

CANADIAN JOURNAL OF DENTAL HYGIENE · JOURNAL CANADIEN DE L'HYGIÈNE DENTAIRE  
THE OFFICIAL JOURNAL OF THE CANADIAN DENTAL HYGIENISTS ASSOCIATION

CJDH



JCHD

QUARTERLY ISSUE · FEBRUARY 2015

VOL. 49, NO. 1

PM44063062

**Oral health assessment and staff perspectives following a student practicum in long-term care settings**

**Culturally safe oral health care for Aboriginal peoples of Canada**

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E-cigarette use in Canada: A call to action  
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Front cover: ©iStockphoto.com/kovalto1, modified to represent the seasonal quarterly publication of the journal.

ISSN 1712-171X (Print)

ISSN 1712-1728 (Online)

Canada Post Publications Mail agreement

#40063062. Return undeliverables to CDHA,  
1122 Wellington St W, Ottawa, ON K1Y 2Y7

Printed by Dollco/LoweMartin Group.



THE CANADIAN DENTAL  
HYGIENISTS ASSOCIATION  
L'ASSOCIATION CANADIENNE  
DES HYGIÉNISTES DENTAIRES

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The *Canadian Journal of Dental Hygiene* is the official peer-reviewed research publication of the Canadian Dental Hygienists Association (CDHA). Published in February, May, August, and November, the journal invites submissions of original research, literature reviews, case studies, and short communications of scientific and professional interest to dental hygienists and other oral health professionals. Bilingual Guidelines for Authors are available at [www.cdha.ca/cjdh](http://www.cdha.ca/cjdh).

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# E-cigarette use in Canada: A call to action

Peggy Maillet, DipDH, MEd

I have long considered myself to be a “champion” for tobacco dependence education (TDE). I have been an advocate at Dalhousie University for the past 10 years, and have published and presented on the topic both nationally and internationally. In November 2013, I was invited to present a poster at and attend the 8th National Conference on Tobacco or Health held in Ottawa. The stated objective of the conference was to “facilitate knowledge exchange among researchers, practitioners, and policy specialists with an interest in tobacco control.” In the opening plenary session, an expert forum was presented on the benefits, safety, and regulation of e-cigarettes. I attended with a very naïve perspective on e-cigarettes and soon learned what a controversial area of TDE I had entered.

So, what is an electronic or e-cigarette? An e-cigarette consists of a battery, an atomizer that heats the liquid and turns it into vapour, and a cartridge that contains flavouring and may or may not contain nicotine in a base of propylene glycol or vegetable glycerine and water. Currently e-cigarettes with nicotine or e-cigarettes that make a health claim (such as helping the user to quit smoking) cannot legally be imported, marketed or sold in Canada. In contrast, e-cigarettes with no nicotine and no health claim can legally be imported, marketed, and sold. That being said, we know that e-cigarettes with nicotine are currently being sold by many commercial outlets in Canada and may be purchased online. Unfortunately, the current Canadian regulations are not being enforced. The industry of e-cigarettes is now referred to as the “Wild, Wild West”—a lawless frontier where the e-cigarette makers can say and do whatever they wish. As health professionals, we have worked very hard in areas of tobacco education only now to have industry producing new products that may confuse our clients on the associated risks. One of the key issues for dental hygienists and other health professionals is to educate ourselves and our clients about e-cigarettes.

Health Canada has not approved e-cigarettes with nicotine and has issued an advisory to Canadians not to use e-cigarettes. In Canada, any electronic products



Peggy Maillet

intended to administer inhaled doses of nicotine are considered new drugs. Under the current Food and Drugs Act, the sale of nicotine is illegal without a prescription (except for specified, approved nicotine replacement therapies such as gum, the patch, lozenges, inhalers, and mouth spray). The Canadian Public Health Association has stated that the existing controls on e-cigarette sales “should be maintained pending the development of additional information concerning the health risks associated with the nicotine-containing product, and e-cigarettes’ efficacy as a smoking cessation device.”<sup>1</sup>

This statement has been corroborated by the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). WHO further states that there is no scientifically proven instruction for using electronic cigarettes as an aid to smoking cessation.<sup>2</sup> Like Canada, the US Food and Drug Administration (FDA) currently has no regulations for e-cigarettes but is expected to extend its tobacco product authority shortly. E-cigarettes are banned in Norway, Singapore, and Brazil, and France will shortly impose the same legislation for e-cigarettes as exists for regular cigarettes in that country.

For health professionals one concern is that e-cigarettes will undermine existing tobacco control policies, particularly those in work and public spaces where current smoking bans protect people from second-hand smoke. Moreover, the use of e-cigarettes in public spaces increases the social exposure to smoking and may contribute to the “renormalization” of cigarette use. These visual cues are recognized factors in youth smoking uptake. “Vaping” is actually a new verbal term specifically created to describe the action of using an e-cigarette. Totally youth-centred, most marketing of the e-cigarette has been through massive advertising on Internet websites and forums, through YouTube videos, Facebook, and on popular search engine sites. E-cigarette use is marketed as fun, novel, and glamorous. Multiflavour vials are placed in attractive packages endorsing their use as “Safer” (brand of e-cigarettes), and holders are adorned with jewels or personally designed

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just for the consumer. To add to the youth appeal, “vaping” is endorsed by several Hollywood celebrities: Katherine Heigl, Jenny McCarthy, Johnny Depp, and Leonardo DiCaprio, to name a few. And e-cigarette manufacturers are now being allowed as corporate sponsors for athletic events—a favourite past sponsorship opportunity of the big tobacco companies. Antismoking advocates are afraid that the use of flavoured e-cigarettes (Cap’n Crunch, Piña Colada, Bubble Gum, Snicker Doodle, Tootsie Roll) may influence pre-adolescents to take up smoking in later life. I was delighted to hear recently that some of the larger food corporations are asking for legal restrictions on the use of their “flavours” by e-cigarette manufacturers.

Another concern is the documented evidence in Canada of teens creatively placing marijuana oil in the e-cigarette vials. Even though teens have been smoking marijuana for years, they may not realize that marijuana oil has a higher content of tetrahydrocannabinol (THC), which is the principal psychoactive constituent of the cannabis plant. While standard marijuana has 10% to 20% THC, marijuana oil has 30% to 90% THC depending on the mix. In addition, because e-cigarettes can be used in public places, youth are actually smoking marijuana in and around schools. One recent positive step was the banning of e-cigarettes by the University of New Brunswick on all university property.

Health groups have concerns about advertised claims that e-cigarettes, in contrast to traditional cigarettes, are safe for one’s health, particularly when considering that the flavoured vials are attractive to small children and may not be regarded by parents as potentially harmful to children. Of equal worry is the claim that the devices are cessation aids when actually they have not gone through the rigorous testing necessary to establish such effectiveness. Full disclosure has not been provided on all e-cigarette products. In the US, testing by the FDA found that the labeling does not always reflect the actual amount of nicotine in the product. In Canada, some distributors are even offering to refill vials of e-liquid with a higher quantity of nicotine in the vial, exceeding known levels of safety. Another dangerous and disturbing trend is the use of whole tobacco alkaloids (WTA) rather than only pharmaceutical grade nicotine. The e-liquid WTA is not produced to any known standard and is not being monitored. Analysis of e-cigarettes has also found varying amounts of nitrosamines (known carcinogens) as well as toxic products used in embalming fluids and antifreeze.<sup>2</sup> The US FDA has seen an alarming increase in calls to poison control centres involving e-cigarette poisonings.

Concerns have also been raised about the second-hand vapour produced. The potential harm from second-hand e-cigarette smoke is still unknown. Two initial studies have found formaldehyde, benzene, and tobacco specific nitrosamines (a well-known carcinogen) in those second-hand emissions.<sup>3</sup> Dental hygienists need to be able to recognize and advise clients of the noted potential side

effects of e-cigarette use. These include headaches, sore throat, redness of the tongue, dry cough, and decreased lung function.

One might wonder why the 3 largest tobacco companies are investing so heavily in the marketing of these new products. The morbid truth is that “Big Tobacco” desperately needs “new” nicotine addicts. With over 21% of deaths in Canada in the last decade being smoking related<sup>4</sup> and thousands having successfully quit, tobacco corporations are looking to new markets. The US e-cigarette market alone is predicted to top \$1 billion in 2014 with a \$10 billion revenue projection for 2017.<sup>5</sup> It is easy to see the potential for a lucrative market and why the tobacco companies are investing so heavily in advertising.

By regulating e-cigarettes under the Food and Drugs Act but not actively enforcing the law, Health Canada is providing protection in name only, allowing promotion and sales to go unchecked. Some form of regulatory action needs to be taken with realistic, safe, and meaningful enforcement. The regulatory body should also ensure that e-cigarettes are controlled so that the valuable gains made in tobacco control in recent years will not be diminished. As health professionals, it is imperative that we become cognizant of all the facts surrounding any forthcoming legislation (I urge you listen to what is happening in your province) and step up to act as policy advocates where possible.

Buyers beware!

#### IN THIS ISSUE

This issue of the journal features articles on timely and important topics in oral health care. **Sharon Compton** and **Lisa Kline** examine oral health assessments and staff perspectives following a student practicum in long-term care settings in Edmonton, Alberta (p. 11). **Elizabeth Cavin** explores the need for culturally safe oral health care for Aboriginal peoples in Canada (p. 21). In addition, **Mandy Hayre** reflects on the need to enhance research training in dental hygiene education (p. 6). Rounding out the issue are a short piece highlighting the contributions of Canadian oral health researchers to the 3<sup>rd</sup> North American/Global Dental Hygiene Research Conference, which took place in Bethesda, Maryland, in October 2014 (p. 31), and two insightful book reviews. *Dental Erosion: Diagnosis, Risk Assessment, Prevention, Treatment* was reviewed by **Laura Thistle** (p. 33); *Evidence-Based Dentistry for the Dental Hygienist* was reviewed by **Janet Aquilina-Arnold** (p. 35).

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## Research and dental hygiene education

Mandy Hayre, DipDH, BDS, PID, MEd

Dental hygienists rely on quality research to provide timely, evidence-based care to clients. Since dental hygiene is a relatively young profession, it has relied on research findings from other health professions to inform dental hygiene practice. With increased growth in the profession and in our responsibilities, the need for us to begin conducting our own research has become evident. For example, I still remember my teachers speaking of Dr. Patricia Johnson's doctoral thesis titled, "Dental Hygienists in Canada: Descriptive Profile and Labour Force Behaviour," and how the data helped to dispel many preconceived notions regarding careers in dental hygiene.<sup>1</sup>

Today, there is more research being conducted in Canada and globally, and much of this research is coming from dental hygienists who are undertaking advanced studies. In fact, there are more dental hygienists obtaining baccalaureate, master's, and doctoral degrees than ever before. The 2013 Canadian Dental Hygienists Association (CDHA) Job Market & Employment survey bears out these facts. Of the 5400 respondents, approximately 20% (1040) indicated they had obtained a bachelor's degree; approximately 34% (358) of these bachelor's degrees were specifically in dental hygiene. Further, 106 (2%) had earned a master's degree and 19 (0.4%) held a doctoral degree.<sup>2</sup> This increase in the number of dental hygienists pursuing advanced education in Canada and globally has resulted in more dental hygiene research being conducted. This important contribution to the emerging body of knowledge for the profession enables us to be less reliant on the findings of other disciplines. More importantly, dental hygiene researchers are able to investigate areas of specific interest that assist us in meeting our own oral health objectives.

Despite this increase in education among dental hygienists, we still have a long way to go regarding research, particularly when it comes to the education of dental hygienists at the diploma level. My involvement with the Commission on Dental Accreditation of Canada (CDAC), the National Dental Hygiene Certification Board



Mandy Hayre  
CDHA President/Présidente de l'ACHD

## La recherche et la formation en hygiène dentaire

Les hygiénistes dentaires s'appuient sur des études de qualité afin de prodiguer, en temps opportun, des soins basés sur des données probantes à leurs clients. La pratique de l'hygiène dentaire a souvent été guidée par les résultats de recherches effectuées dans d'autres professions de la santé, étant donné que la profession d'hygiéniste dentaire est relativement jeune. Avec la croissance de notre profession et l'augmentation de nos responsabilités, le temps est venu pour nous d'effectuer nos propres recherches. Je me souviens encore, par exemple, de mes enseignants qui parlaient de la thèse doctorale de la Dre Patricia Johnson

intitulée : *Dental Hygienists in Canada: Descriptive Profile and Labour Force Behaviour* et de la portée de ce travail. Les données qu'elle y a présentées ont aidé à réfuter les nombreuses idées préconçues à l'égard des carrières en hygiène dentaire.<sup>1</sup>

Aujourd'hui, les recherches effectuées au Canada et à travers le monde sont de plus en plus nombreuses et plusieurs d'entre elles sont conduites par des hygiénistes dentaires qui entreprennent des études supérieures. En fait, plus que jamais, les hygiénistes dentaires obtiennent un baccalauréat, une maîtrise ou un doctorat. Le *Sondage sur le marché du travail et de l'emploi de 2013* de l'Association canadienne des hygiénistes dentaires (ACHD) révèle les faits suivants : parmi les 5400 répondants, environ 20 % (1040) d'entre eux ont indiqué avoir obtenu un baccalauréat et environ 34 % (358) de ces baccalauréats étaient spécifiquement en hygiène dentaire. De plus, 106 (2 %) des répondants avaient obtenu une maîtrise et 19 (0,4 %) étaient détenteurs d'un doctorat.<sup>2</sup> Cette hausse du nombre d'hygiénistes dentaires qui poursuivent des études supérieures, tant au Canada qu'à travers le monde, a fait en sorte qu'il y a aujourd'hui plus de recherches effectuées en hygiène dentaire. Ceci contribue grandement à l'émergence d'un ensemble de connaissances propre à la profession et nous rend moins dépendants des données provenant des autres disciplines. Plus important encore, les chercheurs en hygiène dentaire peuvent se pencher sur des sujets d'intérêts qui nous aident à atteindre nos propres objectifs en santé buccodentaire.

Malgré la hausse du niveau de scolarité des hygiénistes dentaires, la route est encore longue en matière de recherche, notamment lorsqu'il s'agit de la formation des hygiénistes

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(NDHCB), and various dental hygiene schools has given me a unique lens on the knowledge our students are acquiring. In my opinion as an educator, there is room for improvement in how we teach research in our programs. When reviewing national board exam results, one of the most notable areas where candidates struggle is in research-related topics, specifically the interpretation of data and research findings.

The education of dental hygienists in the past few years has undergone a great deal of change as a direct result of the revision of the entry-to-practice competencies in 2012.<sup>3</sup> Since their implementation, the NDHCB, CDAC, and the provincial regulatory bodies have used the national competencies to inform their practices, such as incorporating the new competency areas into the national board exam and accreditation requirements. Consequently, many programs have had to change or expand their curricula to adequately prepare students for the newly defined competencies, particularly in the area of research. Perhaps it is the newness of the curriculum or maybe it is the need for educators to improve the way they integrate research topics throughout the curriculum, but recent NDHCB exam results show that graduates struggle with questions related to research. If educators could focus more attention on this area, new graduates could be better prepared to interpret research findings and to reinforce evidence-based decision making in their everyday practice. Any deficiency is a concern because the application of new research is an essential skill for all health care professionals, and the public we serve expects us to be current with research findings in order to provide the most appropriate care.

The question of how to strengthen the skills to be able to teach research is challenging to answer because educators do not all have the same background or experience. However, in today's era of technology and multi-mode education delivery models, it is becoming easier to access resources to meet new educational standards and goals. Some avenues that dental hygiene educators may consider are described below.

1. *Graduate education:* Enroll in a graduate studies program at a master's or doctoral level. This avenue is the best way to understand research because candidates learn the theoretical underpinnings and have the opportunity to conduct and document their own research. A number of baccalaureate degrees and degree-completion programs in dental hygiene are offered in Canada that also address research to a certain extent, but these are not focussed on research. The University of Alberta now offers a master's degree in dental hygiene (<http://www.med.ualberta.ca/>) which is worth investigating.
2. *Continuing education:* Take formal courses on research methods and statistical interpretation. Courses are available face-to-face, online or in a

dentaires au niveau du diplôme. Mes implications auprès de la Commission de l'agrément dentaire du Canada (CADC), du Bureau national de la certification en hygiène dentaire (BNCHD) et de divers établissements d'apprentissage en hygiène dentaire m'ont permis d'avoir une perspective particulière sur les connaissances que nos étudiants acquièrent. Je suis d'avis, à titre de pédagogue, que la façon dont nous enseignons la recherche dans nos programmes peut être améliorée. L'analyse des résultats de l'examen de certification nationale révèle que les questions avec lesquelles les candidats ont le plus de difficulté sont celles liées à la recherche, notamment lorsqu'il s'agit d'interpréter les données et les résultats.

Au cours des dernières années, la formation des hygiénistes dentaires a connu de grands changements. Ces changements sont la conséquence directe de la révision des Compétences pour l'entrée en pratique effectuée en 2012.<sup>3</sup> Depuis l'établissement des compétences nationales, le BNCHD, la CADC et les organismes provinciaux de réglementation s'y sont référés pour se guider dans leurs pratiques, notamment en intégrant les nouveaux domaines de compétences à l'examen de certification nationale et aux exigences de l'agrément. Par conséquent, plusieurs programmes ont dû être modifiés afin de bien préparer les étudiants aux compétences nouvellement définies, particulièrement à celles liées à la recherche. Les résultats récents de l'examen du BNCHD indiquent que les questions liées à la recherche causent des difficultés aux diplômés; la nouveauté du programme pourrait en être la cause, ou les éducateurs ont peut-être besoin d'améliorer la façon dont ils incorporent les sujets de recherche au programme. Si les éducateurs portaient une attention particulière à ce sujet, les nouveaux diplômés pourraient être mieux préparés à interpréter les résultats de recherche et ils pourraient être mieux outillés, dans leur pratique quotidienne, pour prendre des décisions fondées sur des données probantes. Les lacunes ne doivent pas être prises à la légère, parce que la mise en application des nouvelles recherches est une compétence essentielle à tous les professionnels de la santé, et la population que nous desservons s'attend à ce que nous soyons à jour avec les résultats de recherche afin que nous puissions offrir les soins les plus appropriés.

Il n'est pas facile de cibler la façon idéale d'enseigner la recherche puisque les éducateurs n'ont pas tous les mêmes antécédents ni la même expérience. Néanmoins, en cette ère de technologie et des multiples modes d'enseignement, il est plus facile d'accéder aux ressources qui permettront d'atteindre les nouveaux objectifs et qui répondront aux normes en matière de l'éducation. Voici quelques moyens qui peuvent être pris en considération par les éducateurs en hygiène dentaire :

1. *Études supérieures :* Inscrivez-vous à un programme d'études supérieures; soit à la maîtrise ou au doctorat. Cette voie est la meilleure façon de comprendre la recherche puisque les candidats y apprennent les fondements théoriques et ils ont l'occasion de diriger et de documenter leur propre recherche. Plusieurs programmes de baccalauréat ou de parachèvement de diplôme en hygiène dentaire sont offerts au Canada. Bien qu'ils

blended format at many postsecondary institutions across Canada.

3. *Continuing education via professional meetings:* Attend research conferences such as those offered by the National Center for Dental Hygiene Research and Practice (NCDHRP). I attended their 3<sup>rd</sup> North American/Global Dental Hygiene Research Conference, “Beyond the Boundaries: Discovery, Innovation and Transformation,” in Bethesda, Maryland, a few months ago and can honestly say it was one of the best conferences I have ever attended. Not only did I learn about current research, but I was also motivated to begin exploring my own research path. For example, some of the workshops offered were “Overcoming the Fear of Statistics” and “Database Management 101.”<sup>4</sup>
4. *Research and educational online resources:* Investigate online resources such as the DHNet website (<http://www.usc.edu/dhnet>), which has free resources such as a researcher’s toolkit and an educator’s guide. The link to these documents is on the homepage, but each section on the site (Education, Research, and Practice) has several tabs with multiple links to related sites. This is a wonderful resource for educators and dental hygienists alike.
5. *Mentoring opportunities:* Explore the possibility of working with a person who is conducting research in an area of interest to you. For the most part, researchers are always looking for people to help out and this may be a way of gaining both knowledge and experience.
6. *Volunteerism:* Educators may have access to a research committee or group that oversees research projects in their local school. Serving on these committees can also assist in learning more about the research process.

While this is not an exhaustive list, I hope it gives a sense of the possibilities available. I have had many interesting discussions with my dental hygiene education colleagues who work at private schools and community colleges where the institutional mandate is not research. We concur that, while the education of dental hygiene students in the skills and use of research is better than it was before the implementation of the national competencies, it still has a way to go. We still have more to do.

Research is an essential skill that needs to take a higher priority in education because we need sound, timely scientific research upon which to base our practice. We need to teach our students how to interpret research while they are still in school so they are able to continue the development of these skills throughout their career. While more dental hygienists are going on to advanced education, we still have an inadequate pool of researchers

aborder le sujet, ces programmes ne sont pas axés sur la recherche. L’Université de l’Alberta offre maintenant un programme de maîtrise en hygiène dentaire (<http://www.med.ualberta.ca/>) et mérite d’être exploré.

2. *Formation continue :* Suivez des cours reconnus sur les méthodes de recherche et l’interprétation des statistiques. Ces cours sont offerts en présentiel, en ligne ou en format d’apprentissage mixte par plusieurs établissements d’enseignement postsecondaires à travers le Canada.
3. *Formation continue au moyen de rencontres professionnelles :* Assistez aux conférences de recherche telles que celles offertes par le *National Center for Dental Hygiene Research & Practice (NCDHRP)*. Il y a quelques mois, j’ai assisté à leur troisième Colloque nord-américain et international des hygiénistes dentaires en matière de recherche intitulé « Au-delà des frontières : découverte, innovation et transformation » à Bethesda au Maryland et je peux affirmer, en toute honnêteté, que c’était une des meilleures conférences à laquelle j’ai assisté dans toute ma vie. J’ai non seulement appris au sujet des recherches actuelles, mais j’ai aussi été motivée à trouver ma propre voie de recherche. Des exemples d’ateliers qui y étaient offerts sont « Vaincre la peur des statistiques » et « La gestion des bases de données 101 ».<sup>4</sup>
4. *La recherche et les ressources pédagogiques en ligne :* Explorez les ressources en ligne telles que le site DHNet (<http://www.usc.edu/dhnet>), qui offre gratuitement des ressources comme une trousse de chercheur et un guide pour éducateur. Le lien ci-dessus mène à la page d’accueil du site, mais chacune de ses sections (Éducation, Recherche et Pratique) a plusieurs onglets affichant de multiples liens vers des sites connexes. Ce site est une mine d’or tant pour les éducateurs que pour les hygiénistes dentaires.
5. *Mentorat :* Envisagez la possibilité de travailler avec une personne qui mène une étude dans un domaine qui vous intéresse. En général, les chercheurs sont toujours à la recherche de gens pour les aider, et votre participation pourrait être une bonne façon d’acquérir des connaissances et de l’expérience.
6. *Bénévolat :* Les enseignants ont parfois accès à un comité de recherche ou à un groupe qui supervise les projets de recherche menés dans leurs écoles locales. Siéger sur un tel comité pourrait vous aider à en apprendre davantage au sujet du processus de recherche.

Bien qu’elle soit non exhaustive, j’espère que cette liste brosse un tableau fidèle des options possibles. J’ai eu plusieurs échanges intéressants avec mes collègues qui enseignent en hygiène dentaire dans des établissements privés et des collèges communautaires qui n’ont pas de mandat de recherche. Il semble que nous partageons le même avis : la formation des étudiants en hygiène dentaire en matière d’habiletés et d’utilisation de recherche

in Canada. We may be able to improve this state if we have experienced and knowledgeable educators who can teach research at the diploma level and build a passion and appreciation for research in our students. In turn, this will influence more graduates to pursue higher levels of education and possibly even a research career path. A growing cohort of researchers will ensure that we continue to add to the unique body of knowledge needed for the growth of the profession into the future.<sup>5</sup> In the words of Nelson Mandela, “Education is the most powerful weapon which you can use to change the world.”

est meilleure qu'elle ne l'était avant l'élaboration des compétences nationales, mais des améliorations sont toujours nécessaires. Nous avons encore du travail à faire.

La recherche est une compétence essentielle, et une plus grande importance doit y être accordée lors de la formation afin que nous puissions, en temps opportun, avoir des études scientifiques fiables sur lesquelles baser notre pratique. Nous devons enseigner aux étudiants comment interpréter les recherches pendant leur formation afin qu'ils puissent continuer de perfectionner cette habileté tout au long de leur carrière. Bien qu'aujourd'hui un plus grand nombre d'hygiénistes dentaires poursuivent des études supérieures, le Canada n'a toujours pas un assez grand bassin de chercheurs. Nous pourrions peut-être améliorer cette situation en ayant des éducateurs aptes à enseigner la recherche au niveau du diplôme et capables de développer une passion et une appréciation de la recherche chez leurs étudiants. Ainsi, un plus grand nombre d'étudiants seraient encouragés à atteindre de plus hauts niveaux de scolarité et pourraient souhaiter poursuivre une carrière en recherche. Une cohorte grandissante de chercheurs nous permettrait d'enrichir l'ensemble des connaissances propres à la profession, lequel est nécessaire à la croissance future de celle-ci.<sup>5</sup> Comme l'a déclaré Nelson Mandela : « L'éducation est l'arme la plus puissante que l'on puisse utiliser pour changer le monde ».

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# Oral health assessment and staff perspectives following a student practicum in long-term care settings

Sharon M Compton\*, DipDH, BSc, MA(Ed), PhD; Lisa A Kline<sup>§</sup>, PhD

## ABSTRACT

**Introduction:** Better methods and protocols must be developed to perform proper daily mouth care for geriatric residents in long-term care (LTC) facilities. A practicum was initiated in which senior dental hygiene students worked at 2 LTC facilities to provide daily mouth care for residents, conduct oral health (OH) assessments, and when possible, provide OH care instruction to health care aides (HCAs) and other staff. In-service educational sessions were also provided to LTC staff by two registered dental hygienists. This article provides results of the oral assessments and results from the interviews. **Methods:** Oral assessment data were collected from residents using a modified version of the Oral Health Assessment Tool (OHAT). At the end of the practicum, individual interviews were conducted with HCAs, RNs, education coordinators, and executive directors at the LTC facilities. **Results:** Residents had poor oral health: 20.4% had healthy oral cleanliness, 12% had healthy tongues, and 38% had healthy gums and tissues. Most residents had generalized plaque (63%) and generalized hard debris (50%). Sixty-three percent of residents required some or total assistance with mouth care. Analysis of interview transcripts identified the following themes: 1) minimal to no interaction between staff and dental hygiene students; 2) positive feedback for student presence; 3) minimal mouth care training of facility staff; 4) regular mouth care routine done twice daily; 5) problems with administering mouthcare to residents; 6) lack of awareness of new Edmonton Zone mouth care guidelines; 7) plans for administrative staff to address follow-up to student oral health recommendations. **Conclusion:** This study further confirmed that improvements must be made in the provision of daily mouth care in LTC and that ways to effectively incorporate and involve students with the daily routine in LTC facilities must be examined.

## RÉSUMÉ

**Introduction :** De meilleures méthodes et protocoles doivent être élaborés afin d'offrir des soins buccodentaires quotidiens et adéquats aux personnes âgées vivant dans les centres de soins de longue durée (CSLD). Un stage a été mis en place et des étudiants seniors en hygiène dentaire ont travaillé dans 2 CSLD afin d'offrir des soins buccodentaires quotidiens aux résidents, de faire des évaluations de santé buccodentaire et, autant que possible, d'instruire les aides en soins de la santé et les autres membres du personnel du centre relativement aux soins d'hygiène buccodentaire. Des séances de formation ont été données sur les heures de travail au personnel du CSLD par 2 hygiénistes dentaires autorisées. Le présent article présente les résultats des évaluations de santé buccodentaire et des entrevues. **Méthodologie :** Les données des évaluations buccodentaires ont été recueillies auprès des résidents à l'aide d'une version modifiée de l'Outil d'évaluation de l'état de santé buccodentaire. À la fin du stage, des entrevues individuelles ont été réalisées auprès des aides en soins de la santé, des infirmières, des coordonnateurs de la formation et des directeurs administratifs des centres de soins de longue durée. **Résultats :** Les résidents avaient une mauvaise santé buccodentaire : 20.4 % des résidents avaient une bonne hygiène buccodentaire, 12 % avaient la langue en santé, et 38 % avaient les gencives et les muqueuses en santé. La plupart des résidents (63 %) avaient de la plaque généralisée et la moitié d'entre eux (50 %) avaient du tartre généralisé. Soixante-trois pour cent des résidents avaient besoin d'un peu d'aide pour leurs soins d'hygiène buccodentaires ou devaient recevoir des soins d'hygiène buccodentaires complets. Les observations suivantes ont été faites à partir de l'analyse des transcriptions d'entrevues : 1) il y avait peu, voire pas d'interaction entre le personnel et les étudiants en hygiène dentaire; 2) la réaction à la présence d'étudiants était positive; 3) le personnel avait une formation minimale en soins buccodentaires; 4) la routine régulière des soins buccodentaires était faite 2 fois par jour; 5) des difficultés existaient dans l'administration des soins buccodentaires auprès des résidents; 6) le personnel n'était pas au courant des nouvelles recommandations du guide de soins buccodentaires Edmonton Zone; 7) des plans ont été établis afin que le personnel administratif puisse faire un suivi d'après les recommandations des étudiants relativement aux soins buccodentaires. **Conclusion :** Cette recherche confirme en outre que des améliorations doivent être faites par les CSLD en matière de prestations de soins buccodentaires quotidiens. Il faut explorer comment les étudiants peuvent s'engager dans les CSLD et comment incorporer leurs services dans la routine quotidienne des soins buccodentaires des résidents.

**Key words:** aging; clinical practicum; dental hygiene students; long-term care; mouth care protocol; oral health; oral health assessment tool; oral health status; seniors

This article is dedicated in memory of Sandra J Cobban, DipDH, MDE, PhD, who was an integral member of the research team that initiated this study in 2011 and a co-author of the article based on part 1 of the research, entitled "Practicum experience to socialize dental hygiene students into long term care settings," which was published in the *Canadian Journal of Dental Hygiene* in 2013 (47[2]:81-90).

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Submitted 5 September 2014; revised 15 December 2014; accepted 18 December 2014

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## BACKGROUND

Poor oral health care for elderly residents of long-term care (LTC) facilities and the resultant poor oral health among this population are widespread problems that have been documented in studies and reviews from researchers internationally.<sup>1-23</sup> These findings are particularly troubling considering that the size of the elderly population is growing,<sup>24-26</sup> with greater numbers entering LTC facilities and requiring care.<sup>2,18,19,27-30</sup> Most of the individuals who reside in LTC facilities are frail and have complex medical problems that result in their being dependent on others for personal care, including oral hygiene needs. The latter is particularly essential because individuals are retaining more of their natural teeth than in the past, and are experiencing more dental disease than their predecessors.<sup>13</sup> Compounding the problem is the fact that LTC residents are at increased risk for oral health complications due to their high-carbohydrate diets, medication-induced xerostomia, lack of access to dental or dental hygiene care, and inadequate daily mouth care.<sup>7,31,32</sup> There is a high prevalence in this population of dental caries,<sup>21</sup> oral pre-cancer lesions,<sup>18</sup> candidiasis, and periodontal disease,<sup>12,31</sup> which may be a direct result of the poor oral care they receive.<sup>33</sup> Chronic oral conditions can lead to problems with chewing, eating, swallowing, speaking, and facial aesthetics, all of which have a negative impact on quality of life.<sup>4,33-47</sup> Poor oral health can also negatively affect a person's general health. Many studies have provided evidence that poor oral health and an excess of oral bacteria are associated with an increased risk of heart disease,<sup>48-50</sup> stroke,<sup>51,52</sup> diabetes,<sup>53</sup> respiratory infections such as pneumonia and influenza,<sup>54-64</sup> and malnutrition.<sup>65</sup>

Despite the fact that poor oral health of elderly LTC residents has long been identified by health care providers and confirmed through many studies, there is a surprising lack of progress being made to improve this situation.<sup>11,31,66,67</sup> Multiple barriers that prevent positive changes from occurring have been identified,<sup>11,28,29,31,68,69</sup> including a significant lack of the following:

- understanding of the importance and value of good oral health
- institutional policy support and accountability
- proper education and training for health care providers
- availability of resources (funding and supplies for dental/hygiene care)
- appropriate oral health assessment tools

One study, which reported on a survey conducted to assess the oral care training in various educational institutions in Norway, revealed that most programs for health care professionals do, in fact, provide future LTC staff with the basic instruction for providing oral care.<sup>70</sup> These findings led the researchers to conclude that problems with proper oral health care delivery in LTC facilities may

not be related to a lack of training.<sup>70</sup> For instance, it has been suggested<sup>4,69,70</sup> that, in order to improve the oral health (OH) care of LTC residents, the attitudes of LTC staff concerning OH care must be improved, the responsibility for daily OH care must be clearly allocated, and effective and mandatory OH care protocols should be established.

Establishment of these protocols may influence the level of OH care received by LTC residents.<sup>69,70</sup> A recent study (2009) of LTC facilities in Brazil noted a lack of protocols for oral health procedures, supporting the argument that, regardless of staff training and education, there are system failures within LTC facilities that lead to inadequate oral health care for residents.<sup>6</sup>

Complex medical conditions, physical limitations, and cognitive impairments such as dementia complicate oral health care. Residents often resist when a care provider attempts to perform OH care, making such care difficult to complete.<sup>68</sup> To address this problem, a study was undertaken in a LTC facility involving clinicians and students from both nursing and dental hygiene.<sup>71</sup> The aim of the study was to test the feasibility of a team approach in measuring specific oral health indices, including oral health assessments, scoring oral hygiene, and DMFT.<sup>71</sup> This study successfully demonstrated that nurses and nursing students could use their specific training to help minimize the resistive behaviours of residents, thereby making it possible for dental hygienists and dental hygiene students to work more effectively with the residents when conducting oral health assessments.<sup>71</sup> Other studies have indicated that involving dental professionals in the care of LTC residents is a desirable approach that may have a greater positive impact on the oral health of LTC residents than relying on health care aides and/or registered nurses exclusively.<sup>30,34,58-64,72</sup>

Clearly, better methods and protocols must be developed to perform OH care in LTC facilities in a manner that addresses the unique needs of the LTC population, the training and preparation of staff, and the involvement of dental professionals and/or students, so that proper oral health care becomes a higher priority.

In January 2011, the Dental Hygiene Program at the University of Alberta initiated a practicum called ElderSMILES (Strengthening Mouthcare In Long-term Eldercare Settings), in which senior dental hygiene students worked with residents at 2 LTC facilities. The primary objectives of the practicum were to socialize dental hygiene students to the long-term care environment, to assess resident's oral health, and to provide daily mouth care for residents. The first objective was discussed in a previous article relating to this study which presented a qualitative analysis of the perspectives of the students and their dental hygiene clinical instructors on the challenges they faced in the long-term care setting.<sup>73</sup>

This article reports on the remaining 2 objectives of the ElderSMILES practicum. First, it reports on the oral

assessments and daily oral care performed by the students. Results from an oral health assessment tool have been included to provide details on the LTC residents' oral health and to demonstrate the need for improved and continuing oral care among this population. Second, this article reviews the way the practicum and the students were incorporated into and involved with the daily routine at the LTC facilities. This analysis was based on data obtained from interviews conducted with LTC staff, including health care aides (HCAs), registered nurses (RNs), education coordinators, and the executive directors of the facilities.

## METHODS

This study was approved by the Health Research Ethics Board at the University of Alberta. The ElderSMILES practicum was implemented at 2 LTC facilities in Edmonton, Alberta. Students, with supervision by an RDH clinical instructor, conducted oral health assessments of residents, using a modified version of Chalmer's<sup>74</sup> Oral Health Assessment Tool (OHAT) that was developed by the Edmonton Zone of Alberta Health Services and was recommended for regular use in the oral assessment of residents in LTC facilities.<sup>75</sup> Working with a partner, students completed the OHAT for 108 residents across the 2 locations. Using a disposable dental mouth mirror and a visual inspection, students assessed and recorded the amount of plaque and visible hard debris on the teeth. Demographic data and medical history were also recorded for each resident. Where possible, students provided oral health care instruction to HCAs.

Completion of the OHAT requires a visual inspection using 8 categories pertinent to oral health, classifying the findings as 1) healthy; 2) unusual/reportable observations; or 3) unhealthy and reportable. The 8 categories assessed are 1) lips; 2) tongue; 3) gums and tissues; 4) saliva; 5) natural teeth; 6) dentures; 7) oral cleanliness; and 8) pain. When an unusual observation is made in any category, intervention is required; when a category is assessed as unhealthy (reportable), a referral must be made to an appropriate health care clinician, such as a dentist, registered dental hygienist or physician, depending on the condition in question.

The amount of soft debris (plaque) and hard debris (calculus) was generally categorized as mild, moderate or heavy, and the distribution was classified as localized or generalized. A plaque and calculus index was not used as study investigators wanted the students to assess soft plaque and debris and hard deposits in a manner consistent with how LTC staff would conduct this assessment on their own. The level of assistance required by the resident to perform daily oral care was recorded using the LTC facility's categories: 1) independent; 2) some assistance; or 3) fully dependent.

Four staff in-service sessions were provided. At each facility, there was an in-service scheduled for the day shift staff and repeated again for the evening shift. Staff

in-service sessions, led by 2 dental hygienists, were 30 minutes each and included a description and the management of oral health issues common to older adults, and a demonstration of how to perform daily mouth care and denture care for residents. In addition, at one facility, a one-hour presentation was made at the monthly meeting of the Resident Family Council by the 2 dental hygienists. Components of the family council presentation included 1) a description of the ElderSMILES program; 2) an explanation of the aging mouth and common concerns; 3) expectations of daily mouth care; and 4) oral health concerns to be reported if observed.

Following the 4-month practicum, individual interviews with a random sample of HCAs from the LTC facilities were conducted by the primary researcher. Individual interviews were also conducted with registered nurses, education coordinators, and executive directors of each facility. Interview guides were developed for each group in order to focus the interviews and to ensure the collection of the same information from each person interviewed (Appendix A). Additional follow-up questions and comments also materialized depending on the conversation, allowing individual perspectives and experiences to emerge, in keeping with recommended qualitative interviewing practices.<sup>76</sup>

All interviews were tape recorded, and an administrative staff member transcribed them verbatim. Full transcriptions of interviews are considered most desirable because they are "enormously useful in data analysis and later in replications or independent analyses of the data."<sup>76</sup> The transcriptions were then independently reviewed by 2 researchers to identify themes for qualitative analysis, which were compared and discussed. It is recommended that more than one person code the data—in this case, to derive themes from interview transcripts—because "important insights can emerge from the different ways in which two people look at the same set of data."<sup>76</sup>

## RESULTS

### Oral health status and demographics

The OHAT data revealed that very few residents had good oral health: 20.4% of residents had healthy oral cleanliness; 12% had healthy tongues; and 38% had healthy gums and tissues (Table 1). Categories on the OHAT in which a majority of residents were deemed healthy were lips (51.9% healthy); saliva (58.3% healthy); and pain (75.9% healthy) (Table 1). Most residents had generalized plaque (63%) (Table 2), and 57.4% had moderate to heavy amounts (Table 3). Generalized hard debris was found among 50% of residents (Table 4), with 47.2% having moderate to heavy amounts (Table 5). The average age of LTC residents in this study was 80.4 years; females comprised 72% of the residents (Table 6). The majority (62%) of residents in the study population required some or total assistance with daily mouth care (Table 7).

**Table 1.** OHAT results summary

Category	Number of residents/percentage								Total	
	Healthy		Unusual		Unhealthy		No response			
Lips	56	51.9%	47	43.5%	2	1.9%	3	2.8%	108	100%
Tongue	13	12.0%	84	77.8%	8	7.4%	3	2.8%	108	100%
Gums and tissues	41	38.0%	54	50.0%	10	9.3%	3	2.8%	108	100%
Saliva	63	58.3%	37	34.3%	3	2.8%	5	4.6%	108	100%
Natural teeth	20	18.5%	29	26.9%	14	13.0%	45	41.7%	108	100%
Dentures	24	22.2%	11	10.2%	9	8.3%	64	59.3%	108	100%
Oral cleanliness	22	20.4%	38	35.2%	41	38.0%	7	6.5%	108	100%
Pain	82	75.9%	10	9.3%	6	5.6%	10	9.3%	108	100%

Category	Number of residents/percentage						Total	
	Yes		No		No response			
Natural teeth	56	51.9%	36	33.3%	16	14.8%	108	100%
Dentures	56	51.9%	41	38.0%	11	10.2%	108	100%

**Table 2.** Distribution of plaque

Distribution of plaque	Frequency	Percent
Generalized	68	63.0%
Localized	16	14.8%
No response	23	21.3%
None	1	0.9%
Total	108	100%

**Table 3.** Amount of plaque

Distribution of plaque	Frequency	Percent
Heavy	22	20.4%
Moderate	40	37.0%
Mild	22	20.4%
No response	23	21.3%
None	1	0.9%
Total	108	100%

**Table 4.** Distribution of hard debris

Distribution of hard debris	Frequency	Percent
Generalized	54	50.0%
Localized	15	13.9%
No response	38	35.2%
None	1	1.9%
Total	108	100%

**Table 5.** Amount of hard debris

Hard debris amount	Frequency	Percent
Heavy	17	15.7%
Moderate	34	31.5%
Mild	17	15.7%
No response	38	35.2%
None	2	1.9%
Total	108	100%

**Table 6.** Gender results

Gender	Number	Percent
Male	29	26.9%
Female	78	72.2%
Missing data	1	0.9%
Total	108	100%

**Table 7.** Level of assistance required by resident for mouth care

Level of assistance	Number	Percent
Fully dependent	31	28.7%
Some assistance	36	33.3%
Independent	35	32.4%
No response	6	5.6%
Total	108	100%

### Interview data: health care aides

The interviews conducted with the HCAs at the LTC facilities were designed to gather information about their experiences and interactions with the students in the practicum. They were also designed to collect information and insight into the mouth care training and educational preparation of the HCAs, and of the daily mouth care routines followed with LTC residents, enabling the identification of possible barriers, inadequacies, strengths, etc., and a determination of whether or not the practicum effectively addressed the needs of LTC residents and staff. Six main themes emerged from the interview data:

- Minimal to no interaction between facility staff and dental hygiene students
- Positive feedback for student presence
- Minimal mouth care training
- Regular mouth care routine carried out twice daily
- Problems with administering mouth care to residents
- Lack of awareness of new Edmonton Zone mouth care guidelines

### *Minimal to no interaction between facility staff and dental hygiene students*

One of the objectives of the practicum was for students

to provide training in daily mouth care techniques to the HCAs. However, this did not occur, with HCAs stating, “I never worked with any of them”; “I did not experience [working with the students], but I saw the students here”; and “I just saw, but never talked to them.” Some of the HCAs indicated that they only talked to students in the hallways, but they did not interact with them nor did they receive any instruction on mouth care: “Usually [the students] just asked where somebody’s room was, so I just kind of directed them there and that was it.”

### *Positive feedback for student presence*

Despite not having any oral health care related interaction with the students in the practicum, some of the HCAs said that the student presence provided an extra incentive for them to clean residents’ mouths better, noting that residents’ mouths were cleaner than before: “I think some [HCAs] are doing a better job with helping others brush their teeth.” In general, the HCAs were very positive about the student presence, saying, “[It is] very helpful [to have] the students around actually” and recognizing that “[the students] have a knowledge for the procedure, how to [do things] much better.”

### *Minimal mouth care training*

Analysis of the interview transcripts revealed that the HCAs only had minimal mouth care training, usually consisting of a course lecture and on-the-job training at the LTC facility: “We did some [mouth care] training when I took my schooling, and had hands-on during my practicum. Other than that, it has just been pretty much here [at the facility], just working with our residents.” One HCA noted that, both in her training course and when she began work at the LTC facility, she was taught “how to do proper mouth care, and how to use some [mouthcare products] that are good to use.” Another noted, “I learned from here and also just retook my [HCA] course.” One HCA commented that “some part” of the HCA/Nurse Attendant course is about mouth care.

### *Regular mouth care routine done twice daily*

Study investigators learned that there is a regular mouth care routine at the LTC facilities that is meant to be performed twice daily, first by the day shift either before or after breakfast (“or sometimes after lunch if we have time,” noted one HCA), and then again by the evening shift. One HCA said they sometimes perform mouth care when a resident asks to have it done. The mouth care routine includes denture brushing and soaking; gum/mouth cleaning; some tooth brushing; use of toothettes; mouth rinsing; checking for stored food (pocketing); and, checking for sores in mouth. One HCA remarked that, while doing mouth care, they can look around in the residents’ mouths to see “if they have red gums or cold sores...cankers... You never know, they might have a sore in there that is why they become sometimes aggressive.”

Some HCAs commented that, for some residents who have their own teeth, “We prefer them to try and do [mouthcare] on their own, and then we will check and see how they did”; and “I would encourage the residents if they are able to brush their own [teeth].” However, the HCAs interviewed explained that, if the residents had trouble or asked for help with brushing their teeth, then the HCA would assist them. For residents with dentures, the HCAs generally responded that the residents would be asked to remove them, and then the HCAs would brush and rinse the dentures. One HCA added that she would also “brush their gums and tongue, and then make them gargle and spit if they can.” For residents with dry mouths, one HCA stated, “We have little swabs, a special swab with some type of...menthol liquids.”

#### *Problems with administering mouth care to residents*

Some of the common problems with administering mouth care to residents noted by the HCAs included resistive behaviours; residents who bite down on the toothbrush or toothette; and/or residents who cannot or will not open their mouth wide enough. The HCAs commented frequently that “I noticed these people [residents] are resistive”; “Sometimes people [residents] are refusing. It is hard to open the mouth. But sometimes it depends on you to motivate them”; and “they sure do not like their tongue brushed.” Biting down on the toothbrush/toothette was frequently reported: “I have one lady that bites down on the brush...and I just tell her ‘Open up wide’ and keep cueing her...”; “They will bite down on the toothette or toothbrush, and then it’s kind of difficult to brush their teeth properly.” One HCA recognized the potential hazard of these latter behaviours, and said, “If they bite on [the toothette] hard enough and will not let go, and you try to take it out of their mouth like that, it just rips off. So, they are going to end up choking on it if you cannot get it out of their mouth.”

#### *Lack of awareness of new Edmonton Zone mouthcare guidelines*

When asked if they were aware of the new guidelines for mouth care practices in the LTC facilities, most HCAs responded “No.” One HCA said, “they just mentioned it is in a binder or something like that. Communication book, something like that.” But none of the HCAs who were interviewed knew any details. One important new recommendation in the guideline (of which the HCAs interviewed were unaware) is the discontinuation of the use of toothettes, partially because of the potential choking hazard.

#### *Interview data: Registered nurses, education coordinators, and executive directors*

The interviews conducted with the registered nurses, education coordinators, and executive directors at the LTC facilities were designed to gather information about

their experiences and interactions with the students in the practicum, as well as to gather their feedback on the practicum in general. Qualitative analysis of the transcripts identified 3 main themes:

- No specific interactions with dental hygiene students
- Positive and encouraging feedback for student presence
- Plans to address issue of follow-up to student recommendations for oral health care

#### *No specific interactions with dental hygiene students*

When asked about the students’ ability to interact with residents and staff, interviewees commented, “I did not hear anything [about it], so I can only assume that it went well...because if there had been problems, I would have heard about it”; “I did not actually go and see [the students] actually give the oral care part [although] I may have saw [sic] them standing together with a resident...”; “I did not see a lot of interactions” between students and staff/residents; and “At this time and during this time, no I did not” observe any interactions between students and staff/residents. As for their own interaction with the students, it was noted by one that, “other than me speaking to them in the halls,” she had no interaction. Recognizing that part of the practicum was meant to include students working with the HCAs, some suggested that “I would probably like to see [in future] ... a little bit more integration [of the students] with the health care aides. I feel like it was like your students kind of doing their thing and our [staff] kind of doing [their own thing].”

#### *Positive and encouraging feedback for student presence*

Overall, the education coordinators and executive directors were pleased that the students had been at their facilities, noting that “the residents get a really good assessment from people who study mouths”; “I think [oral care] is one area that is not often looked at in long-term care, and so it was very refreshing to have it”; “the residents who had participated in having an oral examination I think appreciated it”; and when their families learned of it, “they were very pleased about that.” No negative comments on the practicum and/or on the students were reported, with remarks such as “Definitely no negative feedback, but I always think that when things are going well that must be good... If there are problems, then yes we hear about them for sure”; and “I have not heard to my knowledge any negative comments [about the dental hygiene practicum] whatsoever.”

#### *Plans to address issue of follow-up to student recommendations for oral health care*

While the interviewees recognized the importance of follow-up to student recommendations for oral health care, they remarked, “Somehow we must come up with a better way to communicate between the disciplines so that

that information [about student recommendations, and thus follow-up to them] get taken further and it is not lost for the resident”; and “If [the student recommendations] are not flagged somehow for [the RN], she is not going to necessarily take a look at those notes.” One education coordinator said, “I know [the RNs] did follow up” on the student recommendations, because “I did not see any of the forms around, so when the forms are done they are followed up with.”

## DISCUSSION

The oral assessment data provide evidence that daily mouth care received by residents is inadequate. These results are consistent with the poor oral health care in long-term care that has been demonstrated in numerous studies.<sup>1-23</sup>

A lesson learned was in regards to the recommendations made by the RDH and students for any follow-up and referrals needed for the residents to address their oral health. It was not clear from the facilities if there were specific protocols for oral care referrals, which was also noted by the education coordinators and executive directors who were interviewed. There was no way to determine if follow-up to the recommendations and referrals had occurred. This is an important element of resident care that will require further assessment and cooperation by all parties.

Qualitative analysis of the interview data revealed that almost none of the LTC staff interacted with the students in any beneficial capacity. Students were therefore not a part of “the team,” and although they were a welcome addition to the workings of the facility, they were an independent addition to the daily routines of staff, rather than an integral one. This finding highlights the importance of promoting the acceptance and incorporation of dental hygienists and dental hygiene students into the regular care routine at LTC facilities, promoting teamwork and positive rapport with LTC staff. A series of reports about a dental hygiene student practicum in residential aged care facilities (RACF) in Australia revealed that, although minimal at first, rapport between students and RACF staff, as well as acceptance of students in the facilities, improved significantly the longer the students were at the RACFs.<sup>77-79</sup> In addition, when the students developed a more integral working relationship with RACF staff, the students’ abilities to understand and deal with the medical complexities of the residents improved, as did the ability of the staff to provide oral care to the residents, as each group learned from the other.<sup>77-79</sup>

In order to provide the best care for residents, staff and students should work together so they can learn from each other, as in the Australian example. Some studies have suggested that LTC staff are not able to provide proper daily mouth care to residents because they lack the necessary education and training to adequately carry it out.<sup>11,12,57,68,80,81</sup> This theory is supported by comments

from the LTC staff who were interviewed during this study. Because it has been recommended that health care staff at LTC facilities be provided with specialized training so that they are better able to provide appropriate daily oral health care for residents,<sup>31,82</sup> this study incorporated the provision of hands-on training to the HCAs, recognizing that they are the ones who provide daily mouth care. However, this aspect of the practicum was not successful as there was minimal interaction between students and LTC staff. This experience was similar to other studies in which researchers attempted to provide mouth care training to LTC staff (HCAs and RNs), but were also unsuccessful.<sup>12,27</sup> However, some studies obtained positive results after providing training to HCAs and/or RNs to perform oral health care, and afterwards the oral health of LTC residents did improve, demonstrating that such training efforts can be successful.<sup>82-88</sup>

The ElderSMILES practicum was designed to incorporate hands-on demonstrations of mouth care onsite with facility staff, as well as to provide in-service educational sessions. The 30-minute in-service sessions for LTC staff—which consisted of a mostly passive seminar format—did not result in the desired outcome of LTC staff being more involved with the students, thus staff did not obtain essential hands-on training. Several studies in LTC where there have been significant post-training improvements in knowledge, attitude, and, most importantly, behaviour of LTC staff, involved both in-service educational lectures as well as interactive and hands-on training.<sup>82,83,86-88</sup> The in-service session in these studies ranged from 1 to 3 hours in length,<sup>82,83,86-88</sup> and another successful LTC study, which only used in-service education, had a 4-hour long session.<sup>84,85</sup> Therefore, in future applications of this practicum, it will be necessary to change the design and increase the duration of the in-service sessions to include more hands-on and interactive learning.

## CONCLUSION

This study demonstrated the poor oral health of residents in long-term care and the need to improve oral health care in these facilities. There is a need for students to be incorporated into and involved with the daily routine at the LTC facilities, in order to develop working relationships with other health care staff to ultimately provide the best possible care for the residents.

## ACKNOWLEDGEMENTS

The authors would like to acknowledge funding from the Canadian Foundation for Dental Hygiene Research and Education as well as funding from the Fund for Dentistry, School of Dentistry, Faculty of Medicine and Dentistry, University of Alberta, for this study.

## APPENDIX A Interview Guides

### Interview guide for health care aides

1. Describe your previous training in mouth care.
2. What do you do for resident mouth care?
3. Describe your experience working with the dental hygiene students.
4. Do you wear any personal protection such as gloves and mask when providing mouth care to residents? If so, describe.
5. Do you have any problems with administering mouth care to residents? If yes, what kinds of problems?
6. How many times have you had an individual demonstration in mouth care techniques from a dental hygiene student?
7. Have you been able to follow the mouth care plan set out by the dental hygiene students? If not, what are the challenges?
8. Have you noticed any changes or improvements in resident oral hygiene since this project began?
9. Is there anything that you can recommend to help improve mouth care for residents?
10. Are you aware of the new AHS guidelines for LTC facilities? It does not recommend the toothette but recommends that three toothbrush be used daily? What are your thoughts on this change?
11. How are toothbrushes or other mouth care aids stored in resident's rooms?
12. Have you used a powered toothbrush with any residents? If so, how did you find the experience with using it compared to manual toothbrushing?

### Interview guide for registered nurses

1. Describe your role in mouth care for the residents.
2. If involved with mouth care, have you noted any change in the residents' oral hygiene practice since the project began?
3. Have you had the opportunity to observe or work with the dental hygiene students?
  - a. If so, what did you observe?
  - b. Do you have any recommendations for change based on what you observed the students doing?
4. What is your perception of how the dental hygiene students are managing with the residents?
5. What is your perception of how the dental hygiene students are managing with the HCAs?
6. Do you have any recommendations for change to the overall project?

### Interview guide for education coordinators and executive directors

1. How do you feel the project worked with the dental hygiene students?
2. Were you able to observe any interactions between the dental hygiene students and any staff and/or the residents?

If so, can you share your thoughts on their interactions?  
Do you have any suggestions for their interactive style?
3. Have you received any feedback, positive or negative, about the students being here?

If so, can you share some of the feedback with me?
4. If more direction is needed to train the HCAs to do something specific for daily mouth care for the residents, what is the best way for that to happen?

Who would direct them to do this?
5. Do you have any recommendations for changes that you think may help improve the overall project?
6. Would you like to see the project continue?
7. Have you implemented the new AHS guidelines? What are your thoughts on the discontinuation of the toothette and implementation of the toothbrush for daily care?

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# Culturally safe oral health care for Aboriginal peoples of Canada

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## ABSTRACT

**Introduction:** Health and oral health disparities in the Aboriginal population are well documented. While the underlying causes of these disparities are complex, the purpose of this literature review is to examine the possibility that delivering oral health care that is not culturally safe may be contributing to such disparities. **Methods:** A systematic search was completed using PubMed, CINAHL, Medline, and Google Scholar. The results were few, therefore more key search terms were added and an advanced search through Summon was conducted. The studies selected were assessed using the Critical Appraisal Skills Program appraisal framework for qualitative research. **Discussion and Results:** Health care providers' perspectives about Aboriginal peoples are influenced by a complex set of ideologies. Narrow cultural assumptions intertwined with dominant social stereotypes conflict with professional egalitarian ideals, affecting the delivery of equitable services. The tendency of health care providers to ignore the wider sociocultural and political context of health care encounters leads to attitudes and behaviours that are perceived by Aboriginal clients as discriminatory, demeaning or disempowering. **Conclusion:** Attitudes and assumptions of oral health care providers towards Aboriginal people may unknowingly and unintentionally contribute to the inequitable provision of oral health care services, ultimately leading to poor oral health outcomes among this population. Integrating cultural safety into oral health care has the potential to reduce such disparities and ultimately contribute to the improvement of the oral health of Aboriginal peoples in Canada.

## RÉSUMÉ

**Introduction :** Les disparités qui existent chez les peuples autochtones en matière de santé physique et de santé buccodentaire sont bien documentées. Bien que les causes primaires de ces disparités soient complexes, cette revue de la littérature a pour but d'examiner si le manque d'adaptation à la réalité culturelle des peuples autochtones des soins de la santé buccodentaire contribue à ces disparités. **Méthodologie :** Une recherche systématique a été effectuée en consultant *PubMed*, *CINAHL*, *Medline*, et *Google Scholar*. Cette recherche a mené à peu de résultats, des termes-clés ont donc été ajoutés et une recherche détaillée a été lancée dans l'outil de recherche *Summon*. Les études sélectionnées ont été analysées en utilisant les critères d'évaluation de recherche qualitative du *Critical Appraisal Skills Program*. **Discussion et résultats :** Les opinions des fournisseurs de soins de la santé à l'égard des peuples autochtones sont influencées par un ensemble d'idéologies complexes. Des préjugés culturels entrelacés de stéréotypes sociaux dominants entrent en conflit avec leurs idéaux égalitaires et professionnels. Ils influencent aussi la façon dont les services sont rendus. Cette tendance qu'ont les fournisseurs de soins de la santé à ne pas tenir compte de la portée des contextes socioculturels et politiques lors de la prestation des soins de la santé, conduit à des attitudes et des comportements qui sont perçus par les clients autochtones comme étant discriminatoires et humiliants, voire démoralisants. **Conclusion :** Les comportements et les préjugés des fournisseurs de soins de la santé buccodentaire à l'égard des peuples autochtones peuvent faire en sorte qu'inconsciemment et involontairement, les services de santé buccodentaire leur sont fournis inéquitablement. À long terme, cela peut conduire à une détérioration de la santé buccodentaire de ces peuples. Une adaptation à leurs réalités culturelles des soins buccodentaires pourrait réduire ces disparités et contribuer à l'amélioration de la santé buccodentaire de tous les autochtones canadiens.

**Key words:** Aboriginals, cultural safety, dental care, dental hygienists, dentistry, First Nations, oral health, oral health care disparities

## INTRODUCTION

In recent years, Aboriginal health has improved in areas such as life expectancy and infant mortality.<sup>1</sup> Despite these improvements, it is well known that Aboriginal peoples of Canada experience significant and wide-ranging health disparities compared to their non-Aboriginal counterparts,<sup>1-12</sup> including poorer oral health outcomes.<sup>4,5,7,10,12</sup> The underlying causes of these health disparities are complex and deeply rooted in social, economic, and political inequities,<sup>3,4,7,11,13,14</sup> and not necessarily in issues of cultural differences and lifestyle choices.<sup>15</sup> A history of colonialism along with paternalistic

and discriminatory practices, such as the creation of the reserve system, the forced relocation of communities, and the establishment of residential schools,<sup>3,11</sup> have led to the marginalization of and ingrained racism towards Aboriginal peoples.<sup>3,11,14,15</sup> There is evidence that racial and ethnic disparities exist in the health care system, and that bias, stereotyping, and prejudice on the part of health care providers (HCPs) may contribute to such disparities.<sup>13,16</sup> In Canada, recent studies have reported Aboriginal peoples' fear of racism<sup>12,14,15,17</sup> and patterns of individual or institutional discrimination<sup>5,15</sup> as barriers to health

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Submitted 4 June 2014; revised 8 December 2014; accepted 10 December 2014

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services. It has also been reported that Aboriginal people find the health care system intimidating, discriminatory, demeaning, disempowering, inaccessible, unfriendly, and not patient-centred.<sup>11,15,17</sup>

While statistical data have exposed the degree of health disparities, not enough has been done to obtain a clear understanding of the causes and effects of such disparities.<sup>3</sup> The health literature in Canada is sparse on issues related to health care inequities, marginalizing practices, and racialization, and their impact on health care provision.<sup>14</sup> It is not clear how the HCPs' attitudes, beliefs, and assumptions affect the quality of care that Aboriginal peoples receive as a consequence.<sup>5</sup> However, Aboriginal persons have reported dissatisfaction with mainstream health services,<sup>12</sup> and The First Nations Health Council considers the lack of cultural competence of many care providers a significant barrier to care.<sup>11</sup> This situation has led to a call for increased cultural competency, a position which has been adopted by many professional bodies,<sup>2,18</sup> including the dental hygiene profession in Canada.<sup>8</sup>

Williamson and Harrison have identified 2 approaches to culture and the provision of care.<sup>18</sup> The first is a cognitive approach that focuses on learning about the customs, traditions, values, and beliefs assumed to be shared by all members of a cultural group. This generic approach may result in stereotyping and a failure to identify individual needs and the broader socioeconomic and political factors that affect health and access to health care.<sup>18</sup> The second approach, under the banner of cultural safety, focuses on the social position of individuals and the impact of colonization and marginalization to explain health status rather than on individual behaviours and beliefs.<sup>2,18</sup> The concept of cultural safety was originally developed in New Zealand to explain the impact of colonization on the poor health status of the Maori population. This approach is gaining acceptance in Canada due to the similarities in the way its own Indigenous populations were colonized.<sup>2,14,15,18,19</sup>

Qualitative studies of health care encounters through the lens of the Aboriginal client and the mainstream HCP can provide insight into the cultural and social issues that shape the provision of care, ultimately affecting the health outcomes of Aboriginal peoples.<sup>14</sup>

### Purpose

While the factors contributing to oral health disparities found in Aboriginal peoples are multiple and complex, racism and discrimination may also play a significant role.<sup>2,3,9,11,13-15,17,19</sup> In the field of dentistry, it has been reported that advice and recommendations for dental treatment are affected by racial stereotypes.<sup>5</sup> Surveys have also shown that poor and disadvantaged groups, Aboriginal peoples included, may not access care because they often feel unwelcome at the dental office,<sup>20</sup> with the concomitant decline in their oral and general health.

The purpose of this literature review is to examine the clinical interactions between mainstream oral HCPs

and Aboriginal clients from their perspectives in order to explore the possibility that delivering care that is not culturally safe may contribute to the oral health disparities found among Aboriginal peoples of Canada. It will also attempt to identify gaps in the dental hygiene literature and possible implications for dental hygiene education and practice.

### BACKGROUND

Aboriginal people (First Nations, Metis or Inuit) constitute a growing share of Canada's total population. They represent over one million or 3.8% of people enumerated in the 2006 census, with First Nations accounting for 60% of this total.<sup>21</sup> The Aboriginal population of Canada has been growing faster than the non-Aboriginal population, with an increase of 45% from 1996 to 2006, nearly 6 times faster than the 8% growth rate of the non-Aboriginal population in the same period.<sup>21</sup> It is estimated that the Aboriginal population could reach between 1.7 million and 2.2 million in 2031, representing between 4.0% and 5.3% of the Canadian population. First Nations could reach a population between 1.1 million and 1.2 million by 2031 compared to 785,000 in 2006.<sup>22</sup> Given this anticipated population growth, the well-known health disparities experienced by Aboriginal people cannot be ignored.

### Health and health care disparities

Adelson defines health disparities as those indicators of a relative disproportionate burden of disease on a particular population.<sup>3</sup> Aboriginal people, along with other disadvantaged groups, experience the greatest degree of health disparities in Canada.<sup>8</sup> Substantial evidence of their lower health status, lack of appropriate care, and poorer health outcomes highlights the need to develop strategies to address such disparities. While the contributing factors are directly and indirectly associated with social, economic, and political inequities,<sup>3</sup> it has also been reported that mainstream HCPs may play a significant role in contributing to these disparities.<sup>3,8,9,11,14,15</sup>

Health care disparities are defined by Harris as differences in quality of health care received by racial and/or ethnic minorities, even when access to care is equal.<sup>23</sup> In other words, he explains, given all equal conditions, racial and/or ethnic minorities disproportionately receive unequal health care treatment.<sup>23</sup> Evidence of racial/ethnic disparities in quality of care due to bias, stereotyping, discrimination, and prejudice against racial and/or ethnic groups, whether conscious or unconscious, helps to explain, at least in part, the poorer health status of these groups, even for those with access to the health care system.<sup>8,16,23</sup>

### Historical context

A history of internal colonial politics has characterized the relations between Aboriginal people and the Canadian state.<sup>3,11,14,15</sup> Key policies and laws passed federally between 1830 and the early 1970s reflect the ethnocentric thinking

of the time, which considered Aboriginal culture as inferior to European culture, and assimilation of Aboriginal people as the best policy.<sup>11,15</sup> The appropriation of Aboriginal lands, the creation of the reserve system, and the establishment of residential schools, which forced the removal of children from their families and communities, are examples of the discriminatory laws and policies that have left Aboriginal people in a disempowered and disadvantaged position in Canadian society.<sup>3,11,14</sup> This legacy of subordination and discriminatory practices deeply ingrained racism and resulted in the health, social, economic, and political disparities experienced by Aboriginal people.<sup>3,11,14</sup> Today, these practices continue to impact access to health care, health care experiences, and health outcomes of Aboriginal peoples.<sup>19</sup> This collective burden of inequities and power imbalances also has an effect at the individual level.<sup>3</sup> It has been reported that members of marginalized populations receive less and lower quality health care than their more advantaged counterparts.<sup>16,23,24</sup> Research conducted from the viewpoints of both the Aboriginal clients and the mainstream HCPs is critical to improve the provision of services to this population, and ultimately their health outcomes.<sup>19</sup>

### Approaches to culture

Two distinct approaches to culture have been identified.<sup>18</sup> First, the cognitive approach focuses on learning the values, beliefs, and traditions assumed to be shared by all in the same cultural group. This perspective encourages learning about the different health beliefs and traditional behaviours of specific cultural groups in order to provide appropriate care to individuals belonging to these groups. While there is a tendency for educational strategies to focus on this approach, it has been criticized because it views culture as something static and unchanging, and it also fails to account for diversity within groups and between generations. Furthermore, it leads to stereotyping and a failure to identify the needs of the individual receiving care.<sup>18</sup>

Second, the cultural safety approach incorporates culture into a wider historical and sociopolitical context and focuses on the social position of individuals to explain health status.<sup>2,18</sup> It includes perspectives on the impact of colonialism on the ongoing relationships between Aboriginal and non-Aboriginal people and how these social positions and power imbalances negatively affect the health and health care of Aboriginal individuals.<sup>2,14,15,18,19</sup> However, issues of colonization and marginalization are not well understood among HCPs, who may reduce Aboriginal peoples' poor health outcomes to issues of culture, lifestyle choices or inherent biological traits.<sup>18</sup> They may not realize that health inequities are manifestations of the complex interplay of social, political, and economic determinants that influence health status and access to care.<sup>2,14,15,18,19</sup>

There is limited evidence of how the concept of cultural safety has been or can be incorporated into practice, and there appears to be confusion about its meaning.<sup>18</sup> Cultural safety is determined by those to whom HCPs

provide care,<sup>2</sup> and it refers to what is felt or experienced by a client when a HCP communicates in a respectful, inclusive way, empowering the client in decision making and building a partnership in the health care relationship, thus ensuring effective care.<sup>25</sup> In a culturally safe clinical encounter, the HCP treats clients with the understanding that not all individuals in a group have the same beliefs or behaviours.<sup>18,25</sup> Cultural safety goes "beyond cultural awareness, the acknowledgement of difference; cultural sensitivity, the recognition of the importance of respecting difference; and cultural competence, the focus on skills, knowledge and attitudes of practitioners."<sup>2</sup> Cultural safety requires knowledge about Indigenous issues, including the history and legacy of colonization, along with an understanding of power differentials and how these sociopolitical and historical forces have shaped the health and wellbeing of Aboriginal people.<sup>2,3,8,14,15,18,19,25</sup> It also requires the HCP to engage in a process of critical reflection to enhance self-awareness of personal cultural assumptions, beliefs, and attitudes with regards to Aboriginal people in order to avoid stereotypes and personal biases.<sup>2,8,25</sup> A lack of such awareness can lead to racism, discrimination, and prejudice in the provision of care,<sup>2,8,25</sup> posing cultural and social barriers in accessing care.<sup>2</sup> Aboriginal peoples will not access a health care system when they do not feel safe in doing so.<sup>2,15</sup>

### METHODS

A comprehensive review of the literature was undertaken using PubMed, CINAHL, Medline, and Google Scholar. The key search terms used were cultural safety, Aboriginals, First Nations, oral health, oral healthcare disparities, dental hygienists, dental care, and dentistry. The results for qualitative primary research that would best answer the research question were almost nil. Consequently, an advanced search through the Summon search engine by specific fields, using Boolean logic to combine search terms and "exact phrase" searching, was used. Several key search terms were added to increase the amount of material, such as Aboriginal health, attitude of health personnel, attitude to health, Canadian native peoples, cultural competence, health, health care, health services, indigenous, indigenous health, medical research, medicine, native culture, native peoples, nursing, perceptions, physician-patient relations, practice, prevention, public health, qualitative research, and quality of care. Selection criteria for the literature review were limited to articles from scholarly publications, including peer-reviewed journals, and those that were accessible in full text online through the University of British Columbia (UBC) library. The articles were selected based on title and abstract, followed by a full-text review to determine whether the paper was relevant to this review. In addition, the references from the selected articles were scanned to identify relevant articles to be included. Additional sources were consulted in order to obtain background knowledge.

There is a lack of consensus within the research community about the criteria for good qualitative research,<sup>26,27</sup> thus there are approximately 30 appraisal tools available for the assessment of qualitative studies.<sup>26</sup> The Critical Appraisal Skills Program (CASP) appraisal framework for qualitative research,<sup>28</sup> which considers 3 broad issues: rigour, credibility, and relevance, was chosen for the systematic assessment of the selected qualitative research. Table 1 shows the 4 original research studies that were included in this literature review to answer the research question.<sup>15,17,19,29</sup> They passed both the initial screening questions regarding the clarity of the research aims and the appropriateness of the qualitative approach. They also adequately addressed most of the

30 questions of the CASP framework, which are grouped into 8 themes: research design, recruitment strategy, data collection, reflexivity, ethical issues, data analysis, discussion of findings, and the value of the research.<sup>28</sup> None of the 4 studies indicated if there were individuals who chose not to participate. Including this information in the discussion of sampling strategies could have enhanced credibility. Another common limitation was a lack of discussion regarding data saturation, which could have added rigour to the data analysis.<sup>26</sup> However, rich, detailed, clear, and transparent accounts of the studies' steps, techniques, and procedures were provided to establish methodological rigour.<sup>26</sup>

**Table 1.** Overview of the qualitative studies included in the review

Author(s), year	Methods	Participants	Conclusions	Source of funding
Browne and Fiske, 2001 <sup>15</sup>	Critical and feminist ethnographic approaches guided in-depth interviews conducted with First Nations women from a reserve community in a rural area of Northwestern Canada. Interpretive thematic analysis, reflexivity, member checking, auditable decision trail.	Using purposive and snowballing procedures, this study invited 10 First Nations women to participate.	Health care encounters were shaped by racism, discrimination, and structural inequities which continue to marginalize and disadvantage First Nations women.	British Columbia Centre of Excellence for Women's Health
Baker and Cormier Daigle, 2000 <sup>17</sup>	Part of a larger study, used interpretive interactionism methodology (deconstruction, capture, bracketing, construction, and contextualization). In-depth interviews were conducted to collect thick descriptions and epiphanies of personal experiences. Validation, revision, auditable decision trail.	Nonprobabilistic purposive sampling used to select 10 participants from a First Nation community who had been hospitalized in an Eastern Canadian hospital within the previous 3 years.	Aboriginal people may be particularly aware of their own culture and of cultural differences when receiving care in mainstream institutions. Compassion and a non-discriminatory attitude among HCPs were more important than cultural knowledge.	Department of Canadian Heritage
Browne, 2005 <sup>19</sup>	Part of a larger study with an ethnographic approach that used in-depth interviewing and participant observation over a 9-month immersion period in a western Canadian midsize hospital. Interpretive thematic analysis through coding and analysis, reflexivity, member checking, triangulation, revision, and auditable decision trail.	Thirty-five women participants recruited through purposeful sampling: 14 registered nurses, 2 licensed practical nurses, 14 First Nations women who were their patients, the Native liaison hospital worker, and 4 First Nations Aboriginal health experts as key informants.	Three overlapping discourses shaped nurses' perspectives concerning the First Nations women they encountered: culture, professional egalitarianism, and popularized views about Aboriginal people, which in turn impacted the quality of care.	Canadian Institutes of Health Research (CIHR)
Tang and Browne, 2008 <sup>29</sup>	Part of a larger ethnographic study using in-depth interviews and participant observation over a 20-month period of immersion in a large tertiary hospital near a core area of a large Western Canadian city. Interpretive thematic analysis, triangulation, revision, auditable decision trail.	Purposeful sampling used to recruit 82 participants: 44 patients (34 Aboriginal, 10 Euro-Canadian) and 38 staff (nurses, physicians, and social workers).	Racialization can shape the ways that health care providers interact with Aboriginal patients, resulting in Aboriginal patients' avoidance to seek health care based on their expectation of being treated differently.	Canadian Institutes of Health Research (CIHR), New Investigator Award from CIHR, and Scholar Award from the Michael Smith Foundation for Health Research.

## RESULTS AND DISCUSSION

Because of a lack of published qualitative studies on the subject of oral health care disparities, this article was informed primarily by nursing studies that have examined health care encounters involving mainstream nurses and Aboriginal patients, mostly First Nations.<sup>15,17,19,29</sup> While the findings of these qualitative nursing studies are not necessarily generalizable to the dental hygiene profession, they can be transferable,<sup>27</sup> as they occur in the same sociopolitical and power imbalance context. Formicola speculates that the same sociocultural factors that account for poor health outcomes also play a role in poor oral health outcomes.<sup>13</sup>

While oral health disparities in Canada may be attributable to the fact that dental care is based on a fee-for-service model and not part of the universal health care system, many Aboriginal people in Canada have access to federally funded dental insurance known as Non Insured Health Benefits (NIHB). However, health disparities still exist even when financial barriers to accessing care are removed through health insurance coverage.<sup>8,13</sup> According to the 2009–2010 First Nations Oral Health Survey Report (FNOHS), less than 6% of First Nations adolescents and adults reported cost as a factor in avoiding visiting a dentist or accepting recommended dental treatment.<sup>30</sup> The majority of respondents reported having a government program that covered all or part of their dental expenses. Similar findings were obtained in the 2008–2009 Inuit Oral Health Survey (IOHS), in which only 4.1% of Inuit reported avoiding dental care because of costs.<sup>31</sup> The alarming degree of oral health disparities in this population highlights the very complex issue of access to care and, in particular, the lack of available services in the community (Table 2). However, another important factor contributing to such disparities include HCP bias or prejudice against minorities, and beliefs or stereotypes held by the provider about minorities.<sup>13</sup> Charbonneau has reported that oral HCPs judge Aboriginal people by their appearance, and predominantly view them as being uneducated.<sup>7</sup> Findings from the FNOHS show that 12.1% of First Nations adolescents and adults reported among “other reasons for not accessing dental care” not liking “the way natives are treated” (Table 2).<sup>30</sup> A survey conducted by Wardman et al.<sup>12</sup>, which included 267 Aboriginal persons living on and off reserve in 7 rural communities across British Columbia, identified fear of racism and being uncomfortable in a health care setting as barriers to care (Table 3).

### Mainstream health care providers' perspectives

HCPs draw upon perspectives gained through their educational programs, professional experience, popularized public views, and societal experiences as they provide care to their clients.<sup>19</sup> According to Browne's study,<sup>19</sup> the main influences that inform HCPs' knowledge and assumptions about Aboriginal clients are as follows:

**Table 2.** Reasons for not going to the dentist in the past 12 months, reported<sup>a</sup> by First Nations, ages 3–11 years and 12 years and over

Barriers to dental access in the past year	All children, 3–11 years (%)	Adolescents and adults 12+ years (%)
Cost	F <sup>b</sup>	5.0
Fear of dentist/past traumatic experience	F	9.5
Avoidance of pain	F	5.6
No access to dental care	64.2	39.0
No need of care	40.4	29.9
Other <sup>c</sup>	F	12.1

<sup>a</sup>by child's proxy or respondent

<sup>b</sup>F = Estimate not provided because of extreme sampling variability or small sample size

<sup>c</sup>Other reasons include but are not limited to long waiting lists, lack of transportation, unsure of costs, “don't like the way natives are treated,” “full dentures,” “pregnant,” and “file was closed because of missed appointments.” Note: Responses were not mutually exclusive

Extracted from *Report on the findings of the First Nations Oral Health Survey (FNOHS) 2009–10*.<sup>30</sup>

### Discourses about culture

Most HCPs realize the importance of understanding their clients' cultural background in order to provide quality care. Many believe that “cross-cultural training” can help develop a non-judgemental approach to care, and focus their attention on identifying and addressing cultural practices,<sup>19</sup> thus reinforcing the definition of culture that prevails in health care as the characteristics, values, beliefs, attitudes, and practices that are shared by a particular group of people.<sup>18,19,32</sup> Negative stereotypes are evidenced by nurses' statements such as “just the way their culture is.”<sup>19</sup> Browne argues that such a limited culturalist view overlooks the socioeconomic and historical issues that shape health problems and place some people at risk of poverty, substance use, violence, etc.<sup>19</sup> Social problems are often equated with cultural characteristics: “It is in their culture to have a lot of violence, stabbing, alcohol abuse...more than what you see in other cultures.”<sup>19</sup> It is not uncommon among HCPs who have Aboriginal clients with social problems like dependency and unemployment to assume that such social problems are culturally based.<sup>19</sup> Focusing on a client's behaviours and beliefs to explain health status places the responsibility for making poor life choices on the individual and ignores the wider forces that constrain equal access to resources and the opportunity for a healthy life.<sup>18,19,29</sup>

### Professional discourses about egalitarianism

HCPs uphold the principle of equality as a professional responsibility and acknowledge the importance of treating all clients in the same manner, regardless of social, ethnocultural or gender background. However, contrary to

**Table 3.** Self-reported barriers to services

Barriers to services	Proportion of respondents (%) (n=267)
Unaware of where to seek services	88.0
Unaware of available services	83.1
Fear of racism	83.1
Uncomfortable in health care setting	82.8
Lack of transportation	76.0
Need to travel outside of community to access health services	45.3
Concern over confidentiality	34.8

Extracted from Wardman, Clement, and Quantz<sup>12</sup>

this prevailing assumption of a fair and discrimination-free health care system, interviews with nurses showed otherwise as evidenced by comments like “Many people, a lot of times, get categorized,” or “sometimes it [treating everybody equally] becomes hard...people generalize all the time.”<sup>19</sup> Racialization is a commonplace occurrence and it affects HCPs’ interactions with Aboriginal people.<sup>14,19,29</sup> In spite of a commitment to the ideals of egalitarianism, HCPs perceive Aboriginal clients to be “different,” and HCPs’ approaches are altered in response to these presumed differences.<sup>14</sup> Tang and Browne further expand on this topic as a “tension of difference” between HCPs’ presumption that everyone is treated “the same,” and the perceived experience among Aboriginal clients that they are being treated “differently.”<sup>29</sup> Racism or racialization, also called racial profiling, normalizes popular images of Aboriginal people, impacting the provision of care to the point of being denied healthcare when “their sickness was (mis)read as a manifestation of being drunk.”<sup>29</sup> Such experiences of discrimination result in a reluctance to access health services even when they are urgently needed.<sup>15,29</sup>

#### *Popularized dominant social discourses*

Negative stereotypes of Aboriginal peoples, such as “getting everything for free” or the “drunken Indian,” pervade Canadian society through the media, public interest debates, and in everyday conversations among the general public.<sup>19,29</sup> These popularized images serve to perpetuate the public and professional perception of Aboriginal people as substance abusing, irresponsible, negligent, and undeserving recipients of government programs.<sup>19,29</sup> These assumptions often ignore the socioeconomic and historical context that has contributed to their marginalization, and tend to interpret this dependency as a cultural way of life. Browne further explains how they also reinforce ideas of “us and them,” the dominant culture of self-reliant individuals and the dependent, irresponsible “others,”<sup>19</sup> with the underlying message that “they” should be able to overcome social problems and assume personal

responsibility for their lifestyles.<sup>19</sup> These attitudes are not simply the opinions of individual HCPs, but rather a reflection of deeply ingrained dominant social assumptions, and while they are not intentionally embraced, they can negatively impact the delivery of equitable care.<sup>19</sup>

A convergence of this complex set of ideologies shapes HCPs’ perspectives and assumptions about Aboriginal people. Limited culturalist views intertwined with dominant social stereotypes contradict professional commitments to equality and jeopardize the delivery of equitable and effective services.<sup>19</sup> As Harris points out, bias and prejudice are not always recognizable or even deliberate.<sup>23</sup> Increasing awareness among HCPs of how their own perspectives, assumptions, and beliefs influence their practice can help them reflect critically on how bias, stereotyping, and prejudice on their part contribute to racial disparities in health and health care.<sup>13,19,33,34</sup>

#### **Aboriginal peoples’ perspectives**

The examination of mainstream health care encounters from the viewpoint of First Nations peoples seems to reflect the historical, social, political, and economic inequities that shape their everyday lives, where racism and discrimination continue to marginalize and disadvantage them.<sup>15</sup>

Findings from Browne and Fiske’s study reveal that 2 main themes characterize these encounters: invalidating and affirming experiences.<sup>15</sup> First Nations clients described invalidating encounters as experiences in which HCPs dismissed or trivialized their symptoms and health concerns, assuming nothing was wrong or turned them away. The fear of being dismissed, compounded by a reluctance to reveal symptoms until they are severe, may delay seeking services.<sup>15</sup> Dismissal of their health concerns was also related to the propensity of HCPs to view Aboriginal clients as passive or unassertive when such behaviours actually signify a way of conveying respect to people in authority.<sup>15</sup> In an effort to be treated appropriately, Aboriginal peoples felt that transforming their appearance and behaviour would help them to gain respect and credibility as medical subjects. Perceptions of being judged in stereotypical negative ways and being treated with racist and discriminatory attitudes in hospitals, dental offices, and pharmacies seemed to be the norm.<sup>15</sup> They felt marginalized from mainstream health systems, which created in them a sense of being outsiders or intruders in the system. They also felt that their personal circumstances were not considered, as HCPs disregarded the socioeconomic pressures and difficulties they faced, resulting in a sense of being blamed for circumstances beyond their control.<sup>15</sup> They also described an extreme sense of shame and vulnerability during physical examinations due to residential school experiences and/or physical/sexual abuse in other situations.<sup>15</sup> In contrast, affirming encounters were characterized by situations that conveyed respect and trust, such as when HCPs shared knowledge and power with them about health care decisions. Trust

was created when participants felt that HCPs cared about them and their families, creating a sense of being treated as equals.<sup>15</sup> Respecting and acknowledging their personal and cultural identity, practices and roles, including the recognition of traditional healing knowledge and expertise of female elders, was important to many First Nations people.<sup>15</sup> They also recognized the value of having a stable HCP whom they trusted to develop a positive long-term relationship. In this study, affirming encounters were viewed as unexpected exceptions to their everyday experiences of discrimination in health care and society in general.<sup>15</sup>

Similar perceptions were drawn from Baker and Cormier Daigle's study but themes revolve around "understanding."<sup>17</sup> These First Nations clients reported difficulty comprehending the hospital environment and feeling like strangers in it, alone and insecure. Yet they expressed a reluctance to ask for information in order to avoid being perceived as troublesome.<sup>17</sup> Negative experiences of being "misunderstood" were characterized by HCPs' rejection of their family customs and perceptions of feeling "lessened as persons" because they were categorized as Aboriginals instead of unique human beings.<sup>17</sup> Despite these negative experiences, each client also reported positive experiences when they felt "understood," describing HCPs who were kind and responded to them with empathy and concern for their well-being, accepted their family visiting customs, and treated them as social equals.<sup>17</sup>

Aboriginal peoples' descriptions of negative experiences demonstrate how acutely aware they are of the racialized views and stereotypes commonly held by mainstream HCPs, and how these can influence the health care they receive. Perceptions of racialization and discrimination ultimately result in Aboriginal peoples' avoidance or reluctance to access a health system that is not culturally safe.<sup>2,15,29</sup>

While the education of HCPs has mostly focused on learning sets of traditions, customs, and values about particular cultures,<sup>18,34</sup> this does not seem to be the best approach to deliver culturally appropriate care.<sup>34</sup> From First Nations clients' perspectives, HCPs' non-discriminatory, compassionate, and understanding attitudes were more important than their cultural knowledge.<sup>17</sup> Cultural safety is a means to counter discriminatory, demeaning or disempowering experiences by encouraging HCPs to look at the wider sociopolitical context and power imbalances, and question narrow cultural assumptions that create negative stereotypes and continue to marginalize Aboriginal peoples.<sup>15</sup>

## CONCLUSION

A commitment to the equality of citizens is one of the most distinctive features of Canada's liberal democracy, which entails giving everyone the same opportunities and giving everyone's values equal weight.<sup>35</sup> Yet not everyone has equal opportunity and freedom of choice in their

lives.<sup>29</sup> Tang and Browne argue that, while discussions of racism and discrimination in Canada may be considered obsolete—almost social taboos—racism is still a lived reality for many, including Aboriginal peoples.<sup>29</sup> The public health care system in Canada is often described as a manifestation of a commitment to equality and fairness,<sup>35</sup> yet attitudes and assumptions of HCPs towards Aboriginal people unintentionally and unknowingly may contribute to the inequitable provision of health care.<sup>19</sup> In echoing the original researchers' views, the intent of this literature review is not to present HCPs as discriminatory and oppressive, and Aboriginal clients as victims.<sup>14,19,29</sup> In fact, HCPs are generally altruistic, caring, and committed individuals.<sup>11,19</sup> The purpose of this article is to understand not only how HCPs' perspectives influence the care that they provide, but also the nature of Aboriginal clients' experiences in receiving such care. This article serves to increase awareness among Canadian dental hygienists about the discourses that influence their perspectives of Aboriginal clients and the care they provide for them, in order to be able to reflect critically on how we may be perpetuating inequalities in oral health care.

This article also exposes a substantial gap in dental hygiene research concerning oral health care disparities in the Aboriginal population. According to Browne, the health literature in Canada has been silent on issues related to marginalizing and racializing practices.<sup>19</sup> Cultural safety would be beneficial to dental hygienists, allowing them to understand how wider historical and sociopolitical contexts affect Aboriginal health and to be aware of how their own values, beliefs and behaviours can influence the oral health outcomes of their Aboriginal clients.<sup>7</sup> However, there is lack of evidence to show how cultural safety has been, or may be, incorporated into practice and curricula,<sup>18</sup> including the dental hygiene's profession. While there seems to be a clear association between the delivery of culturally safe care and the elimination, at least in part, of health disparities,<sup>15,16,36</sup> developing culturally safe interventions for dental hygienists is an area that needs further research. In the meantime, it is important to highlight that the Canadian Dental Hygienists Association Code of Ethics<sup>37</sup> states that Canadian dental hygienists have an obligation to provide services with respect for the client's individual needs, values, and life circumstances, fairly and without discrimination.<sup>37</sup> Are we?

## ACKNOWLEDGEMENTS

The author gratefully acknowledges the guidance of UBC BDSc instructor, Rae McFarlane, RDH, BDS, MEd.

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The journal's high quality is dependent on the anonymous efforts of clinicians, researchers, and educators who carefully review our manuscript submissions, probing the soundness of evidence and its relevance to dental hygiene practice. Their detailed evaluations, which often embody hours of work, improve the publication and help to advance the field of oral health research substantially. In recognition of their dedication, the journal thanks the following people who assessed manuscripts in 2014.

**Martina Albrecht**

Hamburg, Germany

**Maryam Amin**

Edmonton, Canada

**Leon A Assael**

Minneapolis, USA

**Linda Boyd**

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**David Clark**

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**Penny White**

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**Deborah Winn**

Bethesda, USA

Thanks are also extended to the members of the journal's editorial board, who mentor authors, review submissions, and shape the editorial philosophy and policies of the journal.

**Arlynn Brodie**

University of Alberta

**Ava Chow**

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**Katherine Zmetana**

Regina, Saskatchewan

## Towards a global research vision for the profession

Oral health researchers from 11 countries came together in October 2014 at the 3<sup>rd</sup> North American/Global Dental Hygiene Research Conference (Bethesda, Maryland) to share discoveries and innovations, and explore opportunities for future international research collaboration. Canada's dental hygiene community was well represented at the conference by a strong contingent of Canadian researchers and educators, who delivered short papers, presented posters, and led a session at the half-day educators' workshop. Among the presenters and topics featured at the conference were:

**Joanna Asadoorian** and colleagues on "Exploring dental hygiene clinical decision making: A mixed methods study of potential organizational explanations"

**Joanna Asadoorian, Dani Botbyl, and Marilyn Goulding** on "Dental hygienists' perception of preparation and use for ultrasonic instrumentation"

**Mary Bertone** on "Transforming the culture of oral care in long-term care"

**Sharon Compton** on "Research and evidence-based decision making at the baccalaureate degree level"

**Juliet Dang** and colleagues on "Identification and characterization of novel human papillomaviruses in oral cancers"

**Laura Dempster** on "The impact of clinicians' interpersonal skills: Differences between dentally anxious and non-anxious patients"

**Salme Lavigne** and colleagues on "Effects of power toothbrushing on caregiver compliance and oral and systemic inflammation in a nursing home population"

**Laura MacDonald** on "Theory analysis of the dental hygiene human needs model"

**Lindsay Marshall, Rachel Haberstock, Sharon Compton and Minn Yoon** on "Dental hygiene undergraduate student specialty practicum clinic: Medical and dental complexity of clients"

**Minn Yoon and Sharon Compton** on "Dental hygiene student practicum experiences in a hospital-based dental clinic"

In addition, the Canadian Dental Hygienists Association (CDHA) was publicly recognized on several occasions for its leadership in organizing a pre-conference meeting between CDHA's Research Advisory Committee and the directors and board members of the National Center for Dental Hygiene Research & Practice. Joining in the lively conversation about common research interests and future areas of research focus for the profession were representatives of the International Federation of Dental Hygienists and members of the American Dental Hygienists' Association's Council on Research. It is clear that collaboration will be the key to realizing our research agendas and advancing the profession.

The proceedings of the Bethesda conference were published in the November 2014 issue of the *Canadian Journal of Dental Hygiene* (48[4]:159-208) and are a great read for researchers and clinicians alike. To view and download your copy, please visit [www.cdha.ca/cjdh](http://www.cdha.ca/cjdh)

### EDITOR'S NOTE

Dear readers,

*I am delighted to share two exciting developments with you. First, we have made some changes to the CJDH Research Award, which you'll see from the information below. Second, we have just launched a searchable online index for the journal. This new feature (available to all at [www.cdha.ca/cjdh](http://www.cdha.ca/cjdh)) will allow users to find research published in CJDH since 2005 with a few easy keystrokes. Searches can be done by keyword, author or date, and will retrieve individual articles for downloading or printing. I encourage you to try it!*

*Katherine Zmetana  
Scientific Editor*

### Changes to the CJDH Research Award

After careful consideration, the editorial board of the *Canadian Journal of Dental Hygiene* (CJDH) has modified the criteria for the CJDH Research Award, effective January 2015. In keeping with the journal's mandate to support and encourage the expansion of dental hygiene research,

the board has decided to offer two awards annually: one for the best published original research article and one for the best published literature review, each from the journal's previous volume year. These "best paper" awards recognize the valuable role of the literature review as well as the contribution of original research to building the knowledge base and guiding the practice of the dental hygiene profession.

The winners of the 2015 awards will be chosen from the eligible articles that were published in the journal in 2014 (Volume 48). The names of the authors and the titles of their winning articles will be announced in August 2015; the awards will be presented at the Canadian Dental Hygienists Association's national conference in Victoria, British Columbia, October 29-31, 2015. All eligible articles published in 2015 (Volume 49) will be considered for the 2016 CJDH Research Award. To read the full revised description and criteria for the CJDH Research Award, please visit [www.cdha.ca/dhrp](http://www.cdha.ca/dhrp)

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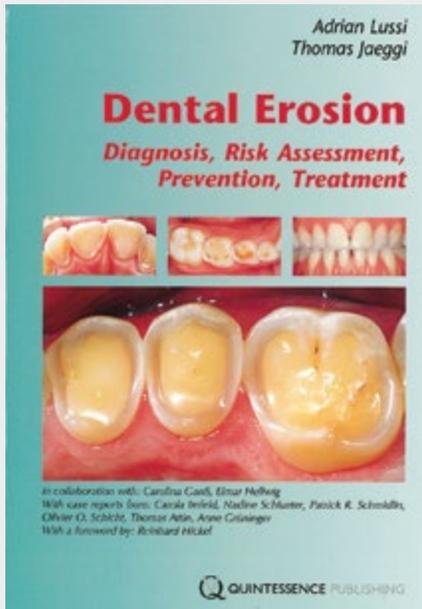
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# Dental Erosion: Diagnosis, Risk Assessment, Prevention, Treatment



By Adrian Lussi and Thomas Jaeggi, in collaboration with Carolina Ganß and Elmar Hellwig. With case reports from Carola Imfeld, Nadine Schlueter, Patrick R Schmidlin, Olivier O Schicht, Thomas Attin, and Anne Grüninger. Foreword by Reinhard Hickel.

Surrey, UK: Quintessence Publishing Co. Ltd; 2011. 132 pp. ISBN-13: 978-1-85097-218-1. Approximate cost, \$100.

Dental erosion is a relevant issue, increasing in incidence largely due to evolving diets, including more acidic drinks, fruits, and vinegar dressing. The growing concern is evident clinically, as well as by an increase in academic publications on the topic.

Adrian Lussi and Thomas Jaeggi co-author the book, *Dental Erosion: Diagnosis, Risk Assessment, Prevention, Treatment*, which has been translated from its original German version. As the title suggests, this book highlights key issues of dental erosion and is recommended for dental practitioners, students, and instructors. The purpose of the book is to increase awareness of contributing factors, develop skills to recognize the issue, and expand understanding of the options available to manage dental erosion. There is an emphasis on clinical relevance with appropriate images at various stages of the disease. This is a valuable guide for providing a systematic approach to managing dental erosion.

The authors of this book collaborate with other experts in the field to provide a well-supported tool for dental professionals. A biography of both authors is included on the back cover. Inconsistencies in the format of the authors' biographies create doubt in the readability of the book in its translated form. However, the biographies also describe very accomplished authors with sound knowledge, proficiency, and experience with the topic. Adrian Lussi is a university professor, dentist, the recipient of national and international awards, and an author of over 300 articles in the field of dentistry. Thomas Jaeggi is a dentist with experience in private practice and as a military assistant in the department of oral and maxillofacial surgery at the University Hospital Zurich in Switzerland, also teaching in the department of prevention, restorative and pediatric dentistry at the University of Bern.

## SUMMARY OF CONTENT

This book is well organized, highlighting key factors contributing to the condition in an easily read format. The table of contents allows expedient navigation to the appropriate chapters, which include

- Diagnosis of erosion
- Prevalence, incidence, and localization of erosion
- Etiology and risk assessment
- Prevention of erosion
- Dental erosion in children
- Restorative and reconstructive treatment of erosions

The book also includes 9 case reports on various dental erosion treatment strategies from minimally invasive to complex reconstructions. Restorative options include direct resin composite restoration in combination with orthodontic therapy, direct resin composite, composite with splint technique, reconstruction with direct resin composite splint technique and ceramic crowns, direct and indirect resin composite restorations and overlays, as well as composite restorations, ceramic overlays, and veneer crowns.

There is a thorough investigation of the etiology and a comprehensive risk assessment with information on exogenous and endogenous risk and protective factors. The chapter on prevention differentiates between acid intake and intrinsic acid exposure to manage erosion. Colour photographs illustrate stages of dental erosion and assist with understanding the diagnosis. Occasional scanning electron microscope images show the destruction at a histological level.

The book makes effective use of case studies, images, tables, graphs, charts, and highlighted boxes, all of which

draw the reader's attention to valuable information and increase understanding of the topic.

### ANALYSIS AND EVALUATION

The authors confirm the variability in assessment methods, subject selection, and study modality in research studies on the topic, which suggest a wide range of prevalence, incidence, and progression. Therefore data on the occurrence, frequency, and severity of the condition must be considered inconclusive.

Thorough background research, justification of relevance, clearly stated purpose, and the explanation of complex issues through tables support a relevant, logical argument and conclusion. Furthermore, there is appropriate association between results and conclusion as well as justification of treatment, with an emphasis on minimally invasive options. This book provides a valuable international view of the topic based on careful and considered studies from around the world.

There have been more than 1500 publications in peer-reviewed journals on dental erosion in the last 10 years. During that same period, 4 book publications have been dedicated exclusively to the topic, 2 of which were written by one of the authors of this book. Dental erosion is covered as a major topic in 2 additional books on general tooth wear and sensitivity, and most general dentistry textbooks cover the basics of dental erosion. The authors provide an in-depth examination of the literature and include substantial references to support the topic. Moreover, the book comes with a clinical checklist for dental erosion that can conveniently be kept chairside to assist in diagnosing, determining individual etiology and client risk factors for erosion, as well as treatment options. The challenges of early diagnosis are identified within the book; photographic documentation is encouraged to help with assessment, diagnosis, and monitoring of the disease.

The basic erosive wear examination (BEWE) is introduced as a quantifiable dental erosion assessment method developed by one of the authors. Using the BEWE, teeth are graded by sextant, based on the amount of erosion present. The score is associated with risk level and appropriate management is offered in a chart format. Although the information is detailed, the assessment itself is subjective and allows for clinical bias and assessment differences.

This book briefly explores conflicting oral hygiene instruction for brushing after eating. While dental professionals commonly recommend avoiding brushing for 30 minutes after eating, research shows that 1 hour is needed for enamel to reharder after acid exposure. Yet a longer delay in after-eating brushing leads to increased caries risk, an issue that requires individual risk assessment for each client.

Included are broad chapters on diagnosis, prevalence, etiology, prevention, children, and treatment case studies. In contrast, other books on the topic separate the chapters more specifically. The inclusion of subtitles in the index

would increase ease of navigation within the book for quick reference. Useful subtitles include diet, industry, saliva flow and pH, tooth structure, gastroesophageal reflux disease, anterior and posterior restorations, intrinsic and extrinsic erosion. Moreover, a glossary is not included in this book, a tool that would be especially beneficial for students and for finding definitions quickly.

The relevance of this book for the dental hygiene profession is not emphasized, suggesting that it is primarily intended for dentists rather than dental hygienists. However, prevention and early recognition of the disease are critical for disease management. The authors examine dental erosion in children thoroughly yet exclude other high-risk populations and broader issues such as the impact of socioeconomic status.

Although most topics are thoroughly examined, there is limited discussion on areas of future research; discussion of pathophysiology in the text and emphasis on the relevance of dental erosion and significance of the disease are also lacking early in the book. Importance and consequence are not mentioned until the seventh chapter on treatment strategies.

### CONCLUSION

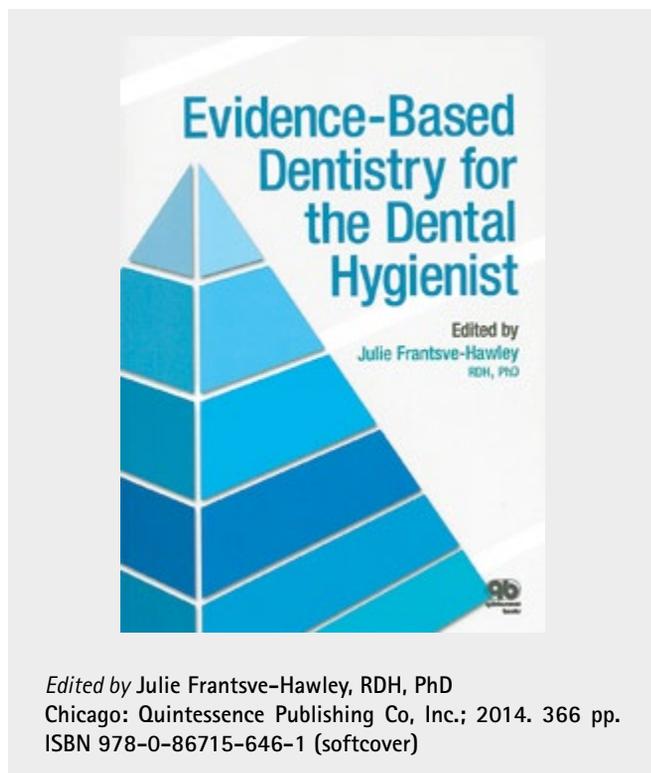
Well-accomplished authors successfully created a specialized book on a topic that is thought to be growing in relevance to dentistry. This book is well researched and covers all aspects of the disease, including diagnosis, prevalence, incidence, localization, etiology, risk assessment, prevention, erosion in children, as well as an examination of a variety of treatment modalities with individual case studies supporting each treatment method.

Case studies, supported research, high-quality clinical images, and a chairside guide all contribute to this book's ability to effectively address the intended target audience of dental professionals, students, and teachers. Minor changes in organization of the book and the inclusion of dental hygiene specific topics could improve readability and increase its relevance to dental hygienists.

The book succeeds in increasing awareness of contributing factors to dental erosion, assisting in developing skills for prevention and management. Overall, it is a valuable tool to support a systematic approach to the recognition and treatment of dental erosion by the dental profession.

*Laura Thistle, BDSc, RDH, is a full-time dental hygienist practising in Victoria, British Columbia.*

## Evidence-Based Dentistry for the Dental Hygienist



Evidence-based practice has been making gains since 1992. It describes an interdisciplinary process where best research evidence is integrated with clinical expertise/opinion and client values, needs, and choice. Dental hygienists must practise evidence-based dental hygiene in order to provide the best care to their clients.

The editor (and chapter author) of the book, *Evidence-Based Dentistry for the Dental Hygienist*, Julie Frantsve-Hawley, RDH, PhD, is a Harvard University graduate in the biological and biomedical sciences program, and completed a postdoctoral fellowship at the University of California, San Francisco. She is an experienced dental hygienist, researcher, manager, academic, and developer of multiple evidence-based dental programs. For 10 years, she played an integral role with the Center for Evidence-Based Dentistry at the American Dental Association, where she served as Director and then Senior Director. In October 2014, she was appointed Executive Director of the American Association of Public Health Dentistry. The contributing authors are from a variety of professional/academic disciplines and/or professional positions (e.g., RDH, PhD, MEd, MSc/MS, MLIS, MPA, PharmD, DDS/DMD) that support the subject matter to which they contributed. All have authored other related scholarly pieces.

This textbook is designed to help dental hygienists learn the importance of evidence-based dentistry (EBD) in the practice of dental hygiene. Additionally, it directs the reader on how to implement EBD practices as well as share EBD findings among office staff. The book briefly addresses the invaluable experiences of practitioners along with the autonomy of clients as health care consumers. In addition, it discusses the need to differentiate between hearsay, biased information, and how to find and distinguish reliable science. While the intended audience is dental hygienists, as explicitly stated in the title, the book could equally be geared towards other oral health care professionals. It stresses incorporating scientifically gained knowledge into day-to-day practice.

I believe that the notion of evidence-based dental hygiene (EBDH) as opposed to dentistry would be more appropriate for a dental hygienist audience. The current title reflects dental hygiene as a subcategory of dentistry, whereas dental hygiene has evolved into a profession autonomous from dentistry. In the near future, I would love to see the notion of dental hygiene as a truly autonomous and distinct profession reflected in similar publications.

### SUMMARY OF CONTENT

In reviewing the table of contents and looking at the overall content of each chapter within *Evidence-Based Dentistry for the Dental Hygienist*, I found that most relevant subjects and concepts were included. Part I addresses concepts surrounding finding, understanding, and analysing science. The authors discuss problems associated with EBD (e.g., difficulties in finding literature, and the nature of building skills associated with EBD over time), and offer strategies to overcome the problems (e.g., troubleshooting a stagnant literature search). In addition, chapters in this section review quantitative study designs, methodologies, types of literature reviews, and introductory statistics, all of which are crucial for understanding and assessing scientific evidence.

Part II discusses several specific and relevant topics of interest to dental hygienists for the implementation of EBD, including community water fluoridation, periodontal diseases, and oral and pharyngeal cancer. In addition, this section proposes strategies for implementation and buy-in by all office staff in the best interest of the clients. The implications of EBDH in community public/oral health and public health data collection, analysis, and decision making are also explored. Finally, Chapters 10–14 consolidate current evidence based on literature reviews of common issues of interest to dental hygienists and dentists.

## ANALYSIS AND EVALUATION

Generally, the layout and visual appeal of the book are pleasing. At first glance, the division of the content into the 2 parts seemed logical (i.e., background and skills, and application). After completing my reading of the book, however, I concluded that there seemed to be 3 sections: background and skills, implementation of EBD into practice, and a review of current evidence. Ideally, the pages should have more headings and subheadings, in order to break up the narrative into visually manageable chunks. When the narrative fills a whole page (or more) it can be visually daunting and much less easy to read. The writing style is clear and at the appropriate reading level, making the overall reading experience a pleasant one.

The content of the book seems comprehensive. The only obvious omission from the list of contents and chapter objectives is a discussion of qualitative research (an important and relevant form of research and type of knowledge within the dental hygiene profession) and its related methodologies and analysis strategies. As a stand-alone resource, this textbook is suitable as an introduction to EBD and a useful starting point for EBDH practice. Having said that, I believe that, as dental hygiene has evolved, the profession has moved beyond an introductory level of EBD skills to something more advanced that includes qualitative methodology and analysis, biomedical statistics, and oral health epidemiology. A further suggestion would be to add exercises where the reader could be tasked with finding, reviewing, and drawing conclusions based on their own searches and reviews of the literature, thus putting into practice the skills that are taught in the textbook.

The content of the book is accurate, though in some instances more information could have been added for clarity. For example, on page 205, the recommendations for parental supervision for children using fluoridated dentifrice (and fluoride rinses, etc.) should include assurance not only for compliance and control of amount, but also for proper/adequate expectoration of the fluoride-containing product.

Each chapter is supported by references, including those from textbooks, peer-reviewed journals, reviews and systematic reviews, and various websites. The references used appear to be reasonably recent in the context of the book's publication date.

### Strengths of the book

Each chapter addresses the overall thesis of the book, and all of the individual chapters address the stated objectives in general terms.

All of the important topics related to skills for choosing and analysing literature are mentioned largely within the appropriate chapter (for example, t-tests are discussed in the statistics chapter), but there were instances when topics were mentioned randomly and out of context. For example, Chapter 13 mentions “post-hoc” testing (with no explanation of what post-hoc testing is), yet this

topic would have been more appropriate for discussion in Chapter 7 (“Introduction to statistics”).

### Weaknesses of the book

There was one recurring theme that had the greatest impact on the value of the textbook as a whole. That theme was a lack of detail in the content of each individual chapter. The exception was Chapter 3 (“Literature searching”), which contained enough detail to be truly helpful in literature search strategies. Unfortunately, the review chapters (i.e., Chapters 10–14) came at the cost to the amount of space available for each chapter in the rest of the textbook.

The progression of topics in Part I could have been more logical. For example, the chapter on statistics (Chapter 7) should have come before the chapter on critical appraisal (Chapter 5). The reader is missing important knowledge to understand the depth of analysis required to determine rigour and validity because statistics are not introduced in a more meaningful manner until later.

## CONCLUSION

Overall, I would recommend this textbook to both dental hygiene students and practising dental hygienists as an introduction to EBD or as a review of the basics. I would recommend that readers also seek to delve deeper into the topic and support the acquired knowledge and skills with the use of additional resources in order to become as proficient as possible in EBDH practice.

Finally, I would offer 3 cautionary notes. First, *Evidence-Based Dentistry for the Dental Hygienist* is not specific to dental hygienists, but could be used by any oral health care professional including dental assistants, dentists, and denturists. There is very little dental hygiene-specific content. Second, the textbook, as a stand-alone resource, is not adequate for a comprehensive EBD approach. It would need the support of other resources (journal articles, article series, and textbooks) that discuss the specific components of EBD such as biomedical statistics, qualitative methodology, and associated analysis of qualitative literature, and oral epidemiology. Third, as stated by the editor in the preface, the reader will need practice to become more confident and proficient in the realm of EBD. As long as a reader understands this limitation—that it is a means and not an end—then the value of the book will become increasingly evident over time.

*Janet Aquilina-Arnold, BDS(c)(DH), retired from clinical practice after almost 30 years and now works with Dental Hygiene Seminars of Ontario to provide professional development opportunities for dental hygienists across Ontario.*

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Approved by the CJDH editorial board on 9 April 2014; revised 19 January 2015

## AUTHORS' RESPONSIBILITIES

### Authorship Criteria

Authors and co-authors of accepted manuscripts will be required to complete an authorship information form, on which they must specify their contribution to the work described in the manuscript. This information will be kept on file at the Editorial Office.

Authorship credit will be assigned only to individuals who meet all of the following criteria.

Each author must have

- contributed to study conception and design or data acquisition or data analysis, AND
- contributed to writing or critically reviewing the article, AND
- approved the final version of the article submitted for publication.

These authorship criteria are in accordance with the statement on authorship issued by the International Committee of Medical Journal Editors ([www.icmje.org](http://www.icmje.org)). The acquisition of funding, data collection or general supervision of the research group does not constitute authorship. Individuals who have made such a contribution to the manuscript should instead be listed in the acknowledgements section.

### Conflict of Interest

Authors should disclose any conflict of interest, perceived or real, that could undermine the integrity of the research presented. Conflicts of interest may arise from employment circumstances, sources of funding or personal financial interests, among others.

### Financial Considerations

The source of research funds should be identified in all manuscripts.

Manuscripts based on studies funded by contracts (not grants) from any source including commercial firms, private foundations or governments must be accompanied by a statement describing both the authors' and the sponsor's role in the design of the study; the collection, analysis and interpretation of data; the writing of the paper; and the decision to submit the paper for publication. The journal will not review or publish manuscripts based on studies that are conducted under conditions that allow the sponsor to have sole control of the data or to withhold publication.

### Legal Requirements

Upon acceptance of a manuscript, all authors must submit a signed copyright transfer form. Where applicable, authors may also be required to include

- a signed acknowledgement form from anyone

Approuvé par le comité de rédaction du JCHD le 9 avril 2014; révisé le 19 janvier 2015

## RESPONSABILITÉS DES AUTEURS

### Critères du statut d'auteur

Les auteurs et les coauteurs de manuscrits approuvés devront remplir un formulaire de statut d'auteur, dans lequel ils devront préciser leur contribution au travail décrit dans le manuscrit. Cette information sera conservée au bureau de rédaction du journal.

Le statut d'auteur sera attribué à ceux et celles qui auront respecté tous les critères suivants. Chaque auteur doit avoir :

- participé à la conception de l'étude ou à l'acquisition des données ou à leur analyse; ET
- participé à la rédaction ou à la révision critique de l'article; ET
- approuvé la version finale de l'article à être publié.

Ces critères de statut d'auteur sont conformes à la déclaration faite à ce sujet par le Comité international des rédacteurs de revues médicales ([www.icmje.org](http://www.icmje.org)). L'obtention de financement, la collecte de données ou la supervision générale du groupe de recherche ne permettent pas d'obtenir le statut d'auteur. Le nom des personnes qui ont ainsi contribué au manuscrit doit plutôt apparaître dans la section « remerciements ».

### Conflits d'intérêts

Les auteurs doivent divulguer tout conflit d'intérêts, apparents ou réels, qui pourraient compromettre l'intégrité de la recherche présentée. Les conflits d'intérêts peuvent être attribuables, entre autres, à la situation d'emploi, aux sources de financement ou aux intérêts financiers personnels.

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La source de financement de l'étude doit être identifiée dans tous les manuscrits.

Tous manuscrits fondés sur des études financées par des contrats (et non par des subventions), peu importe sa provenance : entreprises commerciales ou fondations (privées ou gouvernementales), doivent être accompagnés d'une déclaration décrivant le rôle des auteurs et des commanditaires dans : la conception de l'étude, la collecte, l'analyse et l'interprétation des données, la rédaction de l'article, et la décision de soumettre l'article pour fins de publication. Le journal ne fera pas l'examen et ne publiera pas de manuscrits fondés sur des études effectuées dans des conditions qui permettent aux commanditaires d'avoir le contrôle exclusif des données ou de pouvoir empêcher la publication.

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À la suite de l'approbation du manuscrit, tous les auteurs doivent fournir une copie signée du formulaire de transfert des droits d'auteurs. S'il y a lieu, les auteurs peuvent être requis d'inclure :

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whose contribution goes beyond administrative assistance and whom the author wants to identify by name

- a signed personal communication form if the author wishes to cite a personal communication in the article
- a signed patient consent form from any patient whose case is described and any person identifiable in an illustration

Authors are also required to provide the journal with written confirmation that they have received permission to reproduce material (tables, figures, etc.) from other published sources. This confirmation should include a signature from the copyright holder (usually the publisher of the original material).

### Prior publication

Authors should ensure that their submitted manuscript is original work and has not been submitted or published elsewhere in any written or electronic form. The manuscript should not be currently under review by another body. This does not include abstracts prepared and presented in conjunction with a scientific meeting and subsequently published in the proceedings.

### RESEARCH ETHICS

Manuscripts that involve investigations on human participants must give the name of the ethics committee that approved the study. Manuscripts describing studies in which there was direct contact with humans must describe how informed consent was obtained. In studies on patients with conditions that may affect their ability to give fully informed consent, the manuscript must describe how the authors determined that the participants were capable of giving consent, if consent was obtained from the participants rather than guardians.

### RESEARCH MISCONDUCT

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Allegations of fabrication or falsification of data, or of plagiarism will be investigated fully by the Scientific Editor. All evidence of misconduct will be shared with the authors; authors will be asked to provide a detailed explanation for the evidence found. The journal recognizes that many instances of research misconduct arise from a lack of understanding of reporting and citation requirements. Once the investigation is complete, an editorial decision will be made regarding publication, correction or retraction of published material.

### RESPONSIBILITIES OF THE REVIEWERS

Reviewers must declare any real, potential or perceived conflict of interest prior to accepting the invitation to

dépassant le soutien administratif et que l'auteur tient à nommer;

- un formulaire de communication personnelle signé (si l'auteur veut en citer une dans son article);
- un formulaire de consentement signé par tout patient ou toute patiente dont le cas est décrit dans l'article ou de toute personne apparaissant dans une image et reconnaissable.

Les auteurs sont aussi tenus de fournir au journal un document écrit confirmant avoir reçu la permission de reproduire le matériel (tableaux, figures, etc.) provenant d'autres publications. Cette confirmation doit aussi inclure une signature de la personne qui détient les droits d'auteur (habituellement l'éditeur du matériel original).

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Les auteurs doivent s'assurer que le manuscrit qu'ils soumettent est une œuvre originale et qu'il n'a été ni présenté ni publié ailleurs en format papier ou électronique. Le manuscrit ne doit pas être en cours d'examen par un autre organisme ou une autre personne. Cela n'inclut pas les résumés préparés et présentés lors de réunions scientifiques et subséquentement publiés dans le compte-rendu.

### ÉTHIQUE DE LA RECHERCHE

Le nom du comité d'éthique qui a approuvé une étude comprenant des recherches sur des sujets humains doit être indiqué sur les manuscrits. Dans le cas des sujets de recherche impliquant un contact humain direct, les manuscrits doivent préciser la méthode utilisée pour obtenir le consentement éclairé des participants. Lorsque l'état de santé des patients peut influencer leur capacité à donner un consentement pleinement éclairé, il est impératif que les auteurs spécifient la façon par laquelle ils ont déterminé que les participants étaient aptes à donner leur consentement dans l'éventualité où celui-ci ait été obtenu des participants et non pas de leurs représentants légaux.

### INCONDUITE EN RECHERCHE

Fabrication, falsification, plagiat

Le rédacteur scientifique mènera une enquête minutieuse sur toutes allégations de fabrication ou de falsification de données et de plagiat. Les auteurs seront avisés de toute preuve de mauvaise conduite; ceux-ci devront fournir des explications détaillées pour les preuves établies. Le journal reconnaît que plusieurs instances d'inconduite en recherche résultent d'un manque de compréhension des exigences en matière de report et de citations. À la fin de l'enquête, une décision éditoriale sera prise au sujet de la publication, de la correction ou de la rétractation du matériel en question.

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Les réviseurs doivent déclarer tout conflit d'intérêts réels, potentiels ou apparents avant d'accepter une invitation à participer à l'examen du document. Ils

review. They must be capable of providing an objective and thorough assessment of the work submitted.

Manuscripts under review must be treated as confidential documents both during and after the completion of peer review. The manuscript must not be shown to or discussed with others without prior consent from the Scientific Editor. Research or insights gained from a reading of the manuscript must not be used for personal advantage.

If a reviewer suspects that the manuscript includes text or ideas that have not been properly attributed, he or she should contact the Scientific Editor immediately and provide as much detail (citations to the original work) as possible.

For research involving human subjects, if a reviewer feels that confidentiality or anonymity has been breached, he or she should advise the Scientific Editor accordingly.

#### RESPONSIBILITIES OF THE SCIENTIFIC EDITOR

The Scientific Editor is responsible for maintaining the academic integrity of the journal. He or she oversees a rigorous, double-blind peer-review process, and has the authority to accept or reject manuscripts after carefully considering the evaluations of the reviewers. Editorial decisions must be free from bias and based solely on the quality, originality, clarity, and relevance of the research to the journal's readership. Authors who disagree with an editorial decision must be advised of their right to appeal.

The Scientific Editor must investigate all concerns of possible research misconduct or ethical breaches, either in reference to a submitted manuscript or to a published article. This investigation should be swift, transparent, and thorough. The Scientific Editor should be willing to publish corrections, clarifications, retractions, and apologies when needed.

Together with the Editorial Board, the Scientific Editor monitors and upholds the journal's publishing ethics at all times.

#### CJDH APPEAL PROCESS

Appeals of editorial decisions may be submitted by e-mail (journal@cdha.ca) to the Scientific Editor, who will take the appeal forward to the Canadian Dental Hygienists Association's Research Advisory Committee. The committee members may decide to seek a further review or reject the submission. There are no opportunities for a second appeal.

doivent pouvoir fournir une évaluation objective et exhaustive du travail présenté.

Les manuscrits en cours d'examen doivent être traités comme des documents confidentiels avant et après l'achèvement de l'examen par des pairs. Le manuscrit ne doit pas être montré ni faire l'objet d'une discussion avec d'autres personnes avant d'avoir reçu l'approbation de la Rédactrice/du Rédacteur scientifique. L'information ou les connaissances obtenues à la suite de la lecture du manuscrit ne doivent pas servir à des fins personnelles.

Si un réviseur soupçonne que le manuscrit comprend des passages ou des idées qui n'ont pas été attribués à juste titre, il ou elle doit immédiatement communiquer avec la Rédactrice/le Rédacteur scientifique et lui fournir tous les détails possibles (citations de l'œuvre originale, etc.).

Si un réviseur pense que la confidentialité ou l'anonymat n'ont pas été respectés en ce qui concerne la recherche sur des sujets humains, il doit en aviser la Rédactrice/le Rédacteur scientifique.

#### RESPONSABILITÉS DE LA RÉDACTRICE/DU RÉDACTEUR SCIENTIFIQUE

La Rédactrice/le Rédacteur scientifique est responsable de maintenir l'intégrité didactique du journal. Il ou elle supervise un processus rigoureux, soit un examen par les pairs en double-aveugle, et il ou elle a l'autorité d'approuver ou de rejeter les manuscrits après avoir soigneusement considéré l'évaluation des réviseurs. Les décisions éditoriales doivent être libres de tout préjugé et doivent uniquement être fondées sur la qualité, l'originalité et la clarté (compréhensibilité) de la recherche et de sa pertinence en fonction du lectorat du journal. Les auteurs qui sont en désaccord avec une décision éditoriale doivent être avisés de leur droit de faire appel.

La Rédactrice/le Rédacteur scientifique doit enquêter toutes les inquiétudes d'inconduite en recherche ou de fautes d'éthique possibles, soit en ce qui concerne un manuscrit qui a été présenté ou un article qui a été publié. L'enquête doit être rapide, transparente et exhaustive. La Rédactrice/le Rédacteur scientifique doit être prêt à publier des corrections, des clarifications, des retractions et des excuses si nécessaire.

En collaboration avec les membres du comité de rédaction, la Rédactrice/le Rédacteur scientifique doit, en tout temps, surveiller et respecter l'éthique de publication.

#### PROCÉDURES D'APPEL DU JCHD

Les demandes d'appels à des décisions éditoriales doivent être adressées par courriel à la Rédactrice/au Rédacteur scientifique (journal@cdha.ca) qui les présentera au comité consultatif de recherche de l'Association canadienne des hygiénistes dentaires. Les membres du comité peuvent demander un nouvel examen ou rejeter la soumission. Un deuxième appel n'est pas permis.



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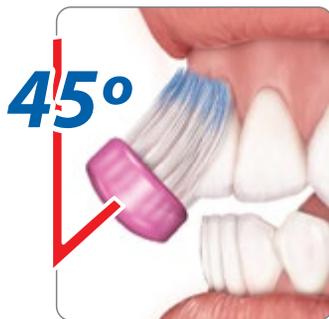


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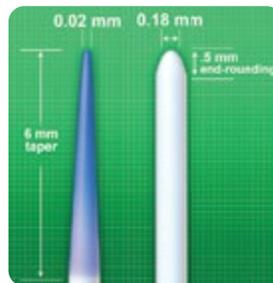
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- **Original research:** These manuscripts (maximum 6000 words) report on the findings of quantitative or qualitative research studies that explore a specific research question.
- **Literature reviews:** These manuscripts (maximum 4000 words) are informative and critical syntheses of existing research on a particular topic. They summarize current knowledge and identify gaps for further study.
- **Short communications:** These manuscripts (maximum 2000 words) should be on a clinical or theoretical topic of interest to oral health professionals.

We also invite readers to submit **Letters to the Editor**, discussing issues raised in CJDH articles published in the previous two issues.

### Submission guidelines

Manuscripts may be submitted electronically to the editorial office at [journal@cdha.ca](mailto:journal@cdha.ca), and should include a covering letter declaring the originality of the work, any conflicts of interests of the author(s), and contact information for the corresponding author. Technical details on the formatting and structure of manuscript submissions may be found in our *Guidelines for Authors* at [www.cdha.ca/cjdh](http://www.cdha.ca/cjdh).

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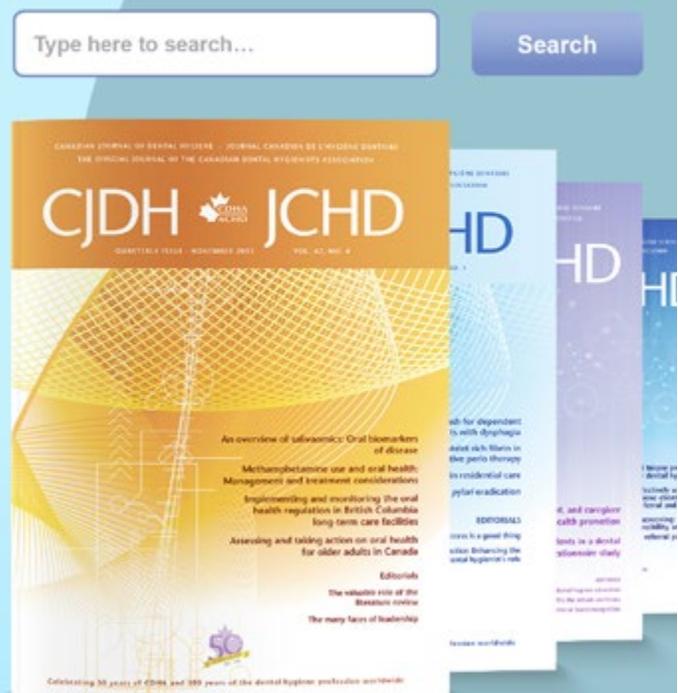
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