

MDA Bulletin



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2016 Alumni of Distinction Awards Evening

Friday, September 23, 2016
Fort Garry Hotel | Cocktails 6:00pm | Dinner 7:00pm

Tribute to the Class of 1966

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Howard Cross, DMD/65 and Arna Shefrin, Dental Hygiene/70

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MDA Bulletin



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President's Message

DR. CARLA COHN, D.M.D.
PRESIDENT, MDA

The Manitoba Dental Association offices have been busy over the summer months. Allow me to update you with some of the summer activities and the plans for upcoming fall and winter.


We have welcomed a new group of Manitoba Dentists and Hygienists with the graduating classes of 2016. In June the Manitoba Dental Association hosted the annual graduation breakfast and we celebrated with the students of the College of Dentistry and School of Dental Hygiene and their families as they received their diplomas and awards. No sooner has one group of dentists and hygienists left the hallowed halls as another begins their journey. In August, the Manitoba Dental Association held a "Welcome to the Profession" dinner for the class of 2020! All of the students are filled with excitement anticipation and maybe a little trepidation. The Manitoba Dental Association wishes to support the journey from inception to convocation and beyond. One of the newer programs developed by the Manitoba Dental Association is the General Practice Study Club. The GPSC is now in its third year and has been developed with the new graduates needs in mind. Several programs have been planned for the upcoming year, beginning with a kick off event opening reception to be held at Inn at the Forks on September 29, 2016. The General Practice Study Club sessions will follow a format of presentation by a mentor dentist followed by open question and discussion by all. The general practice study club is open to dentists who have been in practice less than five years. We are always happy to welcome mentor dentists and if you have interest in this, no matter which dental age group you fall into, please contact us at the Manitoba Dental Association offices.

In September, University of Manitoba Dental Alumni Association hosts the annual Alumni of Distinction Awards Evening. This event sees the nomination of a Manitoba dentist by their peers and awarding of Alumnus of Distinction. This year, UMDAA and the dentists of Manitoba will be honouring Dr. Howard Cross. An evening of celebration, culinary excellence and collegiality awaits.

We are also looking forward to another fabulous event, Evening at the Met, to support the Manitoba Dental Foundation. An evening of entertainment and prizes has been planned for October 14, 2016. It is a fun, casual evening of paired wines and appetizers in the MET Centre lounge prepared by the chefs at the Met Event Centre with entertainment by Those Guys and pre-event music by Phill Corrin in the lounge. To get tickets go to www.eveningatthemet.ca.

On November 5, 2016 from 8 – 5, we will hold an Open wide Clinic at the University of Manitoba Dental Clinic, 780 Bannatyne. The day will see several dozen dental professionals volunteer to help newcomers and refugees by providing a day of free services to those in need. If you haven't already, please complete the volunteer form at <https://fs10.formsite.com/9a345q/form1/index.html> to volunteer. It truly is a wonderful experience to be able to give to others.

Finally, remember to book off your clinic days January 27 – 28, 2017 for the annual Manitoba Dental Association Convention. This year Dentistry and All that Jazz will prove to be the best clinical and entertainment lineup that we have ever seen. This year we have an outstanding line up of speakers, featuring key opinion leaders from both Canada and the United States, and of course we will feature our respected local experts. Keynote speakers include: Dr. Ditolla highlighting restorative dentistry, Dr. Steve Rasner focusing on clinical excellence, Dr. Tim Bizga presenting on dentistry for the oral health team, and Dr. Wenche Borgnakke speaking on dental hygiene. In addition to these, many more impressive speakers will be presenting cutting edge education. There truly will be something for everyone.

I hope to see you all at the great events that are upcoming in our community. 

Very best,
Dr. Carla Cohn
President, Manitoba Dental Association



CDSPI and its Role in the Dental Community


As a not-for-profit organization *exclusively* serving the dental community, CDSPI is unique compared to other financial services organizations. It is governed by its Members, which include the NLDA, the CDA and participating provincial and territorial dental associations. The programs and services offered by CDSPI are *member benefits* of these associations, offered for the sole benefit of dentists, their families and staff.

Through its relationship with the dental community, and its not-for-profit status, CDSPI has returned over \$27 million to dentists in the last five years thanks to insurance premium reductions, below market investment fees, student programs and a host of other support initiatives for the profession.

Many dentists may know CDSPI as a provider of insurance protection through malpractice insurance, the TripleGuard™ office insurance program, and a host of other plans. However, CDSPI has evolved to become much more, through its successful investment offerings and its active support of the profession.

The CDSPI of today manages over \$800 million of investment assets through CDSPI Funds and its Private Wealth Management service. Low fees, no commissions and consistent above average long-term performance make CDSPI Funds one of the most compelling fund families in Canada. In addition, these investment offerings are

coupled with no-cost financial planning advice from experienced Certified Financial Planner® professionals who work exclusively with dentists and their families to help them reach their financial goals. Beyond their core financial service offerings, CDSPI supports a number of programs to help the dental community. A prime example of this is your Members' Assistance Program (MAP). Operated by Shepell, MAP provides support from nutritionists, family counsellors, substance abuse specialists, mental health advisors, physical fitness experts and more, to help you achieve a more satisfying personal and professional life. We encourage members to contact MAP at 1-844-578-4040, or visit workhealthlife.com, to take advantage of their professional support services.

CDSPI's mandate is to support dentists in all phases of their professional lives, from dental student to retirement, through a variety of dedicated financial services and professional support programs. Please take advantage. It's there for your benefit. 

Sincerely,
Dr. Carla Cohn
President, Manitoba Dental Association

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MDAA President's Message

JANET NEDUZAK
PRESIDENT, MDAA

On behalf of our Executive Director and the MDAA Board of Directors, I hope our membership has enjoyed a great summer! The MDAA will return to the board table on September 21, 2016 and continue to advocate on behalf of our membership for the profession of dental assisting in Manitoba.

Together with Chris Redekop, outgoing CDAA Director and Sina Allegro-Sacco, incoming Director, I attended the CDAA AGM held in Gatineau, Quebec June 10-12, 2016. The CDAA continues to be a strong and respected voice, advocating on behalf of the dental assisting profession nationally. At the Presidents Dinner in Gatineau, Chris Redekop received the prestigious Presidents Commendation Award while the MDAA was acknowledged for their contribution to the CDAA. The following weekend I was in attendance at the National Dental Assisting Examining Board (NDAEB) AGM in Ottawa, Ontario. The NDAEB assures individuals have met the current national standards in the knowledge and skills required by provincial regulatory authorities for recognition as an intra-oral dental assistant.

The MDAA is excited to announce our upcoming CE session which will be held Saturday, November 12, 2016 from 9 am to 1 pm at the Canad Inns Destination Centre Polo Park, 1405 St. Matthews Avenue, Winnipeg. **Kathy Purves** will speak first on **Sterilization**

Monitoring Procedures and the changes which have left some dental professionals with questions concerning updated protocols. Our second speaker will be **Dr. Robert Kaufmann** who will speak on the topic of **Radiographic Imaging**. This lecture will examine strategies and imaging techniques for optimal diagnosis and endodontic treatment.

Please continue to check the MDAA website (www.mdaa.ca) for updated information and registration details.

Please circle the dates of January 27-28, 2017 on your calendar as the MDA will host the "Dentistry and All That Jazz" convention. At our MDAA AGM held in January 2016, some members expressed an interest in moving our AGM from Thursday evening to Friday morning. With that in mind, please continue to check your email for a survey that will arrive from the MDA in the fall to poll our membership on this potential change.

Thank you to our MDAA membership for the privilege to continue to serve as your president as we continue to promote the profession of dental assisting in Manitoba.

Sincerely,
Janet Neduzak
President, MDAA



College Corner

DR. ANTHONY IACOPINO
DEAN, COLLEGE OF DENTISTRY,
RADY FACULTY OF HEALTH SCIENCES,
UNIVERSITY OF MANITOBA

Significant Innovations for Clinical Education Program

Under the excellent leadership of Dr. Aaron Kim, acting associate dean (clinics), the 2015-2016 academic year has broadened our scope of teaching and clinical practice at the College of Dentistry. Over the last two years the College has completed a multitude of space renovations, incorporated several technological advancements, and re-organized support staff to effectively streamline inter-departmental processes and overall clinical operations to enhance the student-patient experience.

Approximately \$1.5 million in renovations and purchase of clinical technology will ensure that the U of M College of Dentistry remains a top-tier educational institute with significant accomplishments in the academic, clinical and research foundations of dentistry and dental hygiene.

Further renovations to be completed in the upcoming academic year include: 1) Sam Borden Graduate Periodontics Clinic (\$700,000) with installation of new chairs, technology and equipment; 2) School of Dental Hygiene (\$190,000) upgrades for administrative/office space; 3) Ross McIntyre Digital Imaging Centre (\$200,000) with a new J. Morita Cone Beam CT, Panorex and consultation room; and 4) Hart Lab (\$340,000) will house new computers and simulation equipment. Much of this funding has come from the Rady Faculty of Health Sciences along with generous donations from alumni and friends directed to our Technology Fund. The support that the College has received from the Rady Faculty of Health Sciences continues to validate the wisdom of combining all health professions colleges under a single umbrella at the University of Manitoba.

One of the most exciting projects nearing completion is the “Dr. Sni” Lab renovation. This project was initiated by the U of M Dentistry Class of 1987 and is named in honour of the late Taras Snihurowycz (DMD/62), a member of the first graduating class, who went on to teach at the College of Dentistry for many years. The \$120,000 “Dr. Sni” lab is equipped with cutting-edge technologies (CAD/CAM, 3-D camera and simulation equipment). Our laboratory technicians are trained and well-versed in these updated technologies.

The benefits of these investments and support by many alumni and friends are significant. On the clinical side, more patients are receiving treatment and student clinical experiences have been increased thanks to the Proctor Fund and the University of Manitoba Dental Alumni Association (UMDAA) Emergency Care Fund. The UMDAA has been actively collaborating with the College of Dentistry to facilitate treatment of emergency care through the creation of Manitoba Dental Alumni Emergency Oral Health Care Trust Fund. This emergency patient fund, implemented in 2015, is currently limited to new patients who cannot afford treatment. It is overseen by the supervising clinicians who control the disbursement of funds.

The Donald B. Proctor Fund has also been instrumental in increasing student experience. Instructors have judiciously allocated


this fund to enable dental treatment for patients who cannot afford the costs of dental care. In doing so, student experiences have increased by 15% over the last year with a 40% increase in removable prosthetic treatment. Importantly, we have used this fund to augment the treatment planning of implants as a viable option for single tooth replacement rather than conventional tooth-borne fixed partial dentures.

Lastly, the adoption of the “General Practice Comprehensive Care Model” throughout Dent 4 and Dent 3 clinic has further improved the student-patient experience. This model mirrors the clinical experience of a general practice preparing the student for life after graduation. This initiative has been supported by full and part-time instructors who continue to dedicate their efforts towards ensuring the highest quality of care is delivered by students. Team mentors oversee an assigned group of students who liaise with clinic team assistants (CTAs) to manage patient assignment and scheduled treatment. The transparency of these processes allows a fair distribution of clinical procedures and patients per student.

Historically, Fridays at the College were reserved for Pediatric Dentistry/Orthodontic clinic; we have now been able to assign some clinic chair space on Fridays to extend the General Practice clinic. This strengthens the comprehensive care model even further as it focuses less on discipline-specific clinics and contributes to the overall student GP experience.

The GP model initiative has been implemented through carefully planned restructuring of the clinical support staff and reorganization of internal processes. The newly appointed director of clinic operations, Mr. Johan Schalkwyk, brings vast experience in private practice management skill to the College. This has resulted in efficient managing of staff, patient allocation and scheduling for students with enhanced effectiveness of frontline management processes. Supervisors share their visions and ideas with the CTAs who collaborate with students and team mentors in the management of patients.

The 2016-2017 academic year promises the continuation of our initiatives, which remain centered on maximizing the student experience both in dentistry and dental hygiene. We will continue to strengthen the General Practice Comprehensive Care Clinic Model, incorporating dental hygiene in this approach.

These advances have only been possible through the resounding fellowship and support by our alumni/friend donors, the MDA and the alumni association. It is through the continuous and tireless efforts of the administrative, clinical and academic staff that we work together to deliver the highest quality of education to our next generation of dental health-care providers. 



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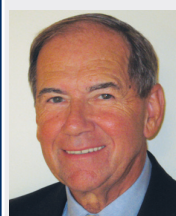
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March 11

Featured Speakers



Harold Crossley
Pharmacology



Kristy Menage Bernie
Dental Hygiene



Rosemary Bray
Team Communications



Stanley F. Malamed
Anaesthesia



Steve Gilliland
Communications



John Alonge
Oral Surgery

Complete speaker roster available for viewing Oct 15th at pdconf.com

Online registration begins October 15th, 2016 at... www.pdconf.com



Canadian Dental Association's Message

DR. A. MUTCHMOR, D.M.D.
CDA BOARD REPRESENTATIVE

In addition to the date on the calendar and the shortening daylight hours, the final sign that our all-too-short summer will soon be coming to an end, is that it is time again for me to write my update on the activities at the CDA for this MDA **Fall** Bulletin. Where has the summer gone?!

In June, we held our annual 3-day meeting and planning session. It was a very busy three days, filled with a lot of generative thought and discussion, as we deal not only with the current issues of the day, but also try and look ahead to plan for opportunities and/or changes that might affect us in the future.

For future planning, our main resource/tool is the CDA Environmental Scan. This report, prepared each year by the CDA and distributed to the Provincial Dental Associations, is comprised of information sent to CDA from multiple sources and identifies numerous issues that may impact dentistry. When there is a convergence of several issues identified in the scan, it is said to be a Megatrend, and has the potential to lead to major changes in the dental profession. The Environmental Scan ranks the importance of identified megatrends based on their potential impact on dentistry as well as the timeframe in which the megatrend is expected to have an effect.

As an example of the kinds of things we are looking at, the ten Megatrends identified in this year's scan are:

- 1) Changing landscape of dental benefits
- 2) Evolution of alternative dental care delivery models
- 3) Growing income inequality affecting access to care
- 4) Integration of internationally trained dentists
- 5) Perception of increased commercialization in dentistry
- 6) Expansion of alternative providers
- 7) Changing care needs for an aging population
- 8) The rise of empowered consumers
- 9) Shift away from fee-for-service payments
- 10) Changing educational competencies

Currently, in addition to all its ongoing day to day work, the CDA also focuses its efforts four Priority Projects.

1) Claims Transmission:

At present, CDA is exploring program upgrades and enhancements to ITRANS' core services including the automatic switching of claims to the correct network, a revitalized Help Desk and the reporting of aggregate data to the Corporate Members and the CDA. This enhanced service is tentatively called "ITRANS 2.0."

2) Insurance Audits/Dental Benefit Issues:

The Board recognizes the need to address issues of immediate concern and importance to the CDA and to the Corporate Members on dental benefits and insurance matters. Inherent in this, is the need for clear lines of communication between CDA and the Canadian Life and Health Insurance Association (CLHIA). To this end, we are working towards the establishment of a senior level joint CDA/CLHIA Advisory Council on Dental Benefits and an Audit Best Practice Working Group. The Board also approved the development of an MOU between CDA and CLHIA that would delineate guidelines and best practices related to dental benefits for both dentists and the benefits industry. And finally, the Board directed staff to press for the signing of the new CDAnet agreement with CLHIA as soon as possible.

3) CDA Secure Send:

As I have outlined in previous Bulletin articles, email does not meet the current legislated requirements for the secure delivery of documents containing patients' personal health information. Therefore, the CDA is proceeding with the development of a program that will make this secure transmission possible. The Board received an update on the development of CDA Secure Send including the proposed timeline for the full implementation of this service. It was reported that the development of Secure Send has been planned in phases. Phase 1 is the delivery of an easy, simple to use system that will allow dentists who are members of a CDA Corporate Member, affiliate members of CDA in Quebec, and the staff of CDA and the Corporate Members to use Secure Send to send documents in a secure fashion to any licensed dentist in Canada and to registered staff.

Corporate Members will be asked to beta test the system starting in Q3 of 2016. A full phase 1 rollout is scheduled to begin in Q4 of

2016 or Q1 of 2017. Whether the service will be rolled out across the country all at once, or on a staged basis, is still under consideration.

4) Sugar Reduction

The Board approved a tactical plan to accompany its previously approved public education/advocacy campaign on sugar reduction. The tactical plan is based on public research with Canadians on their sugar intake and their knowledge of their daily sugar consumption. The plan outlines how CDA will implement the following areas of activity: public outreach, media relations, government relations and alignment with other organizations. A vital step in the implementation of the plan will be alignment with the Corporate Members and with the Canadian Oral Health Roundtable (COHR) participating organizations.

One final thing that deserves mention involves antibiotic prophylaxis for dental patients with total joint replacement. For many years there

has been a lot of confusion and differing opinions on the need for prophylactic antibiotic coverage. This year, after a tremendous amount of effort, and under the great leadership of Dr. Susan Sutherland, a working group of the CDA, the Canadian Orthopedic Association and the Association of Medical Microbiology and Infectious Disease (AMMI) Canada has put together the *Consensus Statement: Dental Patients with Total Joint Replacement*. This now replaces the old *CDA Position on Dental Patients with Total Joint Replacement*. Thank you, Susan, for all your hard work.

That's it for now. I hope it seems a little bit longer before I have to write my article for the Winter Bulletin! 🏔️

Dr. A. Mutchmor, D.M.D.
CDA Board Representative

New Inductees - International College of Dentists Class of 2016

MDA Dentists Nancy Auyeung, Allan Cogan, Carmine Scarpino, Michael Sullivan, Col. Dwayne Lemmon.

Photo taken in Jasper, Alberta



Row 1 (L-R:) Harinder Dhanju, David Christie, President-Elect Ian Doyle, President Ken Skinner, Nancy Auyeung, Joseph Lizotte, Allan Cogan, Stanley Markin
Row 2 Ann Starr, Michael Sullivan, Carmine Scarpino, Col. Dwayne Lemon, Robert McDougall, Michael Goldberg, Paul Major, Steve Saxon, Bruce Neumann
Row 3 Mel Sawyer, Elliot Gnidec, Todd Graham, Roch St. Aubin, Patricia Hunter, David Larsen, Jill Bashutski
Row 4 Cheryl Vertefeuille, Mintoo Basahti, Brad Krusky, Darrell Demchuk, Sandra Huish, Alice Jackes-Sweetnam
Row 5 Sahza Hatibovic-Kofman, Doris Lundardon
Row 6 Tina Meisami, Lesley Williams, Registrar Bob Baker, College at Large President Phillip Dowell, Frank Szojka
 Posthumously – Michelle Williams

Email Etiquette in the Twenty-First Century

DR. KYLA ROMARD
MANAGER, CLINICAL AFFAIRS,
NOVA SCOTIA DENTAL ASSOCIATION

Technological advancement and change has become an integral part of our daily life. The discovery and development of applied science is far reaching, and the relationship between technology and humanity is in a state of constant transition. Effective use of technology can reduce time, effort and cost while increasing production and economic development. Health care is one area that has benefited greatly through technological advancement. Dental offices across Nova Scotia are no different. More and more offices are investing in technological upgrades such as electronic health records, digital x-rays and impressions, laser therapies and CAD-CAM restorations. It is no surprise that as our treatment modalities change, so do the ways in which we communicate with both our staff and patients. Many people are choosing to forgo face to face interactions in favor of computer-mediated conversations such as e-mail. While this can be a useful tool for relaying information quickly and concisely, it is not without its limitations and in many cases may not be the right form of communication. With the blurred lines of formality in the modern workplace, and e-mail becoming the primary mode of communication, the days of etiquette according to Emily Post are long gone. This is especially true in regards to the rising trend of cyber incivility in the workplace.

Cyber incivility includes not only those e-mails that are aggressive, rude, inappropriate or disrespectful, but also those which contain unrealistic expectations, or are missing non-verbal cues leading to misinterpretation. There are several characteristics which may increase the probability of cyber incivility. The “norms of civility” which we follow in face to face interactions are loosely adhered to during computer-mediated conversations. As such, individuals are more prone to speak inappropriately to one another than during direct conversations.

Another risk of e-mail communication is the lack of important non-verbal and situational cues, including facial expression and tone of voice. These missing cues often result in miscommunication. Furthermore, limited and delayed feedback in e-mail communications can result in additional misunderstandings and difficulties in resolving the ambiguities related to e-mail content. Studies suggest that dealing with cyber incivility can drain both psychological and physical resources, resulting in depression, burnout and job dissatisfaction. In severe cases, the miscommunication and misinterpretations of computer-mediated interactions can even escalate to interpersonal conflict among staff.

Cyber incivility, while seemingly trivial when compared to severe forms of mistreatment such as harassment, can cause major challenges and repercussions both within the workplace and publicly. Practice owners will incur the costs of lost employee time and resources, as well as job turnover and potential legal costs if matters escalate. This can create a significant increase in the demands and financial risk incurred to practice owners. Public, or patient, scrutiny can jeopardize a practice’s reputation if the discourteous office interactions become known, or in cases where a member of the practice has displayed cyber incivility to a patient.

With the many challenges and risks that cyber incivility can potentially create, it is in the best interest of any office dealing with

computer-mediated communication to create a written “e-mail advice and best practices” policy to avoid any missteps. Some email etiquette guidelines that may prove helpful include but are not limited to the following:

Use an informative and searchable subject line.

A meaningful subject line will let the recipient know what to expect inside, allowing them to prioritize the message and search for it in the future should the subject and content become relevant again.

Consider the To: list.

In order to avoid e-mail overload, only include those recipients who need to receive the message. Use To: for recipients to which the email is specifically addressed. Use CC: for those who should be aware of the message. Finally, use BCC: in those instances where it is not appropriate to publicize the recipient’s personal information (i.e. e-mail addresses).

Avoid confidential and disparaging conversation.

Computer-mediated communication should never include confidential information for security purposes. In the same vein, libelous, sexist or racially discriminating comments should never be exchanged over e-mail, even in a joking manner.

Respond swiftly.

The golden rule is to respond within 24 hours. In circumstances where e-mail is not the appropriate way to respond to a message it is important to let the sender know you’ve received the message and will arrange a more acceptable form of communication for the subject at hand.

Use clear and concise messaging.

E-mails are more difficult to read than the printed word. As a result, long winded messages can be abandoned before the point of the e-mail has been communicated. Review messages for errors in grammar and spelling and eliminate anything that is not critical. For those messages of high importance consider having a colleague review it before sending.

Eliminate emotion.

Emotional communication is too often misunderstood and misinterpreted in computer-mediated messaging. Replace emotional statements with professional requests or assertive statements.

Make it personal.

Take the time to use names and salutations. E-mail exchanges should be treated as a genuine, sincere form of communication and written in a professional manner.

“Electric communication will never be a substitute for the face of someone who with their soul encourages another person to be brave and true.” – Charles Dickens

Dr. Kyla Romard graduated from Dalhousie Dental School in 2010 after obtaining her Bachelor of Science degree from Cape Breton University. Dr. Romard’s interests as a practicing clinician include general dentistry with a focus on comprehensive patient care, as well as a keen passion for endodontics. She currently practices part-time at Bible Hill Family Dentistry in Truro, Nova Scotia.

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Office Assessment Resource: What is Biofilm - Part 1 of 2

Linda Berg – Director of Office Assessments MDA
lberg@manitobadentist.ca (204) 988-5300 ext. 7



Reprinted, in part, from the OSAP.org website.

"Biofilm" is a community of bacterial cells and other microbes that adhere to surfaces and form a protective slime layer. Found in virtually all places where moisture meets a suitable solid surface, biofilm can contain many types of bacteria as well as fungi, algae, protozoa, and nematodes. The polysaccharide slime produced by many microbial inhabitants protects the cells from physical and chemical challenges, while water channels within the biofilm carry nutrients to the cells inside the film. Individual organisms, or even portions of the biofilm near the surface, break off into flowing water. In dental waterlines, this can result in contaminated coolant and irrigating solutions.

Although biofilm can form in all non-sterile fluid environments, dental waterlines provide particularly well-suited conditions. The tubing has a very narrow bore (1/8- to 1/16-inch), which provides a high internal surface-area-to-volume ratio. Low water pressure, low flow rates, and frequent periods of stagnation also encourage any bacteria introduced from the public water supply to accumulate within the tubing. The result is output water that is often many times more contaminated than tap water from the faucet in the same treatment room.

Water heaters and prefilters in dental units further exacerbate bacterial proliferation and colonization of dental unit waterlines. Heating water to near body temperature may enhance the number of microorganisms adapted for growth within a warm-blooded human host. Although they are intended to remove particles from municipal water as it enters the dental unit, prefilters have pores that are too large to trap bacteria. They not only slow the flow of water but also may provide additional surface area for microbial colonization.

WHAT ARE THE HEALTH IMPLICATIONS OF WATERLINE BIOFILM?

Since the first report in 1963, dozens of researchers have investigated dental waterline contamination. Despite the high levels of organisms found in dental unit water, no outbreaks of disease have been reported. In fact, few clinical case reports have been associated with waterline contamination. To date, no published scientific evidence confirms a risk of serious health problems for patients or dental personnel from contact with dental water.

However, numerous studies conducted over the past 30-plus years have identified the presence of waterborne opportunistic pathogens in dental unit water, and these findings provide reason for cautious concern. Many environmental organisms identified in dental treatment water have been associated with opportunistic infections in hospitalized or immunocompromised patients. For example, *Pseudomonas* species, non-tuberculous mycobacteria, and *Legionella* species all have been isolated from dental unit water. *Legionella*, the causative agent of Legionnaires' disease, may pose a particular concern, as it appears to be transmitted by inhaling aerosols or aspirating water contaminated with the bacteria.

One study suggests that aerosols produced by contaminated water from highspeed handpieces were associated with altered nasal flora in 14 of the 30 dentists studied. Nine of the dentists with altered nasal flora were positive for the same species of waterborne *Pseudomonas* isolated from the dental units. Several other studies have found higher titers of *Legionella* antibodies among dental

personnel than in control populations, likely due to chronic exposure to *Legionella*-contaminated aerosols of dental unit water. Despite the higher antibody titers, however, no cases of *Legionella* pneumonia among the exposed workers have been documented. A recent paper discussed the finding that high levels of the bacterial byproduct known as endotoxin may be present in dental unit water. Exposure is known to exacerbate respiratory conditions such as asthma and may affect wound healing.

Some local news reports have suggested that bloodborne pathogens may be transmissible through dental treatment water. In properly functioning units, however, the volumes of patient material needed for disease transmission are unlikely to be retracted into waterlines. Even if minute quantities of virus-contaminated material were to enter waterlines, experts state that there is no risk of colonization, as viruses require animal cells for replication, and they cannot survive long outside of a host organism. Although researchers have found evidence of oral flora in dental water systems, there is little evidence to suggest that these organisms form a significant part of the waterline biofilm community.

IF THE HEALTH IMPLICATIONS ARE NOT CLEAR, WHY SHOULD WE BE CONCERNED?

Exposing patients or personnel to water of poor microbiological quality simply is inconsistent with universally accepted infection control principles. As Dr. Shannon Mills notes in his 2000 *Journal of the American Dental Association* article "The dental unit waterline controversy: defusing the myths, defining the solutions," infection control procedures concentrate on breaking the chain of infection that consists of potential pathogens in sufficient numbers, a susceptible host, and a portal of entry. The susceptibility of the patient or healthcare worker and the pathogenicity of the organisms are the links over which we have the least control. As such, most efforts to break the chain concentrate on reducing the number of organisms in the clinical environment.

"Most dental practices expend considerable effort and expense to accomplish this goal as an everyday matter through surface disinfection, instrument sterilization, handwashing, and use of antimicrobial mouthrinses," he writes. "As with recommendations to improve the quality of dental treatment water, few of the aforementioned procedures are based on strong epidemiologic evidence. Nevertheless, reducing the number of microbes in water from dental units is absolutely consistent with long-accepted infection control principles."

How do we know if our waterlines are contaminated? Should we check our water quality?

Bacterial biofilm is virtually universal in untreated dental unit waterlines. It can begin forming in a new dental unit within a few days. Unless procedures specifically designed to eliminate, trap, or kill biofilm are performed, there is little reason to believe that any dental unit can avoid being colonized by bacteria. In fact, bacterial counts numbering in the hundreds of thousands, even millions, per milliliter of dental unit water have been recovered from dental units across the country.

According to the American Dental Association (ADA) Council on Scientific Affairs' 1999 report to the profession on dental unit

waterlines, evaluating water quality before a treatment protocol is implemented is controversial. Because the scientific literature suggests that all units are highly contaminated, pre-testing to confirm contamination is of questionable value. However, testing water quality after initiation of a treatment regimen ascertains whether a waterline product or protocol achieves the desired outcome. Monitoring water quality according to an established schedule can help identify problems in performance or compliance and provide documentation of water quality.

WE'VE JUST IMPLEMENTED A WATERLINE TREATMENT DEVICE OR PROTOCOL. HOW AND WHEN SHOULD WE MONITOR?

In the clinical setting, monitoring procedures have to be inexpensive and simple to perform and evaluate. Both in-office monitoring devices and commercial testing services are available. Some laboratories provide specialized service to the dental profession, but any commercial water-testing lab can enumerate heterogenic water bacteria present in a sample. Whether to use an outside laboratory or an in-office test is a matter of choice.

The type and frequency of water quality monitoring varies by device and protocol. Consult with the manufacturer or distributor of the dental unit and water treatment device(s) for information on evaluating equipment or protocol performance. Establish a schedule so water samples are collected during the "worst case scenario." When testing units that are chemically treated or equipped with microfilters, take the sample immediately prior to the chemical treatment or filter replacement. If testing water undergoing continuous chemical treatment, first neutralize the agent to ensure accurate colony counts.

The U.S. Air Force Dental Investigation Service has prepared a list of troubleshooting tips that can be applied when monitoring

demonstrates a recommended device or protocol's failure to produce water of acceptable quality. Maintain testing records according to the usual office protocol for similar documents (e.g., sterilizer monitoring).

DOES FLUSHING LOWER MICROBIAL COUNTS IN DENTAL UNIT WATER?

Mechanical flushing alone does little to control contamination in waterlines. Although it can temporarily reduce the number of microbes in the water delivered to patients by clearing away many of the free-floating organisms in the waterline, biofilm bacteria continually break free and recontaminate dental unit water during the course of clinical treatment. Flushing for several minutes between patients, however, may be valuable in removing contaminants that can enter the water system during patient treatment.

Part 1 of 2...

See the December issue for Part 2 on Biofilms.

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Why has flossing been in the news recently?

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A document, recently produced by the Associated Press, suggested that there is no evidence that flossing is effective in removing dental plaque. Media reporters rather than scientists who are skilled in the assessment of the quality of clinical trials produced this document. This was not what is termed a “systematic review” of the literature and it was not published in a peer-reviewed scientific journal. Since many people find flossing somewhat of a chore, the report was met with considerable enthusiasm and relief by virtually all reporters for different newspapers and magazines in that it gave them a great excuse never to floss again!

Comparatively, a considerable disparity exists; (1) some procedures for which there is no proof that it works and (2) some procedure that have been proven not to work. I would argue that the effect of flossing on plaque removal fits in the first category.

The question remains, why has it been difficult to carry out scientifically valid studies on flossing versus no flossing? A major problem is ensuring that the people in the flossing group actually do floss regularly and thoroughly and that those in the no-flossing group do not floss or change their tooth brushing habits. Every dentist and hygienist has seen patients who say that, of course they floss, but who are “lying through their teeth”, since it is obvious, because of the degree of gingivitis, that they do not floss regularly. Adults in open clinical trials could not be observed every time they performed oral hygiene.

In order to run a proper clinical trial, it would be necessary to obtain a representative group from the population and randomly assign them to either a flossing group or a no flossing group. This would not be easy without considerable financial compensation particularly to those who already floss regularly. One could not simply compare plaque levels in people who already floss with levels in people who do not floss, as the former are much more likely to be meticulous in their oral hygiene.

When a clinical trial is conducted to test a drug in the form of a pill, it is usually possible to provide a placebo pill that looks identical to the pill containing the drug. Thus, the participants will not be aware of whether they are taking the drug or not. However, in a flossing versus no flossing study, the participants must sign a consent form before the onset of the trial and they would be fully aware of the nature of the study and the group in which they have been randomly placed. Although the examiners at the end of the study can be blinded as to who is in a particular group, the participants cannot and thus may easily have changed their normal behaviour, simply by being part of a study. For instance, if a person normally flosses occasionally and they are assigned to the no floss group, then even if they do not floss, they may take extra care with their tooth brushing oral hygiene procedures, which would influence the results of the trial. Likewise, people in the flossing group who do not normally floss may only floss irregularly or ineffectively.

In a large clinical trial, it would not be feasible to carry out the final examination of the participants on random times and days without their having prior knowledge of the timing of the examination. When people know that they are shortly going to have their teeth checked, they often take more time than usual to make sure that their teeth are as clean as possible.

During the time that I was a graduate student in the UK investigating some of the properties of dental plaque, we had dental students allow plaque to accumulate for two or sometimes three days before we removed it for various analyses. I was always struck by the extent of the variability among student subjects in the amount of plaque, which formed in a given time. Such marked variability, which generates a high standard deviation, greatly increases the number of subjects required for clinical trials on factors influencing the amount of plaque on teeth, if a statistically significant difference between treatments is to be detected.

Plaque removal is certainly beneficial in that without plaque on our teeth there would be no caries, probably virtually no calculus, gingivitis and periodontal disease and essentially no halitosis. However, no Company would incur the cost of a clinical trial just to prove that their product is more effective in removing plaque than some other product. They would need to show that their product caused a clinical benefit such as reducing gingivitis or periodontal disease. For a Company to claim that some procedure, such as use of a particular floss reduces gingivitis or periodontal disease, a six-month study period with positive results is the minimum duration required. Otherwise, the Company cannot claim a benefit from the procedure. Such a long study of the effects of flossing versus no flossing then raises ethical issues related to depriving the members of one group of something that was expected to be beneficial, such as flossing.

In summary then, there are some extraordinary difficulties in running a valid, scientifically sound, flossing versus no-flossing clinical trial.

Used correctly, a soft toothbrush with toothpaste can be quite effective in removal of plaque from most surfaces of the teeth, but not on mesial and distal surfaces below a contact point where there has been some gingival recession, and in deeper gingival sulci.

When plaque first forms on a clean tooth surface, Gram-positive microorganisms first colonize the surface. Subsequently it becomes colonized by periodontopathic Gram-negative microorganisms. Flossing will help to remove this type of long-standing plaque from areas below the contact point, which are not easily accessible to a toothbrush.

Finally, you should be aware that a proper systematic review, published in a journal which publishes only systematic reviews, concluded that although flossing could not be shown to reduce dental caries in adults, and that there is only weak evidence that it increases plaque removal, there is evidence from 12 studies that it does reduce gingivitis (Sambunjak D, Nickerson JW, Poklepovic T, Johnson TM, Imai P, Tugwell P, Worthington HV. Flossing for the management of periodontal diseases and dental caries in adults. Cochrane Database Syst Rev 2011 Dec 7;(12):CD008829. doi: 10.1002/ 14651858.CD008829.pub2).

So please assure your patients that, for the benefit of at least their periodontal health, they should keep on flossing! The American and Canadian Dental Associations, of course, have long recommended this.

Dr. Colin Dawes
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RESEARCH ARTICLE

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Higher body mass index associated with severe early childhood caries

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Abstract

Background: Severe Early Childhood Caries (S-ECC) is an aggressive form of tooth decay in preschool children affecting quality of life and nutritional status. The purpose was to determine whether there is an association between Body Mass Index (BMI) and S-ECC.

Methods: Children with S-ECC were recruited on the day of their slated dental surgery under general anesthesia. Age-matched, caries-free controls were recruited from the community. All children were participating in a larger study on nutrition and S-ECC. Analysis was restricted to children ≥ 24 months of age. Parents completed a questionnaire and heights and weights were recorded. BMI scores and age and gender adjusted BMI z-scores and percentiles were calculated. A p -value ≤ 0.05 was significant.

Results: Two hundred thirty-five children were included (141 with S-ECC and 94 caries-free). The mean age was 43.3 ± 12.8 months and 50.2 % were male. Overall, 34.4 % of participants were overweight or obese. Significantly more children with S-ECC were classified as overweight or obese when compared to caries-free children ($p = 0.038$) and had significantly higher mean BMI z-scores than caries-free children (0.78 ± 1.26 vs. 0.22 ± 1.36 , $p = 0.002$). Those with S-ECC also had significantly higher BMI percentiles ($69.0 \% \pm 29.2$ vs. $56.8 \% \pm 31.7$, $p = 0.003$). Multiple linear regression analyses revealed that BMI z-scores were significantly and independently associated with S-ECC and annual household income as were BMI percentiles.

Conclusions: Children with S-ECC in our sample had significantly higher BMI z-scores than caries-free peers.

Keywords: Early childhood caries, Body mass index, Preschool, Child

Abbreviations: AAPD, American academy of pediatric dentistry; BMI, Body mass index; CDC, Center for disease control; dmft, decayed, missing, filled teeth score; ECC, Early childhood caries; GA, General anesthesia; MHC, Misericordia health centre; SD, Standard deviation; S-ECC, Severe early childhood caries; SES, Socioeconomic status

Background

Early childhood oral health plays a significant role in the overall health and well-being of young children [1]. Healthy teeth allow for optimal function in eating and speaking and provide an acceptable appearance facilitating early socialization. Good oral health and hygiene practices during early life sets the foundation for continued optimal oral health throughout childhood and into adolescence and adulthood [2].

While early childhood caries (ECC) is a very broad case definition that includes children with one or more primary teeth affected by decay, many children suffer from a more severe form of ECC, termed Severe Early Childhood Caries (S-ECC) [3]. The case definition for S-ECC is based on the child's age and the location and severity of decay [3]. At-risk populations for S-ECC include those from socio-economically deprived communities, Indigenous children, and recent newcomers to Canada [1, 4–6]. Children with S-ECC routinely undergo dental rehabilitative surgery under general anesthesia (GA). The implications of severe decay extend beyond the oral cavity and have been linked with poor nutrition and health status [1, 7–10]. Children with S-ECC may suffer from pain and infection that can

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lead to altered eating and sleeping habits, altered growth (specifically in weight and height), and altered behaviour [1, 11–16]. They are also at increased risk for future dental disease throughout life [1, 17].

Recently, there has been considerable interest in the relationship between childhood caries and childhood growth. Body mass index (BMI), expressed in kg/m^2 , is a measure of “body fatness” and is used in children ≥ 24 months of age [18]. BMI is age and gender specific, and can be expressed as a z-score allowing for comparisons between ages and genders. Current evidence suggests that severe caries is associated with malnutrition, which may be expressed as deviation from average BMI values [1, 14, 16, 19]. BMI is an effective screening tool, however it has comparative limitations due to inherent male/female differences in body fat percentage [18]. Fortunately, the Center for Disease Control (CDC) has generated BMI-for-age growth curves to separately assess males and females in children and youth [20]. These curves stand to overcome the limitation in using BMI to compare individuals of differing ages and sexes, by generating a percentile ranking from a z-score based on norms for children of the same age and sex so that they can be reliably compared with others [18].

BMI is classified into four categories; underweight, healthy, overweight and obese [18]. These categories correspond with specific score ranges in adults and specific percentile ranges in children. Both ends of the spectrum can be problematic with respect to health [16, 18]. Underweight may be a sign of malnutrition, which can leave a child at risk for altered growth, being immunocompromised, and developing other morbidities and micronutrient deficiencies [21]. Overweight and obese individuals are at increased risk for type 2 diabetes, hypertension and cardiovascular disease along with other chronic diseases [22].

Several studies have attempted to evaluate the association between BMI and S-ECC, with varied and sometimes conflicting results [14, 16, 19, 23, 24]. The earliest studies on this topic, as well as a very recent publication, have linked S-ECC with underweight and failure-to-thrive, suggesting that low BMI's may be a consequence of S-ECC [13, 16, 25, 26]. Meanwhile, other studies have found significant associations between ECC and overweight, drawing conclusions that the connection may be based upon shared risk factors of the two outcomes [27, 28]. To further complicate the matter, additional population-based studies have found no significant associations between the two variables [23, 24, 29]. A recent review of the impact of S-ECC on early childhood health and well-being suggested that the relationship between extensive dental decay and childhood growth and development is not entirely clear, but may contribute to low weight. [1] To date, there is

no published Canadian data on BMI and severe caries in young children.

The purpose of this study was to evaluate whether a significant association between BMI and S-ECC exists in Canadian preschool children enrolled into a larger study investigating the relationship between S-ECC and childhood nutritional status.

Methods

Approval to conduct this research was granted by the Health Research Ethics Board at the University of Manitoba, the Misericordia Health Centre (MHC), and the Health Sciences Centre prior to the initiation of data collection. The project's objectives and methodology were explained to parents and caregivers and written informed consent was obtained. Participants were predominantly residents of southern Manitoba and were recruited between the months of October 2009 and August 2011. The study adhered to the STROBE guidelines.

Participants in this sub-study were part of a larger research project examining the association between S-ECC and childhood nutritional status [9, 10]. The parent study assessed whether there were differences in vitamin D (25(OH)D), calcium, and ferritin levels between children with S-ECC and cavity-free controls. The sample size calculation for the parent study was based on vitamin D concentrations as the primary outcome of interest [10]. The two previous publications reported that children with S-ECC are significantly more likely to have iron deficiency anemia, and low levels of ferritin, vitamin D (25(OH)D), calcium, and albumin [9, 10]. A cross-sectional case-control study was undertaken to test the hypothesis that BMI differs significantly between children with S-ECC and caries-free controls. Measured heights and weights were obtained from participants, while each parent or primary caregiver completed an interviewed questionnaire administered by a member of the research team. The questionnaire asked a series of questions pertaining to each child's nutritional habits, use of supplements, physical and oral health, oral hygiene and dental habits, socioeconomic status (e.g. household income), and family demographics.

S-ECC was defined in accordance with the American Academy of Pediatric Dentistry's (AAPD) case definition for ECC and S-ECC [3]. Since both ECC and S-ECC are age specific definitions, participation was restricted to those < 72 months of age. All children undergoing dental surgery under GA had rampant tooth decay fulfilling the criteria for S-ECC. Our recruitment guidelines specified that children undergoing dental surgery to deal with dental injuries and minor oral surgery unrelated to caries were ineligible to participate. The majority of children with S-ECC were recruited on the day of their scheduled dental surgery at the MHC. Cavity-free ($\text{dmft} = 0$)

preschool children serving as controls were recruited from the community and underwent a dental screening assessment by a licensed dentist to confirm that they were caries-free and following World Health Organization methodology for oral health surveys [30].

BMI was calculated by entering the recorded weight and height of the subjects into the CDC on-line Child and Teen BMI Percentile Calculator [31]. Pre-admission heights and weights for those in the surgery group were obtained from the hospital record. These measurements were made by trained and experienced healthcare professional on a calibrated digital Detecto Pro-Doc scale and stadiometer on the day of surgery. Those recruited in the community were measured by a trained member of the research team using a calibrated Detecto weigh beam scale and stadiometer. For the purpose of this study, we restricted eligibility to children between 24 and 71 months of age, as BMI measurement is not used in children < 24 months. BMI was converted to BMI z-scores and percentile data using an on-line calculator [32] in order to appropriately compare subjects of differing ages and genders. BMI percentiles were then classified into one of four categories, as per the CDC: underweight <5th percentile, normal weight 5th to < 85th percentile, overweight 85th to < 95th percentile, and obese ≥ 95th percentile [18].

Venipunctures for children with S-ECC were drawn by the attending anesthetist during surgery while blood samples from controls were obtained by a research nurse at the Children's Hospital Research Institute of Manitoba following the application of a topical anaesthetic (EMLA) to the antecubital fossa. Assays for 25(OH)D, the main circulating form of vitamin D, were conducted by the Hospitals in Common Laboratory at Mount Sinai Hospital in Toronto, Canada using Chemiluminescence Immunoassay. 25(OH)D levels ≥ 75 nmol/L were considered optimal [10, 33, 34].

Data were compiled and entered into an Excel database (Microsoft Office) and analyzed using Number Cruncher Statistical Software (NCSS, Kaysville, Utah). Descriptive analyses included frequencies and means (standard deviations (SD)). Bivariate tests included Chi-square analysis and T-tests. Normally distributed data was analyzed with an Equal-Variance T-Test, while any data not normally distributed was assessed with the Aspin-Welch Unequal-Variance Test. Because BMI z-scores and BMI percentiles are measured on a continuous scale, each was modeled using multiple linear regression. The independent variables considered for each model were those found to be associated the dependent variable in bivariate analysis. A p -value ≤ 0.05 was significant.

Results

Overall 266 children were recruited into the parent study [9, 10]. Of these, 241 children were between 24

and 71 months of age. Six children were excluded because of missing height or weight measurements. Of these 235, 141 had S-ECC and 94 were caries-free. The mean age was 43.3 (12.8) months and 118 (50.2 %) of the participants were male (Table 1). The S-ECC and caries-free groups did not differ significantly for age ($p = 0.09$) or sex ($p = 0.46$). Children with S-ECC were significantly more likely to belong to households with low annual incomes (< \$28,000) ($p < 0.001$). Parents and caregivers of children with S-ECC were significantly less likely to have pursued post-secondary education ($p < 0.001$). According to parental and caregiver ratings, children with S-ECC also had poorer overall health ratings than caries-free children ($p < 0.001$) (Table 1). Caregivers of children with S-ECC were also significantly more likely to be recipients of government aid (e.g. social assistance) than those of caries-free children (57.1 % vs. 18.5 %, $p < 0.001$). However, there were no differences between the groups with respect to the frequency of snacking ($p = 0.21$).

The mean BMI z-score for the entire sample of children was above 0 (0.56 (1.33)) (median 0.64, range -4.93 to 3.06) while the mean BMI percentile was 64.1 % (30.7 %). The distribution of participating children by BMI category based upon BMI z-scores appears in Fig. 1. Overall, 17.4 % of children were classified as overweight (1.7 times the CDC expected value of 10.0 %). 17.0 % obese (3.4 times the CDC expected value of 5.0 %), and 4.7 % were underweight. However, the proportion of underweight children in the total sample approximated the expected CDC values (4.7 % vs 5.0 %).

Significantly more children with S-ECC were classified as overweight or obese than children who were caries-free (39.7 % vs. 26.6 %, $p = 0.038$). Further, analysis revealed that children with S-ECC had significantly higher mean BMI z-scores than cavity-free children ($p = 0.002$) (Table 1); ranging from -2.56 to 4.06 and -4.93 to 3.58 for the S-ECC and caries-free groupings, respectively. Similarly, children with S-ECC had significantly higher mean BMI percentiles than caries-free subjects ($p = 0.0028$); 12 % higher than the caries-free group.

BMI z-scores were found to be significantly associated with certain socioeconomic variables. As seen in Table 2, BMI z-scores and BMI percentiles were inversely associated with both income and caregiver and parental education levels. Those children who came from low income households had higher BMI z-scores and BMI percentiles (both $p < 0.001$). Similarly, children of parents and caregivers with lower levels of education also had significantly higher BMI z-scores and percentiles ($p = 0.004$ and $p = 0.019$, respectively). However, daily snacking was not associated with BMI z-scores or BMI percentiles ($p = 0.53$ and $p = 0.70$, respectively).

Table 1 Participant characteristics and associations with S-ECC

Variable	Totals (n = 235)	S-ECC (n = 141)	Caries-Free (n = 94)	P-value
Sex				0.46 ^a
Male	118	68 (57.6 %)	50 (42.4 %)	
Female	117	73 (62.4 %)	44 (37.6 %)	
Age (months)				0.09 ^b
mean (SD)	43.3 (12.8)	42.1 (12.0)	45.0 (13.8)	
Annual Income				<0.001 ^a
< \$28,000	109	83 (76.1 %)	26 (23.9 %)	
> \$28,000	113	46 (40.7 %)	67 (59.3 %)	
Parental Education				<0.001 ^a
< High School	60	53 (88.3)	7 (11.7)	
≥ High School	172	85 (49.4)	87 (50.6)	
Health Rating by Parent				<0.001 ^a
Fair/Good	74	59 (79.7)	15 (20.3)	
Very Good	161	82 (50.9)	79 (49.1)	
Snacking Frequency				0.21 ^c
Daily	224	132 (58.9)	92 (41.1)	
Other	11	9 (81.8)	2 (18.2)	
Height (cm)				0.09 ^b
mean (SD)	100.1 (8.5)	99.3 (8.1)	101.3 (9.0)	
Weight (kg)				0.89 ^b
mean (SD)	16.9 (3.5)	17.0 (3.3)	16.9 (3.7)	
BMI percentile				0.003 ^b
mean (SD)	64.1 (30.7)	69.0 (29.2)	56.8 (31.7)	
BMI z-score				0.002 ^b
mean (SD)	0.56 (1.33)	0.78 (1.26)	0.22 (1.36)	
	(median 0.64)	(median 0.89)	(median 0.31)	

^aChi square^bt test^cFisher's Exact Test

Children with optimal 25(OH)D concentrations (≥ 75 nmol/L) had significantly lower BMI z-scores than children with concentrations below this threshold (0.37 (1.19) vs. 0.73 (1.41), $p = 0.04$). However, no such relationship was identified between BMI percentile and vitamin D status ($p = 0.10$).

Multiple regression analyses for BMI z-score were performed (Table 3). As parental education and household income were highly associated they were not initially included together in the same regression model to avoid multicollinearity. The results of Model 1 suggest that children with S-ECC had significantly higher BMI z-scores while those from higher income households had significantly lower BMI z-scores ($p = 0.043$ and $p = 0.004$, respectively). Meanwhile, the second regression model for BMI z-scores revealed that children of parents and caregivers who completed high school or post-secondary education had lower BMI z-scores and those with S-

ECC had higher z-scores ($p = 0.029$ and $p = 0.049$, respectively). A third linear regression model for BMI z-score involving backwards elimination was also performed and included both parental and caregiver education level and household income along with caries status, snacking frequency, and vitamin D status. The final iteration of this model revealed that only children with S-ECC and yearly household income were significantly and independently associated with BMI z-scores. Specifically, those with S-ECC had higher BMI z-scores ($p = 0.045$) while those from families with higher household incomes had lower scores ($p = 0.003$).

A similar multiple linear regression analysis using backwards elimination was also undertaken for BMI percentile and included educational status, household income, snacking frequency, and caries grouping. This revealed that S-ECC and yearly household income were significantly and independently associated with BMI

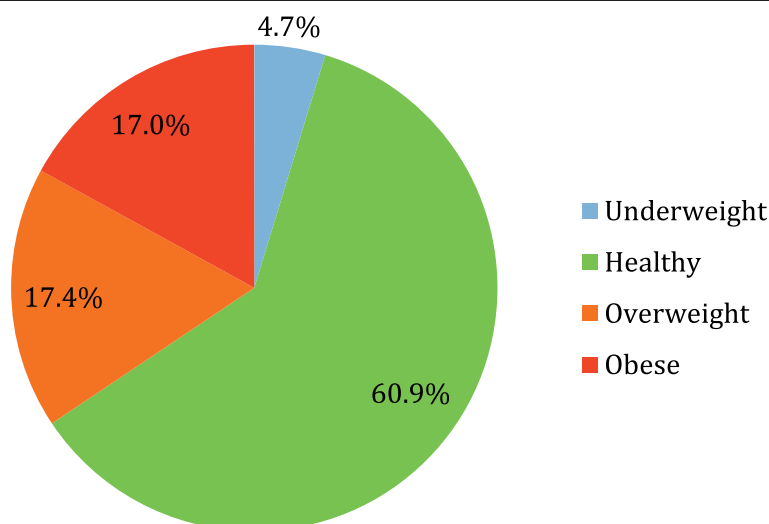


Fig. 1 Distribution of children by BMI categories

percentile. Those with S-ECC had higher BMI percentiles ($p = 0.044$) while those from higher income families had lower BMI percentiles ($p = 0.004$).

Discussion

The purpose of this study was to evaluate the relationship between BMI and S-ECC in preschool children

living in southern Manitoba, Canada. Findings reveal that children with S-ECC had significantly higher BMI z-scores and corresponding BMI percentile measures than their cavity-free counterparts. According to the CDC's BMI percentile cutoffs, significantly more children in the S-ECC group were either overweight or obese compared to caries-free children. In fact, they

Table 2 Associations with mean BMI z-score and percentiles

Variable	N	BMI z-Score (SD)	P-value	BMI percentile (SD)	P-value
Parental Education			0.004		0.019
< High School	60	0.97 (1.31) (median 0.96)		72.0 (28.3)	
≥ High School	172	0.40 (1.30) (median 0.45)		61.2 (30.9)	
Annual Income			<0.001		<0.001
< \$28,000	109	0.92 (1.41) (median 1.03)		71.9 (29.7)	
> \$28,000	113	0.19 (1.15) (median 0.29)		56.4 (30.1)	
Snacking Frequency			0.53		0.70
Daily	224	0.57 (1.35) (median 0.65)		64.3 (30.9)	
< Daily	11	0.31 (0.96) (median 0.46)		60.5 (28.7)	
Health Rating by Parent			0.09		0.11
Very Good	161	0.77 (1.28) (median 0.86)		68.8 (28.8)	
Good/Fair	74	0.46 (1.34) (median 0.5)		61.9 (31.4)	

Table 3 Multiple linear regression for BMI z-score

Variable	Regression Coefficient (b)	Standard Error (b)	± 95 % Confidence Interval	P Value
Model 1				
Intercept	0.01	0.45	-	-
S-ECC (Reference = Caries-Free)	0.38	0.19	0.013, 0.75	0.043
Low Vitamin D (Reference = No)	0.19	0.18	-0.15, 0.54	0.27
Snacking Frequency (Reference = Daily)	-0.53	0.41	-0.29, 1.34	0.21
Annual Income (Reference = Low)	-0.55	0.19	-0.92, -0.18	0.004
Model 2				
Intercept	1.01	0.34	-	-
Parental Education (Reference = < High School)	-0.46	0.21	-0.87, -0.05	0.029
S-ECC (Reference = Caries-Free)	0.37	0.19	0.0009, 0.73	0.049
Low Vitamin D (Reference = No)	0.31	0.17	-0.025, 0.65	0.069
Snacking Frequency (Reference = Daily)	-0.46	0.40	-0.33, 1.25	0.26

were 1.82 times as likely (unadjusted odds ratio) to be overweight and/or obese than their caries-free peers (39.7 % vs. 26.6 %).

Many studies involving body weight use BMI percentile as the measure of “body fatness”, as it is age and sex adjusted and allows for the ability to accurately compare children of differing ages and gender [18, 20]. As stated previously, percentiles are derived from a corresponding age and sex adjusted z-score. Almost 9 % of our entire sample of children (20/235) had BMI z-scores above the corresponding 99th percentile. This means that any child with a z-score > 2.34 is considered to be similar. Surprisingly though, many children had z-scores approaching and even surpassing 3.0. In light of this knowledge, the most accurate representation of the study population's BMI comes from using z-scores.

We are not the first to study the relationship between S-ECC and BMI [14, 16, 19, 23, 24, 27, 28]. The significant association between S-ECC and higher BMI z-scores or overweight/obesity highlighted in this research is in agreement with other studies [13, 27, 35]. In contrast, other groups have reported that children with S-ECC are more likely to be underweight [14, 16, 19, 36]. Meanwhile, other large population-based studies have not found any significant association between BMI and caries experience after controlling for confounders [23, 24, 29, 37]. However, many studies in the area of BMI and caries report mean BMI, BMI percentiles, or mean weight on populations of varying ages and of mixed gender [14, 16, 28, 37–40]. The use of z-scores adjusts for both age and gender and thus allows for more meaningful reporting of means. In addition to reporting BMI z-scores in our present study, we present data on BMI percentiles to allow for comparisons with other studies in this area.

While direct causation between severe caries and obesity has not been established, the association between

these two conditions is becoming apparent. Naturally, differences in inclusion criteria and case selection of children with caries and controls exist between studies, and greatly complicate our understanding of this relationship. Some studies have compared children with S-ECC with caries-free controls. However, others have compared caries-free children and those with ECC, meaning that they may have over enrolled those with milder forms of caries, thereby downplaying any potential relationships. Meanwhile, some have explored the relationship between decayed, missing and filled tooth (dmft) scores and BMI. Regardless, both caries and obesity may demonstrate associations because of shared risk factors [16, 19, 23, 27, 29]. These two chronic disease outcomes are often influenced by socioeconomic status (primarily low income and low parental education levels), overconsumption of carbohydrate-rich foods, increased frequency of snacking, and health behaviours [13, 19].

Multiple linear regression for BMI z-scores was undertaken to control for potential confounders. After controlling for snacking frequency and socioeconomic factors like low annual income and lower parental education, we identified that BMI z-scores were significantly associated with S-ECC, low annual income, and low parental education. No association was found between S-ECC and caries-free children with respect to snacking. Such a relationship may in fact exist within this population, however additional questions regarding the frequency (e.g. number of times a day), timing (e.g. *when* do the children snack?), and type (e.g. sweets, chips, fruit, vegetables, etc.) of snacking would be useful in determining whether snacking plays as crucial a role in the development of S-ECC as is commonly believed.

Overall, the high proportion of children classified as overweight or obese was rather striking. Compared to

the CDC reference population, our cohort was more overweight (17.4 % vs. 10 %) and more obese (17 % vs. 5 %). 34.4 % of preschool children in our study fell into the two categories that should normally only comprise the upper 15 % of the population. A 2010 review of weight status in Manitoba children reported that 31.2 % of those 2-17 years of age were overweight or obese [41]. When restricted to 2-5 year olds, this percentage drops to 23.2 % [41]. Why, then, did our study population show such high proportions of overweight and obesity in such a young population? The answer is likely related to the study population involved, as many of the children were from families with low socioeconomic status (SES) and low parental education levels – factors which have consistently been linked with overweight and obesity. This is highlighted in the 2010 review by Yu, et al., who found that 40.8 % of the low-income children qualified as overweight or obese [41].

A unique finding of this study was that children with optimal vitamin D status, as measured by 25(OH)D concentrations, had significantly lower BMI z-scores than children with levels below this threshold. This seems to coincide with the observations from a study on the vitamin D status of First Nations children from two Cree communities that increased BMI may be associated with lower vitamin D concentrations [42]. This could possibly be due to poor quality, but high calorie diets.

Naturally, this study had certain limitations. As the present investigation relied on data which was cross-sectional in nature, we were unable to establish a cause and effect relationship between the variables. Recall bias may have played a role in certain questions within the questionnaires. While the S-ECC and caries-free groups were relatively matched for age and sex, there are some inherent differences between the groups that were impossible to control, which we discussed in two previous papers involving this cohort of children [9, 10]. For instance, one cannot address factors like the household income and parental education as they are key determinants for S-ECC [9, 10]. However, education and income were included in the regression models to control for their effects. Another limitation was that weight and height measurements for those undergoing dental surgery were obtained from the chart though the measurements had been performed by a trained healthcare professional and those recruited from the community were obtained by a trained study staff. However, all used calibrated scales and stadiometers. Unfortunately, the degree of intra and inter-rater reliability with respect to height and weight measurements was not determined. The results from this study are not necessarily generalizable to the general population outside of Manitoba.

The identified association between BMI z-score and S-ECC is important for both the dental and medical

professions to appreciate. Dentists should consider screening their pediatric patients with caries for obesity and refer at-risk children to a physician or other primary health care provider for follow-up. Dentists and dental hygienists traditionally deliver dietary counselling as part of their preventive approach to minimize the risk of caries. However, the benefits of this type of dietary counselling to avoid sugars and junk foods may also extend to the child's general health and may help lower the child's risk for obesity [29, 43]. Members of the dental team are well positioned to be allies in the battle against childhood obesity. Medical professionals caring for children who are at-risk for being overweight and obese should understand that these children may also have serious dental needs. The dietary and lifestyle counselling that they provide can have positive impacts on a child's oral health.

Conclusions

Overall, children in this sample were 1.7 times more likely to be overweight and 3.4 times more likely to be obese when compared to the CDC's expected BMI percentiles. Children with S-ECC were significantly more likely to be overweight and obese compared to caries-free children. Children with S-ECC in our sample had significantly higher BMI z-scores and percentiles than caries-free peers. Members of the dental team are well positioned to be allies in the battle against childhood obesity.

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Availability of data and materials

The datasets generated during and/or analysed during the current study are not publicly available due to institutional ethics board restrictions, but are available from the corresponding author on reasonable request.

Authors' contributions

KD: Acquisition of data, analysis and interpretation of data, drafting of article, revising article critically for important intellectual content, and final approval of version to be published. RS: Conception and design, acquisition of data, analysis and interpretation of data, drafting of article, revising article critically for important intellectual content, and final approval of version to be published. JAL: Acquisition of data, analysis and interpretation of data, revising article critically for important intellectual content, and final approval of version to be published. AY: Analysis and interpretation of data, revising article critically for important intellectual content, and final approval of version to be published. BAM: Analysis and interpretation of data, revising

article critically for important intellectual content, and final approval of version to be published. ES: Analysis and interpretation of data, revising article critically for important intellectual content, and final approval of version to be published.

Competing interests

The authors declare that they have no competing interests.

Consent to publish

N/A.

Ethics approval and consent to participate

Approval was granted from the University of Manitoba's Health Research Ethics Board (H2008:178).

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References

- Schroth RJ, Harrison RL, Moffatt ME. Oral health of indigenous children and the influence of early childhood caries on childhood health and well-being. *Pediatr Clin North Am*. 2009;56:1481–99.
- American Academy of Pediatric Dentistry. Policy on the dental home. *Pediatr Dent*. 2012;34:24–5.
- American Academy of Pediatric Dentistry. Early childhood caries (ECC): classifications, consequences, and preventive strategies. *Pediatr Dent*. 2013; 35:50–2.
- Amin MS, Perez A, Nyachwaya P. Parental Awareness and Dental Attendance of Children Among African Immigrants. *J Immigr Minor Health*. 2013.
- Werneck RI, Lawrence HP, Kulkarni GV, et al. Early childhood caries and access to dental care among children of portuguese-speaking immigrants in the city of Toronto. *J Can Dent Assoc*. 2008;74:805.
- Irvine J, Holve S, Krol D, et al. Policy statement - Early childhood caries in indigenous communities. *Paediatr Child Health*. 2011;16:351–7.
- Clarke M, Locker D, Berall G, et al. Malnourishment in a population of young children with severe early childhood caries. *Pediatr Dent*. 2006;28:254–9.
- Schroth R, Jeal N, Kliever E, et al. The relationship between vitamin D and severe early childhood caries: a pilot study. *Int J Vitam Nutr Res*. 2012;82:53–62.
- Schroth RJ, Levi J, Kliever E, et al. Association between iron status, iron deficiency anaemia, and severe early childhood caries: a case-control study. *BMC Pediatr*. 2013;13:22.
- Schroth RJ, Levi JA, Sellers EA, et al. Vitamin D status of children with severe early childhood caries: a case-control study. *BMC Pediatr*. 2013;13:174.
- Williamson R, Oueis H, Casamassimo PS, et al. Association between early childhood caries and behavior as measured by the child behavior checklist. *Pediatr Dent*. 2008;30:505–9.
- Casamassimo PS, Thikkurissy S, Edelstein BL, et al. Beyond the dmft: the human and economic cost of early childhood caries. *J Am Dent Assoc*. 2009;140:650–7.
- Ayhan H, Suskan E, Yildirim S. The effect of nursing or rampant caries on height, body weight and head circumference. *J Clin Pediatr Dent*. 1996;20: 209–12.
- Gaur S, Nayak R. Underweight in low socioeconomic status preschool children with severe early childhood caries. *J Indian Soc Pedod Prev Dent*. 2011;29:305–9.
- Low W, Tan S, Schwartz S. The effect of severe caries on the quality of life in young children. *Pediatr Dent*. 1999;21:325–6.
- Sheller B, Churchill SS, Williams BJ, et al. Body mass index of children with severe early childhood caries. *Pediatr Dent*. 2009;31:216–21.
- Peretz B, Ram D, Azo E, et al. Preschool caries as an indicator of future caries: a longitudinal study. *Pediatr Dent*. 2003;25:114–8.
- Centers for Disease Control and Prevention (CDC). About BMI for children and teens. 2014.
- Oliveira LB, Sheiham A, Bonecker M. Exploring the association of dental caries with social factors and nutritional status in Brazilian preschool children. *Eur J Oral Sci*. 2008;116:37–43.
- Centers for Disease Control and Prevention (CDC). Clinical growth charts. 2009.
- Meyers A, Joyce K, Coleman SM, et al. Health of children classified as underweight by CDC reference but normal by WHO standard. *Pediatrics*. 2013;131:e1780–7.
- Centers for Disease Control and Prevention (CDC). Basics about obesity. 2012.
- Hong L, Ahmed A, McCuniff M, et al. Obesity and dental caries in children aged 2-6 years in the United States: National Health and Nutrition Examination Survey 1999-2002. *J Public Health Dent*. 2008;68:227–33.
- Chen W, Chen P, Chen SC, et al. Lack of association between obesity and dental caries in three-year-old children. *Zhonghua Min Guo Xiao Er Ke Yi Xue Hui Za Zhi*. 1998;39:109–11.
- Acs G, Lodolini G, Kaminsky S, et al. Effect of nursing caries on body weight in a pediatric population. *Pediatr Dent*. 1992;14:302–5.
- Acs G, Shulman R, Ng MW, et al. The effect of dental rehabilitation on the body weight of children with early childhood caries. *Pediatr Dent*. 1999;21: 109–13.
- Reifsnider E, Mobley C, Mendez DB. Childhood obesity and early childhood caries in a WIC population. *Multicult Nurs Health*. 2004;10:24–31.
- Vazquez-Nava F, Vazquez-Rodriguez EM, Saldivar-Gonzalez AH, et al. Association between obesity and dental caries in a group of preschool children in Mexico. *J Public Health Dent*. 2010;70:124–30.
- Dye BA, Shenkin JD, Ogden CL, et al. The relationship between healthful eating practices and dental caries in children aged 2-5 years in the United States, 1988-1994. *J Am Dent Assoc*. 2004;135:55–66.
- World Health Organization. Oral health surveys: basic methods. 5th ed. Geneva: World Health Organization; 2013:1-125.
- Centers for Disease Control and Prevention (CDC). BMI percentile calculator for child and teen. 2010.
- QuesGen Systems Inc. BMI calculator: pediatric. 2011.
- Holick MF. Vitamin D deficiency. *N Engl J Med*. 2007;357:266–81.
- Whiting SJ, Calvo MS. Overview of the proceedings from Experimental Biology 2005 symposium: Optimizing Vitamin D Intake for Populations with Special Needs: Barriers to Effective Food Fortification and Supplementation. *J Nutr*. 2006;136:1114–6.
- Bagherian A, Sadeghi M. Association between dental caries and age-specific body mass index in preschool children of an Iranian population. *Indian J Dent Res*. 2013;24:66–70.
- Miller J, Vaughan-Williams E, Furlong R, et al. Dental caries and children's weights. *J Epidemiol Community Health*. 1982;36:49–52.
- Macek MD, Mitola DJ. Exploring the association between overweight and dental caries among US children. *Pediatr Dent*. 2006;28:375–80.
- Bhoomika W, Ramakrishna Y, Munshi AK. Relationship between severe early childhood caries and body mass index. *J Clin Pediatr Dent*. 2013;37:235–42.
- Costa LR, Daher A, Queiroz MG. Early childhood caries and body mass index in young children from low income families. *Int J Environ Res Public Health*. 2013;10:867–78.
- Hilgers KK, Kinane DE, Scheetz JP. Association between childhood obesity and smooth-surface caries in posterior teeth: a preliminary study. *Pediatr Dent*. 2006;28:23–8.
- Yu BN, Protudjer JL, Anderson K, et al. Weight status and determinants of health in Manitoba children and youth. *Can J Diet Pract Res*. 2010;71:115–21.
- Riverin B, Dewailly E, Cote S, et al. Prevalence of vitamin D insufficiency among healthy school-age Cree children. *Paediatr Child Health*. 2014;19: e15–9.
- Nunn ME, Braunstein NS, Krall Kaye EA, et al. Healthy eating index is a predictor of early childhood caries. *J Dent Res*. 2009;88:361–6.

The Saul Sair Health Centre

Saul Sair Health Centre, based at the Siloam Mission is a full service clinic for the homeless and street community of Winnipeg. Located at 300 Princess, this modern clinic offers Dental, Vision, Medical, Physiotherapy, Foot Care and in the future, mobile counselling for guests at Siloam. This health centre opened in 2007 with the \$1,000,000 donation from the late Mr. Saul Sair, pharmacist.

On the clinic days, guests line up to get an appointment time with one of the specialists in the clinic that day and the appointment slots fill up fast! The clinic manager, Angelika Fletcher, finds the in person registration works well for this community.

Please be aware:

The health centre is located within Siloam Mission. It is not a Community walk-in clinic. Only people who use Siloam's other services regularly are eligible to be seen by Saul Sair Health Centre volunteer professionals.

Siloam continues to admire the support of our dental hygienists, dentists and dental assistants. Angelika notes, 'If you only have one shift per month or per year, we are happy to schedule you into our clinic time. The dental assistant on staff is here to assist you, but if you would like to come with an additional assistant, we could have patients in both chairs.'

The Health Centre offers many amenities the dentists have expected in their own modern patient focussed clinics. Even though you may not be able to offer a wide variety of dental treatment plans to the Siloam patients, all patients are treated with the professional care and respect similar to your own clinic.

Call Angelika today at (204) 943-0658
or by email angelika.fletcher@siloam.ca



Measuring the short-term impact of fluoridation cessation on dental caries in Grade 2 children using tooth surface indices

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Abstract – Objectives: To examine the short-term impact of fluoridation cessation on children's caries experience measured by tooth surfaces. If there is an adverse short-term effect of cessation, it should be apparent when we focus on smooth tooth surfaces, where fluoride is most likely to have an impact for the age group and time frame considered in this study. **Methods:** We examined data from population-based samples of school children (Grade 2) in two similar cities in the province of Alberta, Canada: Calgary, where cessation occurred in May 2011 and Edmonton where fluoridation remains in place. We analysed change over time (2004/2005 to 2013/2014) in summary data for primary (defs) and permanent (DMFS) teeth for Calgary and Edmonton, for all tooth surfaces and smooth surfaces only. We also considered, for 2013/2014 only, the exposed subsample defined as lifelong residents who reported usually drinking tap water. **Results:** We observed, across the full sample, an increase in primary tooth decay (mean defs – all surfaces and smooth surfaces) in both cities, but the magnitude of the increase was greater in Calgary (F-cessation) than in Edmonton (F-continued). For permanent tooth decay, when focusing on smooth surfaces among those affected (those with DMFS>0), we observed a non-significant trend towards an increase in Calgary (F-cessation) that was not apparent in Edmonton (F-continued). **Conclusions:** Trends observed for primary teeth were consistent with an adverse effect of fluoridation cessation on children's tooth decay, 2.5–3 years post-cessation. Trends for permanent teeth hinted at early indication of an adverse effect. It is important that future data collection efforts in the two cities be undertaken, to permit continued monitoring of these trends.

Key words: fluoridation; Public health

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10.1111/cdoe.12215 - Volume 44, Issue 3 June 2016 Pages 274–282 Community Dentistry and Oral Epidemiology

Building Relationships Through Effective Listening

LISA PHELP
PRESIDENT, TRANSITIONS GROUP

From time to time, we all need the help of our fellow team members to make the dental office function more efficiently. However, no one should simply bark out an order or directive and expect others to heed our wishes. Rather, an interactive two-way exchange of information delivered in an articulate fashion delivers our needs clearly and builds stronger relationships.

Whether in the business world or at home, improved communication begins with a desire to improve the current state of the environment. Improved communication also requires both parties to use effective listening techniques.

Your listening skills can be strengthened by using a simple four-step approach. When used consistently in your conversations, it can lead to better relationships in the dental office.

A conversation begins with **Hearing** what the other person has to say, **Understanding** what has been said, **Demonstrating** to the other party you heard what was said and then taking the appropriate **Action**.

1. Hear what the other person is saying. Although this sounds simple, it requires your complete concentration and attention. How often have we been a victim of trying to speak to someone when we only have their partial attention? The person could be checking the computer screen, rifling through notes or carrying out a hoard of other activities, while believing they are actually able to listen to you. Stop what you are doing, make eye contact (if in person) and really tune in to what the person is saying.

There are so many distractions which can compete for your attention. Be aware of these distractions and ensure they don't disrupt your focus.

2. Understand what is being said. This stage of the conversation requires you to exercise questioning techniques. By asking open-ended or leading questions, you can maximize your understanding of the other parties needs. These probing questions allow you to pinpoint the core of the conversation as well as maximize your credibility.

3. Demonstrate to the other party your comprehension of their needs. One effective technique is repeating what they have said. This can be done by paraphrasing the other person, to ensure you are both in agreement of what is required. Throughout your conversation, your ability to use these techniques will help to build trust and solidify relationships.

4. Act. Be sure to let the individual know what actions you will take after your conversation has ended. Then, be sure you take the appropriate action and follow through on your commitments.

Consistent use of this four-step listening process will improve your ability to build relationships in all parts of your life. After all, first you must understand before you can be understood.

Lisa Philp is the president of Transitions Group is a Canadian practice management consulting firm. They are dedicated to making a positive difference in the lives of the healthcare professionals and team members they have the privilege to serve. For more information visit www.transitionsonline.com or call 1-800-345-5157.

Building Trust for Successful Interactions

Trust is required for an individual to become genuinely connected to other team members and to their leader. It is the foundation upon which meaningful relationships and successful teamwork is built.

Trust is not something that can be dictated or demanded; it must be developed and continually fostered by both parties in a relationship. Showing trust in another can directly affect their willingness to develop trust in you. There are five elements that must be present for authentic trust.

1. Caring: must be some kind of emotional connection and a feeling of sincerity and genuine intentions.

2. Competency: skills, knowledge and ability to perform what is needed.

3. Commitment: "Promise-keeping" is the act of keeping our commitments with each other and with ourselves. This is an important aspect in the development and strengthening of trust in any relationship. If I need to break a commitment, then as a responsible member of the team, I need to let the other person know as soon as possible, and in a truthful way, in order to minimize the effect of the broken commitment. We

are not always aware of all the small commitments we break, unconsciously, every day to ourselves and to others.

1. Confidence: know what you are good at and have a belief and feeling that you can build on your talents.

2. Congruence: is exhibited when one's actions are consistent with one's words. A congruent person can be trusted. People with a high level of congruence or inner trust are not afraid to make and admit mistakes to themselves and others. They don't beat themselves up, they find a way to make amends, or forgive and endeavor not to make the same mistake again. More honesty with self means more honesty with others. Inner congruence and outer trustworthiness go hand in hand. The truth puts the *soul* at ease.

A mixture of all the above elements is necessary for an individual to trust another person. If you believe that someone is competent, that they care about you, and are congruent in what they say and do, it will be much easier for you to develop trust in that person. Taken alone, these elements are not enough to engender trust. All are necessary at some level and must be demonstrated consistently over time.



Treating Visitors and Newcomers to Canada

BY RENATA WHITEMAN

With an ever-growing number of newcomers and visitors to Canada, dentists often find themselves caring for patients who are being treated for the first time in our country. Some dentists have been asking questions about the malpractice implications of these treatments, so in this article I'll talk about some of those circumstances.

The core message is that your malpractice insurance covers you for the treatment of any patient within the jurisdiction where you are licensed. The patient does not need to be a resident of your province or territory, or of Canada. Treatments for visitors to Canada are fully covered. That being said, there is the potential that a patient could attempt to pursue an action against you once they have returned to their home country. To manage this liability, we advise that you require your patient to acknowledge, on a Consent to Treatment form, that they can only undertake an action in your jurisdiction.

If you use a consent form provided by your provincial or territorial licensing body, it will likely have an article relating to jurisdiction. If not, the Consent to Treatment form provided on the CDSPI website contains this provision; it's important that you ensure this segment is completed on the signed form.

I acknowledge and understand that Dr. _____ has agreed to provide professional services for me conditional on this undertaking being given and honoured by me with regard to my declaring that the Province of _____ has exclusive jurisdiction over any action, suit or proceeding and Dr. _____ has made it clear that without my making this undertaking, he would not have agreed to provide treatment for me.

As with all patients you treat, you can go a long way to mitigating potential malpractice problems with accurate documentation, including conversations, charts, records of diagnostic procedures and treatment plans. In the best case scenario, when you treat a new patient you can obtain records that may help with your diagnosis and treatment plan. When people are coming from other countries, however, these records may not be available, or they may be in another language. In these cases, you may need to be extra diligent in conducting diagnostic procedures if you don't have a history or prior radiographs to rely on.

Language and informed consent

The terms of your malpractice insurance require that patients must have the legal and mental capacity to give consent before you can provide treatment. They must be over a certain age, for example

(which varies according to jurisdiction), and they must be deemed mentally capable of giving consent. A parent, guardian or substitute decision maker can provide consent on their behalf, when this is necessary.

A situation where a patient and a dentist have little or no knowledge of each other's language poses a particular challenge. In these cases, it's advisable that the patient be accompanied by someone who can interpret the conversation on their behalf. You should not provide treatment until you are completely confident that the patient fully understands and consents to the treatment you are proposing. In instances where there is a complicated procedure to explain, the services of a professional interpreter are recommended.

Practising outside of Canada

Malpractice insurance does not cover you for work done outside of Canada, so it's important to obtain insurance applicable to the jurisdiction in which you are practising. The only exception is in jurisdictions where there is no dental regulatory body. If you participate in an access to care program in a developing country, for example, you will be covered by your CDSPI malpractice plan, subject to the terms and conditions of the policy, provided an action against you is launched in Canada.

If you have any questions about the malpractice implications of treating visitors or newcomers to Canada, please contact me for clarification.

Renata Whiteman
Senior Insurance Advisor
CDSPI Advisory Services Inc.
1-800-561-9401 ext. 6806
rwhiteman@cdspi.com

As a licensed insurance advisor at CDSPI Advisory Services Inc., I offer a combination of expertise and personal knowledge of clients' needs, with an exclusive focus on dental professionals. I invite you to contact me if you would like a no-cost, no-obligation review of your insurance portfolio.

Malpractice Insurance is underwritten by Aviva Insurance Company of Canada.

Want to Realize Top Dollar for Your Practice? Put Some Teeth into Exit Planning

It's a sellers' market for Canada's dentists. Those who put their practices up for sale generally entertain multiple bids and realize a premium on the sale. But before you decide to capitalize on your years of hard work, you should know careful timing and planning are needed to maximize financial returns. Following are three ways to put some teeth into your exit planning so you can realize top value for your practice.

1. Develop a transition plan

A transition plan is a documented action plan setting out the specific steps and tasks required to successfully exit your practice. A plan typically includes your financial and business goals, a valuation of your practice, consideration of the form of the transaction (i.e. sale of assets or shares), tasks to properly structure the practice, tasks to enhance the value of the practice and a timetable.

2. Structure the Practice

Essentially, there are two options for selling a dental practice: a sale of assets or shares. While purchasers prefer to buy assets because there are tax advantages and fewer liability issues, most dentists prefer to sell shares. This option allows you to claim the lifetime capital gains exemption whereby you can shelter up to \$824,000 of the gain from the sale. This exemption can also be multiplied when family members hold equity shares and participate in the growth of the practice. For example, if you own a practice in Manitoba and decide to sell the assets of your practice, which is valued at \$1 million, this could result in potential taxes owing of about \$315,000. However, if both you and your spouse are shareholders who qualify for the \$824,000 capital gains exemption and you sell the shares of the practice, the entire sale could be tax-free.

In order for a sale to be eligible for the lifetime capital gains exemption, a number of conditions must be met, including the following:

- **Qualifying corporation:** Only the sale of shares of a small business corporation qualifies, therefore the practice must be incorporated.
- **Asset use:** Substantially all (the accepted standard is 90%) of a professional corporation's (PC) assets must be used in an active business at the time of sale. This may require moving nonactive business assets out of your professional corporation.
- **Share ownership:** Shares of the PC must be owned by you and any family members (spouse, children) for a minimum of 24 months prior to a sale.
- **Active business:** For a period of 24 months prior to a sale, at least 50% of a PC's assets must be used principally in an active business.

1. Increase the Value of the Practice

When assessing a practice, the more value prospective purchasers find, the higher the sale price is likely to be. A desirable lease, good employees with well-defined job descriptions, and well-structured systems all add to the value of a practice.

Typically, you may involve a number of different advisors in planning for the sale of your practice, such as a wealth management advisor, lawyer, insurance broker and practice broker. Be sure an accountant experienced with professional practices is included as a key part of this team. This individual can help to ensure your business structure, practice value enhancement strategy and your retirement, estate and tax planning are all properly aligned to achieve your goals.

Timing is also crucial. With the aging of the baby boom generation, today's sellers' market for dental practices may rapidly evolve into a buyers' market – so put your teeth into exit planning today and enjoy a taste of your future.

To learn more contact Alyson Kennedy, FCPA, FCA, CFP at 204.788.6057 or alyson.kennedy@mnp.ca.

The Tax-Sheltered Growth of Participating Whole Life Insurance Policies Will Change Dramatically on January 1, 2017.

Participating whole life insurance is a unique asset accumulation, estate and retirement planning tool. The funds inside the plan grow tax free.

Dental Corporations who don't need more insurance are buying it now as a risk-free portfolio investment that will grow in value every year.

Time is running out! Policies that are issued on or after January 1, 2017 will be subject to the new rules. These rules will impact the amount of the tax-free capital dividend account (CDA credit) available on corporate owned policies.

Call Brendan Roddy or Richard Mikucki for an insurance portfolio review to protect your portfolio from these upcoming changes as they impact universal life and whole life insurance policies.



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Have Things Changed?

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If you've recently added or upgraded equipment or furnishings in your practice — or renovated your office — your insurance might not have kept up. With adequate insurance, you can save many thousands of dollars out of your own pocket if disaster strikes at your dental office.

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A licensed insurance advisor at CDSPI Advisory Services Inc. can help you get a handle on your office protection needs. Call today and take advantage of our 50 years of working with the dental community.

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TripleGuard™ Insurance is underwritten by Aviva Insurance Company of Canada. The plan is a part of the Canadian Dentists' Insurance Program — which is a member benefit of the CDA and participating provincial and territorial dental associations. Insurance planning advice is provided by licensed advisors at CDSPI Advisory Services Inc. Restrictions may apply to advisory services in certain jurisdictions.



Separating Fact from Fiction:

The Definition of Treatment Time and the use of The ODA Suggested Fee Guide A Joint Message from the ODA and the CDHO

The Ontario Dental Association (ODA) and the College of Dental Hygienists of Ontario (CDHO) are often asked for advice and direction from dentists and dental hygienists about the definition of treatment time and how the dental hygienist would record this time in the patient's chart, what ODA procedure codes would be used for treatment and the suggested fees for treatment (billing).

What is the definition of treatment time?

Treatment time is not just "instrument on tooth time". Treatment time includes the time spent reviewing the chart to prepare oneself for the procedure. Also included is the time spent administering a local anaesthetic when required, performing the procedure, providing post operative instructions to the patient (when required) and recording the treatment notes in the chart. Examples of time spent that would *not* be included in treatment time would be the breakdown, disinfection and set up of the operator, as well as administrative functions such as billing and reappointing the patient. Time spent measuring and recording periodontal findings would not be included in scaling/root planing. That time would be considered to part of the dentist's examination & diagnosis time whether dentist performs the examination & diagnosis at that appointment or at a subsequent appointment.

Do dental hygienists need to record the start and stop time for all patient appointments?

The CDHO advises dental hygienists that the record keeping regulation states that "for each intervention, the amount of time the member spent providing dental hygiene care" must be recorded. Compliance with this provision requires that the dental hygienist record the time spent providing services that are based upon units of time; specifically the time spent scaling and root planing, polishing and/or desensitizing must be recorded. Best practice is to record the number of minutes providing each of these services. Recording only as units may be confusing particularly when the office books in 10 minute units but uses procedure codes which are always based on 15 minute units. It is acceptable to also write the number of units in addition to the minutes spent providing these services although this is not a requirement of the regulation.

How are "per unit of time" procedure codes to be used and how are the fees to be billed to the patient determined?

The Ontario Dental Association publishes *The ODA Suggested Fee Guide for General Practitioners*® and is the ultimate authority on the use of the *Guide*. It is intended to serve only as a reference for the dentist to enable development of a structure of fees which is fair and reasonable to the patient and to the dentist. The suggested fees are not obligatory and each dentist is expected to determine independently the fees which will be charged for the services performed. The *Guide* is issued merely for professional information purposes, without any intention or expectation whatsoever that a dentist will adopt the suggested fees.

While the suggested fees are not obligatory, the use of correct procedure codes is and this means that the dentist must use the code that describes the actual service performed and that code must be the code that appears in the most current edition of the *Guide*. In the case of "per unit of time" procedures such as scaling and root planing, the code used must reflect the amount of time spent providing the service. **Time is measured in fifteen minute units.** If a procedure takes a partial unit of time, the procedure code which corresponds to the "half unit of time" should be used. Where a "half unit of time" code does not exist, the code which corresponds to the next higher unit of time may be used and the dentist may adjust his/her usual and customary fee and bill the patient for the actual time.

ODA member dentists and their employees who have questions about the use of the *Guide* should contact the ODA Practice Advisory Services Department.



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Jodie Zilkey
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Dr. Tom Breneman, Past President of the CDA, MDA, and the Western Manitoba Dental Society, has a proven track record of success with his own multi-practitioner practice. Having recently transitioned his own practice, Tom is uniquely positioned to understand the process from both sides. Working with Tier Three he will be able to provide all of the services required to transition your own practice successfully. Tom will lead the Tier Three team in Manitoba.

Jodie Zilkey, joins Tier Three with a deep background in merchandising and business. She spent 18 years in management positions in retail management and ownership, and most recently as management in the health field. Her strong skill set will help Tom to assist dentists in Manitoba with the valuation process, sale and transition of their dental practices.

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