Friday September 22, 2017
9:15-10:15 AM
Scientific Session (Epic Room)
Dr. Herenia Lawrence
Dr. Alia El Mowafy
Dr. Robert Schroth
Dr. Michael Jamie Moeller

Friday September 22, 2017
11:30 AM - 12:10 PM
Dr. James Leake Student Bursary Abstracts (Epic Room)
Ms. Kamini Kaura
Ms. Elizabeth Chisholm

Saturday September 23, 2017
9:00-10:20 AM
Scientific Sessions (Epic Room)
Ms. Kelli Stein
Dr. Noha Gomaa
Dr. Rachel Martin
Dr. Sonica Singhal
Dr. Kudirat Jimoh

Saturday September 23, 2017
10:40AM - 12:00PM
Scientific Sessions (Epic Room)
Ms. Katrina Fundytus
Dr. Arwa Gazzaz
Dr. Richa Shrivastava
Dr. Lindsay McLaren
Dr. Michael Jamie Moeller

Saturday September 23, 2017
1:00-2:00 PM
Scientific Sessions (Epic Room)
Ms. Leslie Park
Dr. Robert Schroth
Ms. Paula Benbow
Dr. Cynthia Weijs
Effectiveness of a multi-pronged intervention for the prevention of early childhood caries (ECC) among Canadian Aboriginal children

Lawrence HP¹, Schroth RJ², Peressini S¹, Maar M³, Cidro J⁴, Gordon J⁵, Brar R⁶, Broughton JR⁷, Jamieson L⁸, and the Baby Teeth Talk Study Team
¹ Faculty of Dentistry, University of Toronto ² College of Dentistry and Pediatrics and Child Health, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba ³ Northern Ontario School of Medicine ⁴ University of Winnipeg ⁵ Sioux Lookout First Nations Health Authority ⁶ Norway House Cree Nation ⁷ Dunedin School of Medicine, University of Otago ⁸ Adelaide Dental School, University of Adelaide

Objective: To test a combination of evidence-based ECC preventive and behavioural interventions among Aboriginal mothers and their children in Ontario and Manitoba, hypothesizing a reduction in ECC.

Methods: At baseline, 544 pregnant First Nations (93%) and Métis (7%) women were recruited for the Baby Teeth Talk Study, a community-based randomized controlled trial. The intervention included: (1) dental care for pregnant mothers, (2) oral health Anticipatory Guidance, delivered by trained community-based researchers using (3) Motivational Interviewing, and (4) fluoride varnish for their children at ages 6, 12 and 18 months. Caries incidence was assessed by the mean number of primary teeth/surfaces with cavitated and non-cavitated enamel/dentin lesions or filled (d1-3ft and d1-3fs) per child aged two years. Effectiveness was measured by the difference in least squares means between the intervention and control groups and by computing the preventive fraction (PF).

Results: At age 2 years, 344 mother-child dyads were assessed (178 intervention and 166 control). Mean d1-3ft was 8.9 (95% CI 8.1 to 9.6) for those on reserves (n=229) and prevalence was 86.5%. For those in cities/towns (n=115) mean d1-3ft was 3.1 (95% CI 2.3 to 3.8) at 58.3% prevalence. On reserves, mean d1-3ft was 7.9 (95% CI 6.9 to 9.0) for the intervention group and 9.9 (95% CI 8.7 to 11.0) for the controls; difference was statistically significant (p=0.014) and PF was 20%. PF was highest for the mean number of non-cavitated carious surfaces at 49% (p<0.001) for those on-reserve. The intervention also reduced referral rates for non-urgent care by 53% on-reserve (OR=0.47; 95% CI 0.23 to 0.95; p=0.036).

Conclusion: Significant caries reduction at age two was noted in First Nations children residing on reserve within the intervention group. The findings support scaling-up the multi-component intervention to increase the benefit for these Canadian First Nations children.
Mortality and morbidity in office-based deep sedation and general anaesthesia for dentistry in Ontario

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Faculty of Dentistry, University of Toronto

Objectives: To establish the prevalence of mortality and serious morbidity for office-based DS/GA for dentistry in Ontario since 1996.

Methods: Data will be collected retrospectively from two sources: 1) review of cases; and 2) survey of DS/GA providers. Case review will include all serious injury or death involving DS/GA, sourced from the Office of the Chief Coroner of Ontario and from the Royal College of Dental Surgeons of Ontario (RCDO) Inquiries, Complaints, and Reports Committee, Discipline Committee, and Professional Liability Program. The survey of providers will include all RCDO registered providers of DS/GA. Clinicians will report the number of DS/GA administered in 2015 and the number of years in practice since 1996, which was the year of the last such survey of mortality. For each clinician, the number of DS/GA will be multiplied by number of practice years to estimate their total number administered from 1996-2015. Clinician data will be pooled to establish an overall number of DS/GA administered in dental offices in Ontario from 1996-2015. Prevalence will be determined by dividing the numerator (cases of serious morbidity or mortality) by the denominator (number of DS/GA administered).

Results: The prevalence of mortality in the 20-year period from 1996-2015 was 4 deaths in 3,742,068 cases. This adjusts to a mortality rate of 1.07 deaths in 1 million cases. The prevalence of serious morbidity was 1 case in 3,742,068 cases which adjusts to a serious morbidity rate of 0.25 in 1 million cases.

Conclusion: The mortality rate found in this study was slightly lower than those published by earlier studies conducted in Ontario. The risk of serious morbidity was found to be low and similar to other studies examining morbidity in office-based dental anaesthesia.
Can early childhood and prenatal factors predict whether children undergo pediatric dental surgery to treat severe early childhood caries?

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\textsuperscript{1}University of Manitoba \textsuperscript{2}Children’s Hospital Research Institute of Manitoba \textsuperscript{3}Winnipeg Regional Health Authority \textsuperscript{4}Manitoba Centre for Health Policy \textsuperscript{5}Manitoba Health

Objectives: To identify prenatal, maternal, and early childhood factors associated with pediatric dental surgery to treat S-ECC in Manitoba.

Methods: A case-control study using administrative healthcare data considered whether factors captured by population-level health and social registries contained in the Manitoba Centre for Health Policy data Repository were associated with surgery under general anaesthesia (GA). Cases were children < 72 months of age, who underwent a GA for caries (from ICD-10 coding or GA tariff) between 2005/06 and 2010/11. Controls were randomly chosen from the general population. Prenatal and birth characteristics (prenatal benefit, size for gestational age, five-minute Apgar, breastfeeding initiation, maternal age), child characteristics (surgery year, sex, age), maternal and family characteristics (completed high school, income assistance, area-level income, urbanicity, health region, isolation and smoking), and use of health services (physician and hospital visits) were considered. Adjusted odds ratios (OR) and 95% confidence intervals were calculated.

Results: 16,015 children (mean age 44.6±12.7 months) underwent GA. Females had lower OR (0.96), while increasing age had higher OR (1.02). Large-for-gestational-age was associated with increased OR (1.24) while initiating breastfeeding before discharge and 5 minute Apgar score of 0-7 had lower OR (0.44 and 0.88, respectively). Young maternal age at birth was associated with increased odds, while mothers ≥30 years of age had lower odds of having a child undergo GA (0.86). Children in lower income quintiles had higher odds of a GA as were those whose mothers were on income assistance (1.63), while urban dwellers had lower odds (0.47). Children who visited their physician more had decreased odds (1.0). All were statistically significant.

Conclusion: Understanding which risk factors are associated with dental surgery for S-ECC is important and may give clues about promising prenatal and early childhood interventions that may help to set children on the best possible oral health trajectory.
Tooth pain: Implications for Canada's opioid crisis

Moeller J, Farmer J, Quiñonez C
Faculty of Dentistry, University of Toronto

Objective: The use of prescription opioids has increased dramatically in Canada in recent decades, accompanied by increasing rates of opioid-related abuse and addiction. This has created serious public health challenges throughout Canada, including in British Columbia. This study attempts to identify which socioeconomic and oral health-related factors are associated with opioid analgesic use in the presence of tooth pain, and to quantify the magnitude of socioeconomic factors as a source of inequalities among those who use different types of analgesic medications to relieve tooth pain.

Methods: This analysis used data from the 2003 Canadian Community Health Survey (CCHS), which asked respondents about their use of specific analgesic medications, including opioids, and their history of tooth pain in the past month. We used logistic regression to identify the predictive value of socioeconomic, dental care utilization, and oral health-related indicators. The Relative Index of Inequality (RII) was calculated by using income-derived ridit values into a binary logistic regression model.

Results: Conventional analgesics (such as aspirin or Tylenol) and opioids were more likely to be used by those who had experienced a toothache in the past month than those who did not experience a toothache. The use of non-opioid painkillers to relieve tooth pain was associated with more recent and more frequent dental visits, better self-reported oral health, and a greater income. A lower household income was associated with opioid use to relieve tooth pain. The RII for recent opioid use and conventional painkiller use were 2.06 (95% CI: 1.75–2.37) and 0.62 (95% CI: 0.35–0.91), respectively, among those who experienced recent tooth pain.

Conclusion: Adverse socioeconomic conditions may influence the use of and need for opioid analgesics to relieve dental pain. Programs and policies targeted at improving the dental health of the poor may help to reduce the use of prescription opioids, thereby narrowing health inequalities within the broader society.
Contributions of structure and agency to the oral systemic link in an Ontario population: a cross-sectional analysis

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Objectives: To determine the extent to which structure and agency attenuate the relationship between oral disease and chronic disease.

Methods: A cross-sectional, secondary data analysis was undertaken on an Ontario sample (n=23,701) from the Canadian Community Health Survey 2013/2014. A series of logistic regression models were constructed to examine the odds of chronic disease outcomes, including arthritis, cancer, diabetes, hypertension, heart disease, chronic obstructive pulmonary disorder (COPD), and stroke, among those who reported poor oral health. Using an adaptation of Cockerham’s Health Lifestyle Theory, logistic regression models were adjusted sequentially for structural (income, education, job status, ethnicity, country of birth) and agency (life stress, food security, and oral health behaviours) related variables. A percentage reduction in odds ratios (OR) was used to calculate the attenuation between poor oral health and chronic disease after adjusting for structure and agency. Separate analyses were conducted for individuals 35-59 years old and 60 years or older.

Results: For 35-59 year olds, associations between poor oral health and chronic disease were greatest for stroke (OR=8.23) and heart disease (4.00). These associations were less for individuals 60 years or older, with the greatest association found for COPD (2.75) and heart disease (2.65). For all associations between oral disease and chronic disease outcomes, structural variables explained one to 48 percent of the association between oral disease and chronic disease outcomes in 35-59 year olds, and 21 to 55 percent of the association was further explained by agency variables. The percent attenuation for individuals 60 years and older was 20 to 55 percent for structural variables, and 15 to 65 percent for agency variables.

Conclusion: Poor self-reported oral health is associated with chronic diseases and this link can be explained by structure and agency related variables.
Gender differences in dental visiting behaviours in an Ontario population: The role of economic, human, and social capital

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Faculty of Dentistry, University of Toronto

Objectives: To assess the contributions of economic, human, and social capital on gender differences in dental visiting behaviours in an Ontario population.

Methods: A sample of Ontario adults aged 25-74 years (n=21,378) from the 2013-2014 Canadian Community Health Survey was used to examine gender differences in visiting the dentist in the past 12 months and visiting the dentist only for emergencies. Bivariate proportions and odds ratios were produced to determine the distribution and association between economic (income, insurance, food security, homeownership), human (years of education, employment, health status), and social (living arrangements, social participation, sense of belonging) capital variables and these outcomes for males and females. Fairlie non-linear decomposition methods using female, male, and pooled coefficients were performed to determine the contributions of economic, human, and social capital to the gender gap in dental visiting behaviours.

Results: Differences in dental visiting behaviours between males and females were greater for visiting the dentist in the past 12 months (males=73.1%; females=80.0%) compared to only visiting for emergencies (males=19.6%; females 13.8%). The association between economic and human capital variables on dental visiting behaviours were greater in females than in males, with no substantial difference in social capital variables. Overall, approximately 15.0 to 20.0% of the gender gap in dental visiting behaviours was explained by differences in the distribution of economic, human, and social capital variables between males and females; these contributions were statistically significant for most economic and human capital variables but only for some social capital variables.

Conclusion: Findings suggest that differences in economic and human capital contribute strongly to the explained portion of the gender gap in dental visiting behaviours.
The use and misuse of antibiotics in dentistry: a systematic review

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Objectives: The aim of this systematic review was to investigate the antibiotic prescription habits of dentists. We explored the type, dose, duration and frequency of antibiotics prescribed, the reason for their prescription and if they are in accordance with evidence-based guidelines as well as the changeability of these practices.

Methods: A systematic review of published literature was conducted by searching EMBASE, PubMed, Ovid MEDLINE, Scopus, and Google Scholar. Key search terms included: Dentist, Antibiotic, Antimicrobial, Antibacterial, Prophylaxis, Prescription, Pattern, Habits, Knowledge, and Practice. Studies were qualitatively assessed using a modified version of the Center for Evidence-Based Medicine’s (CEBM) checklist for the critical appraisal of surveys.

Results: We identified 1,496 studies but only 99 studies were considered eligible for review. The majority of studies were cross-sectional surveys and prescription audits from various geographic jurisdictions. Most studies did not assess statistical significance. On balance, the literature suggests that dentists are over-prescribing both prophylactic and therapeutic antibiotics. Possible reasons for this include: the increased use of antibiotic prophylaxis with surgical dental procedures, slow adoption of new guidelines, external pressures, a lack of knowledge, and clinical barriers in the dental office.

Conclusion: Public health and professionally-driven initiatives should be implemented to improve the antibiotic prescription practices of dentists in order to limit the overuse of antibiotics in dentistry.
The biopsychosocial pathway to oral health: Understanding the synergistic roles of income, stress and immunity

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Objectives: To assess the extent of association between socioeconomic position (SEP) and oral innate immune function in periodontal disease (PD), and whether self-reported stress and neuroendocrine stress biomarkers explained this relationship.

Methods: Utilizing a convenience sample (n=85), participants undergo a full-mouth periodontal examination to measure pocket depths, loss of attachment and bleeding on probing on six sites per tooth. SEP is operationalized as the highest household income and level of education. Stress is assessed psychometrically using validated questionnaires (perceived and financial stress). Immunoassays are used to measure cortisol (a neuroendocrine stress biomarker) in hair samples. Oral rinse samples are collected to assess oral neutrophil counts (oral inflammatory load) and function using a panel of cluster of differentiation (CD) markers, followed by multi-colour flow-cytometry analysis. Univariate and multiple regression statistical analysis are applied to assess the associations of interest.

Results: Income and education are significantly and inversely associated with PD and the pro-inflammatory neutrophil markers CD66, CD63 and CD11b, indicating hyperactive neutrophils that are conducive to periodontal tissue breakdown. Individuals above the income threshold (≥ $20,000) show 3.5 times reduction in oral inflammatory load (95% CI -4.8 to -2.2). Hair cortisol and financial stress attenuated the associations between levels of hyperactive neutrophils and SEP, indicating the role of stress in this relationship.

Conclusion: Socioeconomic factors can become biologically embodied to impact oral immunity through stress, thus affecting the biological processes taking part in oral disease. Extending beyond traditional explanations, this work helps develop an understanding of how the social and living conditions impact periodontal health.
Where the mind meets the mouth – an integrated collaborative program from “down under”

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\textsuperscript{1} North Richmond Community Health Ltd \textsuperscript{2} Deakin University \textsuperscript{3} Dental Health Services Victoria, \textsuperscript{4} La Trobe Rural Health School, La Trobe University

Objectives: To present an innovative approach to primary oral health care focussed on patient centred care, workforce reorientation, health promotion and prevention and the integration of oral and general health.

Methods: North Richmond Community Health (NRCH), an inner urban community health service, in Victoria, Australia, through developing an innovative oral health program, has also developed a conference series Where the Mind Meets the Mouth WMMM (www.wheremindmeetsmouth.com.au) to inform the integration of oral health and general health. In 2015 the inaugural conference explored significant social determinants in oral and general health, such as substance use, mental illness and family violence. In 2016, the second conference, Putting the Mouth back into the Body, examined common risk factors for oral and general diseases, and working with other health professionals (eg. doctors, pharmacists, nurses).

Results: WMMM has raised awareness amongst health professionals of the impact of oral health on general health and vice versa. A national research network committed to integration of oral and general health has been established, and a model of diabetes management that includes oral health has been proposed for trial. Conversations about Care, 2018, places the consumer at the centre of informing integrated health care provision.

Conclusion: By responding to the community needs, encouraging dialogue and sharing between consumers, health professionals and carers, it is possible to find innovative, cost-effective ways of delivering primary preventive integrated oral health care.
Canadian dentists' antibiotic prophylaxis prescribing practices: findings from a national survey

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Objectives: To determine current antibiotic prophylaxis (AP) prescribing practices among Canadian dentists in regards to the prevention of infective endocarditis (IE) and prosthetic joint infection. And to assess the degree to which prescribing practices are in accordance with the American Heart Association (AHA) guidelines and Total Joint Replacement Consensus (TJRC) statement.

Methods: A cross-sectional web-based survey was conducted among a sample of Canadian dentists (approximately 6,300), who have granted consent to the Canadian Dental Association to be contacted for any survey purposes. A 26-item questionnaire was developed based on the key findings of a systematic review of prescribing practices among dentists internationally and input from experts in the field. STATA was used for data coding and analysis.

Results: Overall, 16.4% of dentists (n=1,035) participated in the web-based survey. A large proportion of dentists prescribe AP to prevent IE for invasive procedures such as tooth extraction (79.2%), periodontal surgery (77.8%), scaling and root planing (72.5%), and dental implant placement (71.4%) (as per the AHA guidelines); however, some also prescribe for non-invasive procedures such as class V restorations (16.1%), placing rubber dam (13.5%), or administering anesthetic injections through non-infected tissue (12.3%) (which is not recommended by the AHA guidelines). The majority prescribe AP before invasive dental procedures for patients with previous infective endocarditis (87.2%) or prosthetic heart valve (81.0%) (again as per the AHA guidelines); but some also prescribe for mitral valve prolapse (25.4%) (no longer recommended by the AHA guidelines). For patients with a total joint prosthesis, the majority of dentists (9.0% always and 57.0% sometimes) administer AP prior to invasive dental procedures (which is not recommended by TJRC statement).

Conclusion: Findings suggest that, in general, dentists do adhere to existing guidelines; however, more complete adherence to guidelines would substantially reduce the burden of dental antibiotic prescribing. Antibiotic stewardship campaigns in dentistry, in partnership with other organized health professional groups, could support health practitioners in reducing inappropriate antibiotic prescribing.
Pattern of opioid analgesic prescription for adults by dentists in Canada

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Objectives: Between 2009 and 2011, dentists in the USA prescribed 8 to 12% of opioid analgesics dispensed. The pattern of opioid analgesic prescription by dentists in Canada is unknown. The aim of this study was to examine the pattern of opioid analgesics prescription by dentists in Nova Scotia (NS), Canada as measured by dispensations from community pharmacies.

Methods: This study used the provincial prescription monitoring program’s record of oral opioid analgesics and combinations dispensed to persons 16 years and older at community pharmacies that were prescribed by dentists from January 2011 to December 2015.

Results: During the study period, more than 70% of licensed dentists wrote a prescription for dispensed opioid analgesics but this was less than 4% of all prescriptions for dispensed opioid analgesics in Nova Scotia. We found that dentists comprised about 17% of all opioid analgesics prescribers and they prescribed less than 0.5% of the total morphine milligram equivalent (MMEq) of opioid analgesics dispensed over the five years. There was a significant downward trend in total MMEq of dispensed opioid analgesics prescribed by dentists from about 2.2 million MMEq in 2011 to 1.9 million MMEq in 2015 (r = -0.97; p=0.006).

Conclusion: Opioid prescription is common among dentists in Nova Scotia, but their contribution to overall availability of opioid analgesics is low. Further, there has been a downward trend in total and mean MMEq of opioid analgesics prescribed by dentists. Future research may inform how guidelines on appropriate prescribing could impact dentists’ prescribing patterns.
Quantifying population exposure to community water fluoridation over historical time: harder than it looks?

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Objectives: Community water fluoridation (CWF) is one important component of a multifactorial approach to preventing dental caries. Recent instances of Canadian municipalities opting to discontinue the practice suggest that CWF is in decline. However, this is uncertain, because estimates of CWF exposure are usually based on incomplete lists of communities. Our objective was to ascertain whether, and the extent to which, CWF is declining in Alberta, by comprehensively quantifying population exposure to CWF over time, from 1950-2016.

Methods: We first compiled a partial list of Alberta communities and their CWF status from various sources. To round out this information, we acquired a list of all municipalities in Alberta, which we attempted to populate with denominators (population counts over time) and numerators (fluoridated or not), 1950-2016.

Results: Tracking CWF exposure in Alberta proved to be a labor-intensive and cumbersome process. The task demanded various information sources: Alberta Municipal Affairs; Alberta Environment; municipality websites; utility providers, water commissions, or water plant websites; Wikipedia; direct contact with communities; and input from provincial dental public health leaders. Key challenges were: (1) municipalities changed over time; (2) incomplete information about special communities (e.g., First Nations); and (3) data recording processes and format changed over time. Overall, since CWF spans various provincial ministries, our task involved compiling information from independent sources. Our findings about the fluctuation of CWF exposure in Alberta from 1950-2016, are pending.

Conclusion: Aside from its effects on tooth decay, CWF is a lynchpin for examining the long-term viability of a universal preventive policy in dental public health. To do that, however, it is necessary to have a comprehensive and accurate picture of population exposure over time. Our experience has implications for public health surveillance, and in particular elucidates the value of a central repository for readily available information on CWF exposure.
Socioeconomic status, social support and co-occurrence of health-compromising behaviours in adolescents

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Objectives: 1) To assess the co-occurrences of health-compromising behaviours (Co-HCBs) among a sample of Canadian adolescents; 2) to determine the variation in Co-HCBs by socioeconomic status (SES); and 3) to examine how social support influences the relationship between SES and Co-HCBs.

Methods: Data on 11, 13, and 15 years-old were obtained from the Health Behaviours in School-aged Children Survey, collected in the school year 2009-2010. Multiple Health-compromising behaviours were selected in the study, namely infrequent tooth brushing, high sweets and soft drink consumption, smoking, alcohol consumption, low fruit and vegetable consumption, physical inactivity, and screen time. Factor analysis was conducted to explore the co-occurrence of health-compromising behaviours. Hierarchical logistic regression models were used to assess the variation in Co-HCBs by SES crudely and adjusted for age, gender and social support (family and friends).

Results: The health-compromising behaviours clustered into four distinct clusters among the sample, the first cluster reflected ‘non-adherence to prevention’ (tooth brushing, fruit/vegetable consumption), the second cluster ‘sugar consumption’ (sweets/soft drink), the third cluster ‘risk taking’ (smoking/alcohol consumption) and the fourth cluster ‘sedentary lifestyle’ (physical inactivity/screen time). The prevalence of Co-HCBs, in descending order, was as follows: cluster four (98.6%), cluster one (59.2%), cluster three (32.2%) and cluster two (22.4%). There was a significant difference between low and high SES groups in clusters one and two after controlling for demographic and social support variables.

Conclusion: Four Co-HCBs were identified. SES associated with Co-HCBs only in the ‘non-adherence to prevention’ and the ‘sugar consumption’ clusters. Social support did not influence the link between SES and any of the Co-HCBs.
Worldwide university-based initiatives towards better access to oral health care for rural and remote population - A scoping review

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\textsuperscript{1} Université de Montréal \textsuperscript{2} McGill University

Objectives: The present scoping review maps the large body of literature to identify the global academic programs that have been developed to enhance the oral health care for rural and remote populations and to give an overview on their outcomes.

Methods: Arksey and O’Malley’s 5-stage scoping review framework has steered this review. We conducted a literature search with defined eligibility criteria through electronic databases, websites of academic, professional and rural and remote oral health care organization as well as grey literature spanning the time interval from late 1960’s to 2016. The charted data was summarized per geographic continents and reported by utilizing a narrative approach.

Results: A total of 74 citations (67 publications and 7 websites) were selected for the final review. The review identified 60 Universities taking initiatives towards improving the access to oral health care in rural and remote communities. These initiatives were classified into rural placement programs for dental students, training programs for non-dental health care providers, training of rural school teachers, rural outreach programs, e-oral health based programs, and philanthropic organization programs. The outcomes reported programs’ success in the form of positive perception, enhanced confidence and competence among dental students, improved chances of adoption of rural practices by students, improved oral health knowledge and self efficacy of non-dental health care providers, improved rural oral health services, fulfilled oral needs, and improved oral health of rural population, and cost effectiveness.

Conclusion: The results suggest that these innovative programs can act as a vehicle to address disparities in rural and remote oral health care and may serve as the springboard to other academic institutions that have not yet implemented such programs.
A history of dental public health in Alberta through the lens of the Alberta Public Health Association: a window into the role of the non-profit sector in public health

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Objectives: A hallmark of public health is the involvement of diverse sectors, including government, private sector, and civil society (i.e., non-governmental organizations and citizens). Our objective was to examine dental public health history in Alberta through the lens of one non-governmental organization, the Alberta Public Health Association (APHA). The APHA is a non-profit association representing public health in Alberta, which, since its 1943 foundation, has provided an independent voice for public health advocacy, served as a hub for public health workers, and engaged in collaboration. We aimed to shed light on the role of the non-governmental sector in public health, using dental public health as a focal topic.

Methods: This paper is situated within a larger project, titled Public health advocacy: lessons learned from the history of the Alberta Public Health Association, funded by the Alberta Historical Resources Foundation. Data sources include APHA archival materials (e.g., annual reports, conference programs, and resolutions), which we contextualized using published and grey literature.

Results: We describe this history using five overlapping periods corresponding to key emphases in dental public health in Alberta: 1940s-1959 (introduction and uptake of community water fluoridation), 1960-1969 (establishment of dental hygiene training), 1970-1999 (dental-related surveys and research), and 2000s-present (the “cessation era” of fluoridation). Although the prominence of dental public health amongst APHA’s activities ebbed and flowed, it maintained a strong presence through resolutions for advocacy, an active Dental Public Health section, and presentations at the annual conference.

Conclusion: As government infrastructure for public health declines, it becomes increasingly important to understand and leverage other sectors. Our findings suggest that, against a changing government landscape, provincial non-governmental public health associations offer one avenue for maintaining visibility of dental public health. Though promising, our findings must be tempered by financial, ideological, and socio-cultural challenges facing non-governmental associations contemporarily.
The relationship between oral health and income inequality in Canada

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Objectives: Societies exhibiting higher levels of economic inequality experience poorer health outcomes, and the proposed pathways used to explain these patterns are also relevant to oral health. This study therefore examines the relationship between the level of income inequality and the oral health and dental care services utilization of residents from eleven metropolitan areas in the Canadian provinces of Ontario and British Columbia.

Methods: Using data from the 2006 Canadian census and the 2003 Canadian Community Health Survey (CCHS), we calculated Pearson correlation coefficients (r) between each metropolitan area’s Gini coefficient (used as a proxy for income inequality), and each area’s experience of dental pain, self-reported oral health, and use of dental care services.

Results: Greater levels of income inequality in the selected metropolitan areas were related to an increased likelihood of residents self-reporting their oral health as poor or fair (r = 0.72, p = 0.008), and reporting not having visited a dentist within the past year (r = 0.68, p = 0.015), or for more than three years (r = 0.78, p = 0.003). There was, however, no statistically significant relationship between the level of income inequality and the likelihood respondents reported experiencing a toothache (r = 0.34, p = 0.280), tooth sensitivity (r = 0.11, p = 0.734), or jaw pain (r = 0.25, p = 0.433) in the past month.

Conclusion: We found a strong association between a metropolitan area’s level of income inequality and the likelihood that respondents from that metropolitan area self-report poorer oral health, or report having not visited a dentist for a prolonged period of time. Policies designed to improve the oral health of the population, and Canadians’ access to dental care generally, may therefore work best when supported by policies that promote greater economic equality within Canada.
Socioeconomic inequalities in children's oral health: the role of allostatic load

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Objectives: To assess the extent of association between socioeconomic position (SEP) and dental caries in children and whether allostatic load (a measure of cumulative stress) explains this relationship.

Methods: We used data from the 2003-2004 National Health and Nutrition Examination Survey (NHANES IV). Children were categorized into three age groups (3-7, 8-11 and 12-17 years). SEP was indicated by annual household income and poverty-to-income ratio. Allostatic load was measured as a cumulative sum of metabolic and immune biomarkers. The number of decayed, missing, and filled teeth (dmft, DMFT) was used to measure dental caries. Covariates included age, sex, race, dental and medical insurance and the number of dental visits per year. We constructed univariate and zero-inflated Poisson regression models to assess the relationships of interest.

Results: A significant inverse association was observed between SEP and allostatic load. Similar associations were observed between SEP and dmft, DMFT. Allostatic load showed an association with decayed and missing teeth, but an inverse association with filled teeth. Adjusting for allostatic load did not attenuate the observed associations between SEP and dental caries. However, adjusting for dental insurance and the number of dental visits fully attenuated these relationships.

Conclusion: Allostatic load may play a role as an indicator of psychosocial stress in children's oral health. However, behavioural and health system factors were shown to have a more significant explanatory role in this study.
Nutritional status of children with severe early childhood caries

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Objectives: Severe early childhood caries (S-ECC) has been reported to be associated with malnutrition including anemia, iron deficiency, iron deficiency anemia, and vitamin D deficiency. The purpose was to determine the nutritional status of children with S-ECC on the day of dental surgery under general anesthesia (GA).

Methods: Children with S-ECC were recruited into a larger prospective cohort study investigating changes in nutritional status and well-being following dental surgery under GA. After providing informed consent, parents and caregivers completed a baseline questionnaire on oral health, nutritional intake, and quality of life. Children underwent a venipuncture while under GA. Blood analysis markers included hemoglobin, ferritin, iron, total iron binding capacity (TIBC), and 25-hydroxyvitamin D (25(OH)D) levels. Statistical analysis included descriptive (frequencies and means ± Standard Deviation (SD)) and bivariate (t tests, Chi Square analysis) tests. A p value ≤ 0.05 was significant.

Results: 150 children were recruited. The mean age was 47.7±14.1 months and 52.0% were female. Mean hemoglobin, ferritin and iron levels were 107.5±9.2 g/L, 27.9±19.2 g/L, and 12.3±4.3 μmol/L, respectively. Overall, 53.2% had anemia, 33.8% had low ferritin, and 14.6% had low iron levels. A total of 30.1% were iron deficient and 20.4% had iron deficiency anemia (IDA). Females were significantly more likely to have anemia (63.2% vs. 36.8%, p=0.011), but there was no association with iron deficiency and IDA. Those receiving government assistance were not more likely to have anemia (p=0.055), iron deficiency (p=0.52), or IDA (p=0.52). The mean 25(OH)D level was 50.0±16.8 nmol/L (range 17-108, median 49). The majority (92.9%) had suboptimal 25(OH)D levels (< 75 nmol/L), 48.9% met the Institute of Medicine threshold for sufficiency (≥ 50 nmol/L), and 17.0% were deficient (< 35 nmol/L).

Conclusion: Nutritional problems are common among children with S-ECC. Primary care providers and dentists should be aware of these oral-systemic relationships.
Oral health in Canada: Filling the gap in care

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Canadian Dental Hygienists Association

Objectives: Oral health inequalities continue to persist in Canada; those with the greatest oral health needs have the greatest difficulty accessing care. With the closure of the dental therapy program in 2011, the oral health needs of underserved groups will only increase. The purpose of this research was to explore educational pathways for dental therapy abilities to support cost-effective opportunities to increase access to care.

Methods: A purposeful sampling was used to invite key informants (n=71) to participate in semi-structured interviews pertaining to dental therapy abilities, educational models, enabling and disabling factors, and general advice about the idea of a multi-skilled oral health provider including the mix of dental hygiene and dental therapy skills. The response rate was 74% (n=53). Interviews were largely conducted by telephone ranging from 40 to 90 minutes with an average of 50 minutes. Three commissioned researchers analyzed the data using grounded theory methodology.

Results: The framework included two strategies: 1) directing attention to the scope of dental hygiene practice to enhance access to care, and 2) offering possible educational models that incorporate the full scope of dental therapy abilities. Three entry-to-practice educational models were developed, two of which are directed to a provider with a combination of dental hygiene and therapy abilities, and the other directed to a provider with dental therapy abilities. A further aspect of the framework is directed to delivery strategies for Indigenous people and those living in remote areas.

Conclusion: A multi-skilled provider with both dental therapy and dental hygiene abilities could help shift from treatment to prevention and health promotion while also having competency to provide basic restorative and surgical services. However, other elements need to be in place for any educational model to be viable and require support of health professions, regulators, educators and governments.
Online parenting forums: drawing implications for caries prevention from parents’ perspectives of childhood decay and trust in dental expertise

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Objectives: Online parenting forums are an increasingly popular medium for peer-to-peer interaction and advice around health issues, including dental health. Within this contemporary communication landscape, we are interested in discussions parents have about early childhood caries (ECC), a serious and prevalent health problem in Canada that urgently needs improved prevention efforts. We aim to 1) explore and understand how mothers use various sources of information (experts, family, peers, online forums) vis-à-vis the topics of fluoride and ECC; and 2) explore and understand online mothers’ perspectives about trust in parenting forums relative to traditional trusted sources of expertise (i.e., dental professionals).

Methods: Participants will be recruited for focus groups through advertisements on appropriate online venues including Canadian parenting forums and Facebook parenting groups. Focus group discussion will center on how mothers use parenting forums, including their perceptions of trust and expertise, and what level of interaction might be appropriate for health professionals on such forums, to enhance prevention of ECC. Data will be inductively coded and thematic analysis performed, incorporating relevant theory.

Results: We expect to identify key insights and opportunities around this critical dental public health issue, to improve public health communication in the digital context. Findings will inform the role of public health and dental professionals in enhancing efforts at ECC prevention in the digital realm, across a broad audience.

Conclusion: Traditional public health approaches need to accommodate a changing communication landscape. Although a ‘digital gradient’ in online access and use persists, online forums provide one avenue to reach diverse audiences. This is important because 1) ECC prevention is enhanced when parents have easy and early access to relevant information; and 2) parenting forums are important sources of advice and support about children’s health, but notably, have an organic, ‘grass roots’ appeal that needs to be understood and respected.