-the-Lip once a month to see if the child has tooth decay. Things to look for: <ul style="list-style-type: none"> → Chalky-white spots at the gum line that will not brush off. Visit a dentist within 2-4 weeks. → Brown/yellow spots that will not brush off and/or visible holes/broken teeth. Visit a dentist immediately. 	
		<ul style="list-style-type: none"> Your child's first dental visit should be by their first birthday or 6 months after the first tooth appears. <ul style="list-style-type: none"> → The dentist will let you know the date of the next dental visit. 	

Appendix E – Directors’ Survey

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Directors

Primary Health Care Professional’s Knowledge, Attitude, and Practices Towards Early Childhood Caries and Infants Oral Care

You are invited to take part in a research survey about the status of oral health curriculum in your residency training program, your experience with oral health issues, as well as potential interest in providing oral health-related modules in family medicine residencies. This research will help identify potential barriers faced by family physicians for carrying out oral health care and referring infants. Your participation will require approximately 10-15 minutes and is completed at your computer or mobile device. There are no known risks associated with this survey. Taking part in this survey is completely voluntary. Your responses will be kept strictly confidential, and digital data will be stored in a password protected and encrypted computer, no personal identifiers will be collected. Any report of this research that is made available to the public will not include your name or any other individual information by which you could be identified. You have the right to withdraw from completing the survey or choose not to answer any question. Once the survey has been submitted participants will not be able to withdraw from the study. If you have any questions or comments, please contact Dr. AlWaleed Abushanan through email at: AlWaleed@alumni.ubc.ca

Please fill out the survey as completely as possible. For questions requiring percentages or approximate numbers please provide your best estimate.

Multiple reminders will be sent out if no response is received within 2 weeks since the initial email invitation, if no response is received within 2 months you will be contacted by phone. If you do NOT wish to receive a phone call, email us and we will not attempt further communication you.

If you have any concerns about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Thank you for your help. We appreciate your contribution.

-
- 1) Approximately how many total hours of didactic training do your residents receive on oral health-related topics during their entire family medicine training?
- None
 1-3 hours
 >3 hours

Which of the following topics are included in your residency curriculum?

- | | Included | Not Included |
|---|-----------------------|-----------------------|
| 2) Clinical oral health screening | <input type="radio"/> | <input type="radio"/> |
| 3) Dental disease prevention and early intervention | <input type="radio"/> | <input type="radio"/> |
| 4) Early childhood caries | <input type="radio"/> | <input type="radio"/> |
| 5) Dietary practices | <input type="radio"/> | <input type="radio"/> |
| 6) The interaction between Oral and General Health | <input type="radio"/> | <input type="radio"/> |
| 7) | | |

- Pregnancy and Oral Health
- 8) Fluoride Varnish

Among these features which ones are formally taught in your residency program during the well-child visits:

	Only didactically	Only in clinical sessions	Both didactically and clinically	Not Taught
9) Visually examine the oral cavity of the child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10) Visually examine the teeth of the child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11) Inquire whether a child is taking a bottle to bed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12) Counsel parents/ caregivers regarding teething and dental care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13) Assess the child's risk for developing tooth decay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14) Discuss the use of fluoride toothpaste with parents and/or caregivers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15) Prescribe fluoride supplements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16) Apply topical fluoride products such as varnishes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17) Refer to a dentist in the area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

18) What do you perceive as a barrier to you teaching the above-mentioned activities?

19) What method of evaluation do you use for your residents' oral health knowledge (Circle all that apply)?

- None
- In-training examinations
- Clinical evaluations
- Medical records audits
- Oral examinations/case presentations

Appendix F – Residents’ Survey

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Residents

Primary Health Care Professional’s Knowledge, Attitude, and Practices Towards Early Childhood Caries and Infants Oral Care

You are invited to take part in a research survey about your knowledge of oral health and/or experience with providing any type of oral health services to young children during your family medicine training. This research will help identify potential barriers faced by family physicians for carrying out oral health care and referring infants. Your participation will require approximately 10 minutes and is completed at your computer or mobile device. There are no known risks associated with this survey. Taking part in this survey is completely voluntary. Your responses will be kept strictly confidential, and digital data will be stored in a password protected and encrypted computer, no personal identifiers will be collected. Any report of this research that is made available to the public will not include your name or any other individual information by which you could be identified. You have to the right to withdraw from completing the survey or choose not to answer any question. Once the survey has been submitted participants will not be able to withdraw from the study. If you have any questions or comments, please contact Dr. AlWaleed Abushanan through email at: AlWaleed@alumni.ubc.ca

Please fill out the survey as completely as possible. For questions requiring percentages or approximate numbers please provide your best estimate.

Multiple reminders will be sent out if no response is received within 2 weeks since the initial email invitation.

If you have any concerns about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Thank you for your help. We appreciate your contribution.

-
- 1) Do you use the Rourke Baby Record when assessing children during their periodic well-baby visits? Yes
 No
-
- 2) On average, how many children 3 years or younger per week do you see during your clinical rotations? None
 Seldom (1-5 children/ week)
 Frequently (> 5 children/ week)

For children 1-3 years of age, do you

	Never	Seldom	Frequently	Always
3) Visually examine the teeth of the child	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Counsel parents/ caregivers regarding teething and dental care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5) Assess the child's risk for developing tooth decay	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6)				

- Advise parents/ caregivers on teeth cleaning methods
- 7) Discuss the use of fluoride toothpaste with parents and/or caregivers
- 8) Refer to a dentist in the area
-
- 9) In your clinical rotation, how often do you identify children under the age of 3 years with tooth decay? Never
 Seldom (1-5 times/ week)
 Frequently (>5 times/ week)
-
- 10) At what age do you recommend bottle weaning? Do not recommend bottle weaning
 12 months or less
 over 12 months but less than 24 months
 24 months or above
-
- 11) When you identify a child with tooth decay, what steps do you normally take? (Select all that apply)
- Never seen a child with tooth decay
 - Do not take any particular steps
 - Make a note on the medical chart
 - Suggest/ prescribe fluoride treatment
 - Advise the parent/ caregiver to take the child to a dentist
 - Make a formal referral to a dentist

Please indicate your level of agreement/disagreement with the following statements:

- | | Strongly Disagree | Disagree | Neither agree or disagree | Agree | Strongly Agree |
|--|-----------------------|-----------------------|---------------------------|-----------------------|-----------------------|
| 12) Fluoride toothpaste should be used for children under the age of 3. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13) Baby teeth are important even though they fall out. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 14) I feel my training is adequate for me to identify dental caries in children. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 15) Physicians have an important role in promoting oral health among infants and toddlers. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
-
- 16) What do you perceive as a barrier to carrying out the above-mentioned activities?
-
- 17) Rate the quality of the training you received in oral health-related subjects during residency program.
- Did not receive any training in oral health-related subjects
 - Poor
 - Fair
 - Good
 - Excellent
-
- 18) Gender Male Female

-
- 19) Age _____
-
- 20) What year of residency training are you in? PGY1 PGY2 Other
-
- 21) In which province are you currently doing your residency training? _____
-
- 22) Do you believe you require more information/resources on identifying dental conditions and preventing dental disease in children? Yes No
-
- 23) Are there any specific oral health topics that you would like to know more about?
- Identification of early signs of ECC (Early childhood caries)
 - Home prevention of dental caries among infants and toddlers
 - Dental caries management in children
 - Effects of water fluoridation
 - Topical fluorides and fluoride supplements
 - Tooth eruption

Appendix G – Email Script



Primary Health Care Professional’s Knowledge, Attitude, and Practices Towards Early Childhood Caries and infant Oral Care

Dear Family Medicine Director/ Residents:

My name is AlWaleed Abushanan and I am a third-year pediatric dentistry resident at the University of British Columbia, BC. As part of my postgraduate training, I am conducting an MSc research project about your knowledge of oral health and/or experience with providing any type of oral health services to young children during your family medicine training.

I would sincerely appreciate your time and participation in this research project by completing the included survey. This study has been approved by the UBC Research Ethics Board BREB #: H17-00453 and the University of Alberta Research Ethics Board REB#Pro00085423..

Completion of this survey is voluntary and will take less than 10 minutes of your time. You may choose not to participate. There is no compensation for completion, and no anticipated risks for participation. The results from the survey will help identify potential barriers faced by family physicians for carrying out oral health care and referring infants to pediatric dentists. Completion of the survey will indicate your consent to participate in this research. All responses are anonymous, and the results will be gathered in a cumulative manner for research purposes only.

I understand that you are inundated with surveys and sincerely appreciate your cooperation. Should you have any questions, please do not hesitate to contact me at: alwaleed@alumni.ubc.ca

If you have any further questions, you can contact the primary investigator, Dr. Mario Brondani at: brondani@dentistry.ubc.ca

Thank you.

Sincerely,
AlWaleed Abushanan, BDS
Pediatric Dental Resident
BC Children’s Hospital
University of British Columbia