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

Conference centrefold

CJDH JCHD

QUARTERLY ISSUE · MAY 2013 VOL. 47, NO. 2

Celebrating 50 years of CDHA and 100 years of the dental hygiene profession worldwide

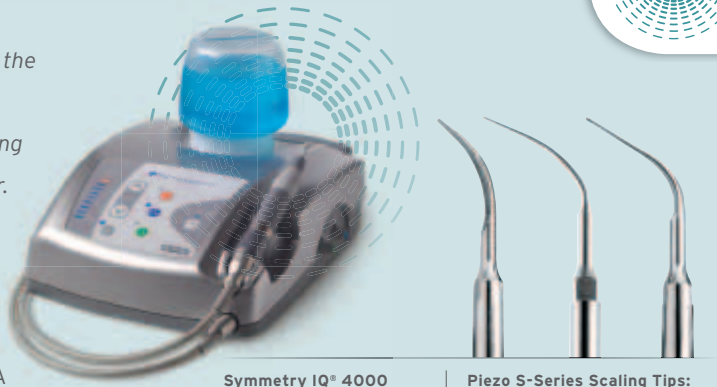
MORE **SMILES** PER HOUR

The new way to measure **ULTRASONIC SCALING** performance.

ULTRASONIC SCALING

I have been practicing hygiene for ten years and I find the Symmetry IQ® far superior to my old unit. I have many patients tell me that it is quieter and gentler. I love having a light to help me see better and make fine scaling easier. I will never go back to the other ultrasonic brands I used in the beginning.

— Whitney McDaniel, RDH
Office of Dr Bonnie Pearson, Prince George, VA



Symmetry IQ® 4000 Piezoelectric Scaling Unit

Piezo S-Series Scaling Tips: S10 Universal, P Universal, 100 Universal

To learn more about Hu-Friedy's Ultrasonic Scalers, visit us online at: **howthebestperform.com**

How the best perform **Hu-Friedy®**

MASTHEAD

Scientific Editor: Katherine Zmetana, DipDH, DipDT, EdD

Publishing Editor: Chitra Arcot, MA(Pub.), MA(Eng.)

Published four times per year: February, May, August, and November.
Current volume 47, issues 1–4
Canada Post Publications Mail #40063062.

CANADIAN POSTMASTER
Notice of change of address and undeliverables to:
Canadian Dental Hygienists Association
96 Centrepointe Drive, Ottawa, ON K2G 6B1

SUBSCRIPTIONS
Annual subscriptions are $90 plus HST for libraries and educational institutions in Canada; $135 plus HST otherwise in Canada; C$140 US only; C$145 elsewhere. One dollar per issue is allocated from membership fees for journal production.

ADVERTISING
Keith Communications Inc. Peter Greenhough;
1-800-661-5004 or pgreenhough@keithhealthcare.com

CDHA 2013
6176 CN ISSN 1712-171X *(Print)*
ISSN 1712-1728 *(Online)*
GST Registration No. R106845233

Canadian Journal of Dental Hygiene is indexed in the databases of: CINAHL; EBSCOhost; ProQuest; Thomson Gale

The *Canadian Journal of Dental Hygiene (CJDH)* is the official peer reviewed publication of the Canadian Dental Hygienists Association. The CDHA invites submissions of original research, discussion papers and statements of opinion of interest to the dental hygiene profession. All manuscripts are refereed anonymously. Bilingual *Guidelines for Authors* are available at www.cdha.ca/AM/Template.cfm?Section=Publications

Editorial contributions to the *CJDH* do not necessarily represent the views of the CDHA, its staff or its board of directors, nor can the CDHA guarantee the authenticity of the reported research. Advertisements in or with the journal do not imply endorsement or guarantee by the CDHA of the product, service, manufacturer or provider.

www.cdha.ca; Toll free: 1-800-267-5235; Fax: 613-224-7283

Front cover credit: ©iStockphoto.com/mecaleha: Modified to represent the seasonal quarterly publication of the journal.

MIX
Paper from responsible sources
FSC® C016931

CONTENTS

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

EVIDENCE FOR PRACTICE

DEPARTMENTS

INFORMATION


CLIENT SUCCESS
IS YOUR SUCCESS.
Better client communication. Increased client compliance. Making a more powerful contribution to the practice. Find out how our programs are paying off for other dental hygienists at HealthyPracticeNow.ca
Lisa Philp RDH
Lisa Philp has not been compensated to appear in this ad.
Crest + Oral-B
We mean business.

On professionalism and self identity

Katherine Zmetana, DipDH, DipDT, EdD

Scientific Editor, CJDH

Professional identity captures the essence and value of who we are and what we do; at the same time it embodies and promotes professionalism. But do we all have a common ground of understanding about what professional identity is? Professionalism is one of those concepts that mean different things to different people, and quite possibly something different to the general public than to the professionals involved. Part of the quandary is that the definition has evolved over the years and is currently in a state of fluidity. So just what is meant by professionalism? There exist not only official definitions, but also connotations that people hold.

The *Dental Hygiene Entry-to-practice Competencies* (2010) provides a definition of professionalism as applied to dental hygiene: Professionalism "reflects standards related to responsibility, accountability, knowledge application, continuing competence and relationships that define the practice and profession of dental hygiene" and it goes further to detail characteristics of each of those components.[1] From another perspective, the *Dental Hygiene Code of Ethics*, revised in June 2012, integrates professionalism as an essential component of ethical practice through the delineation of principles and responsibilities.[2] These publications provide a valuable reference. Nevertheless, professionalism has been very much a topic of discussion over recent years, not only in dental hygiene but in virtually all health care professions as well as in vocational fields because more and more occupations are adopting professional standards to their practice. This move has been influenced by government demands for the adoption of evidence based decision making and policy development. Professionalism has been discussed, studied and promoted, and it has been defined to the point of government regulation in several countries.[3]

Historically, the term "professional" was much more strictly defined. In the late 19th century, the "professions" were limited to divinity, law, and medicine.[4] Society recognized that these persons "professed knowledge of some areas of science and used that knowledge in the service of others".[5] [Associations were formed] "to control the behaviour of the members and to adopt high standards of performance",[5] with restricted entry to those who had undergone the advanced professional training. In return, "the community gave these associations the right of self-regulation and licensing."[6]

At its roots, professionalism comes from "professor", one who professes. More specifically, the professor was the keeper of knowledge, the expert who knew and passed on the knowledge. You could be a professional only if you had apprenticed with a professor.[7] Hence, trades such as plumbing and carpentry would not qualify for such an esteemed title because they lacked this intellectual formation. Professionals formed a strong elite.

According to tradition then, the professional was the one who had the answers and was capable of making important decisions due to his unquestioned abilities to make good judgment. In return, the professional enjoyed a heightened status in society. This form of professionalism was paternalistic; at root was the understanding that "father" knew best. But times have changed with the proliferation of shared research through professional journals, increased literacy and the advancements of technology. Clients are much more involved in taking charge of their own health. The paternalistic model of professionalism is undeniably outdated. Access to advanced learning and knowledge is no longer limited to men or to certain classes of society; Internet access is widespread. Thus the professional is no longer the keeper of information and knowledge; most people would rather not be held hostage in their personal care to a single judgement. Health care is a much more inclusive activity in the 21st century. The scope of professional practice has widened to include a variety of recognized health care providers, well beyond the confines of one sole expert.

There seems to be a current trend in the UK, and now North America, of promoting a "new professionalism"[3] which also includes such diverse professions as social workers, teachers and police. This call for a new definition and set of standards of professionalism has come about largely through societal demands for accountability. A better informed public demands a greater accountability[4] particularly when public spending is involved. Cynically, Masella states, "Unfortunately, American society, including higher education, glorifies a market mentality centered on expansion and profit."[7] Since Canadian society often reflects American mentality, our public may also be suspicious of that attitude and underlying motives among professionals.

A professional has undergone rigorous education and possesses skills that others do not. A professional also "accepts responsibilities and duties not expected of members of society in general, such as confidentiality, compassion, integrity, interprofessional respect and collegiality, public service and self-policing, and a commitment to progress."[4]

Correspondence to: Dr. Katherine Zmetana, Scientific Editor, *CJDH*
ScientificEditor@cdha.ca

Christmas and Millward in *New Medical Professionalism* state, "Typically, [professionalism] is seen as a combination of values, knowledge and skill; integrity; and good judgement in an individual. The growth of evidence-based medicine, and the growing accessibility of that evidence, have both had profound effects on medical professionalism. To the extent that evidence determines the right thing to do, it erodes the scope for individual judgement."[3] Nevertheless, professional judgement is still at the core of professionalism. The person making the decision has not only the education, experience, and possession of skills, but also the self awareness of personal strengths and abilities to determine a rational, well thought out plan of action where health and even life are concerned.

Ethics is integral to professionalism. Ethics is not simply the study of what is right and what is wrong without discernment; it is also the function of taking appropriate action within context. What is right for one person may not be for another. "Professionalism is more than knowing right from wrong. It is having the courage and conviction to make the right choices and do the right thing."[8]

We also live in an era of interprofessionalism—health professionals must often collaborate in the care of clients, to take the whole person into consideration and to reflect on the best interests of the client. But the client must be involved as well. The relationship between health professionals and clients can be summarized as "No decision about me without me."[3] Interprofessionalism includes the client.

Altruism, integrity, caring, community focus, and commitment to excellence are attributes of professionalism. "Its backbone is the obligation of service to people before service to self—a social contract. Moral principles are inherent in professional development and the professional way of life."[7] Professionalism is about "letting go of selfish, short-sighted rewards and promoting the long-term common good."[9]

Being a professional extends to all aspects of life. Why should we be ethical and professional? Because it doesn't just help the client but ultimately helps us: "doing well by doing good."[8]

The most important feature of all is that as dental hygiene professionals we represent dental hygiene to others—to our clients, our colleagues at work, the health care industry and the community at large. Our comportment day to day, our attitude towards others, and our integrity and self awareness are a reflection of dental hygienists everywhere. Role models are a strong influencing factor of professional values, attitudes and behaviours; professionalism includes being a role model. Dental hygienists are professionals, not so much because we "do" dental hygiene, but because we "are" dental hygiene.

In this month's issue, **Dr. Sharon Compton et al.**, p. 61, describe dental hygiene students' experience in professionalism during a practicum in long term care facility and provide recommendations for increasing the effectiveness of this experience. **Carol-Ann Yakiwchuk**, p. 84, provides an overview of a multistrategy approach to oral hygiene care in a long term care facility that includes interprofessionalism. The contribution by **Dr. Leandro Chambrone et al.**, p. 78, on traumatic gingival recession involves research with colleagues and students. Finally, **Sandy Lawlor**, p. 55, addresses the issue of professional identity in dental hygiene. For follow up and further research on recent publications on ethics and professionalism in health care, you may wish to consult the **Research Corner**, p. 91.

REFERENCES

1. Canadian Dental Hygienists Association. *Entry-To-Practice Competencies and Standards for Canadian Dental Hygienists*, January 2010. Ottawa. Available at: www.cdha.ca/pdfs/Competencies_and_Standards.pdf
2. Canadian Dental Hygienists Association. *Code of Ethics*. June 2012. Ottawa: CDHA. Available at: www.cdha.ca/pdfs/Profession/Resources/Code_of_Ethics_EN_web.pdf
3. Millward L, Christmas S. *New medical professionalism: A scoping report for the Health Foundation*. October 2011. London, UK. Available at: www.health.org.uk/public/cms/75/76/313/2733/New%20medical%20professionalism.pdf?realName=JOGEKF.pdf
4. Oreopoulos DG. Is medical professionalism still relevant? *Perit Dial Int*. 2003 Nov–Dec;23(6):523–57.
5. Brinkley A. Faiths that failed? Professionalism, technology, and science in 20th century America. *Neurology*. 1998;51:657–61.
6. Southwick J. Ethics versus commercialism in the professions. *Ann R Australas Coll Dent Surg* 2000;15:264–67.
7. Masella RS. Renewing professionalism in dental education: Overcoming the market environment. *J Dental Educ*. 2007 Feb;71(2):205–16. Available at: www.jdentaled.org/content/71/2/205.
8. Karp S. Teaching ethics and professionalism to dental students. *Oral Health Journal*. February 2009. Available at: www.oralhealthgroup.com/news/teaching-ethics-and-professionalism-to-dental-students/1000226351/
9. Lovas JG, Lovas DA, Lovas PM. Mindfulness and professionalism in dentistry. *J Dent Educ*. 2008 Sep;72(9):998–1009. Available at: www.dentistry.dal.ca/Mindfulness/MindfulnessLovas2008.pdf

Dental Hygiene and its evolving professional identity

Sandy Lawlor, RDH, BA(Psych.), BSW

CDHA President

2013 is a memorable year for the dental hygiene profession as it celebrates one hundred years since Dr. A.C. Fones started the first dental hygiene school in North America.[1,2] In Canada, the year also marks the fiftieth anniversary of the establishment of the Canadian Dental Hygienists Association (CDHA).[3] Both these events are remarkable because the former has a historical role in creating the awareness of professional identity while the latter has supported the evolution of that identity.

Traditionally over the last two centuries, professional identity had two main attributes.[4] The first was to ensure objectivity in one's work by utilizing education and the review of colleagues as guidelines to practice. The second characteristic was to meet each client's needs.[4] This approach seemed to provide a simplistic definition of professional identity that was seen as being too constricting and narrow.

An expanded approach focussed on factors that typically defined a profession. These included developing a comprehensive education program, establishing both local and national associations, requiring licensure or self regulation, and creating a code of ethics.[5]

Current trends have encouraged professional identity to be expanded yet again. This approach encompasses the beliefs, characteristics, experiences, motivations, and the values that outline one's professional life.[6] Further, this definition recognizes that we are basically social beings and that it is our participation in human interactions which not only shape the people we become but also place us in communities different from our family units and into wider and broader contexts.[7]

Shaping professional identity has come to include "communities of practice"—groups brought together to share experiences so that people understand collectively what has been learned. Such community interaction then provides an opportunity to utilize the exchange of that knowledge to refine the old and incorporate new strategies contributing to practice success.[7]

Several models outline stages of achieving a professional identity, and many have a tendency to include a component that leads to comparing themselves with others while adhering to true core values and strategies.[5,6] As a result, an individual's story forms the narrative that becomes part of one's professional identity. It is when the personal narrative combines with the narratives of communities of practice that the true development of a professional identity emerges.

THIS IS A PEER REVIEWED ARTICLE. This article is a personal commentary on one of the CDHA Ends as determined by the CDHA board of directors.
Correspondence to: Sandy Lawlor, CDHA President; president@cdha.ca

L'hygiène dentaire et l'évolution de son identité professionnelle

Sandy Lawlor, RDG, BA (Psycho.), BSW

2013 est une année mémorable pour la profession d'hygiène dentaire qui célèbre son centenaire après le lancement par le Dr A.C. Fones de la première école d'hygiène dentaire en Amérique du Nord.[1,2] Au Canada, l'année marque aussi le cinquantième anniversaire de la création de l'Association canadienne des hygiénistes dentaires (ACHD).[3] Ces deux événements sont remarquables parce que le premier a créé une sensibilisation à l'identité professionnelle alors que la seconde a soutenu l'évolution de cette identité.

Traditionnellement, depuis les deux derniers siècles, l'identité professionnelle avait deux caractéristiques principales.[4] La première était d'assurer l'objectivité du travail personnel en utilisant la formation et l'examen des collègues comme lignes directrices de pratique. La seconde caractéristique exprimait la satisfaction des besoins personnels de la clientèle.[4] Cette approche semblait donner à l'identité professionnelle une définition simple qui semblait restrictive et trop étroite.

Une approche élargie a été axée sur les facteurs qui définissaient typiquement une profession, notamment : l'élaboration d'un programme complet de formation, la création d'associations locales et nationale, l'exigence d'un brevet ou d'une autoréglementation et la création d'un code d'éthique.[5]

Les tendances courantes ont incité à étendre davantage notre identité professionnelle. Cette approche comprend les croyances, caractéristiques, expériences, motivations et valeurs qui marquent le profil d'une vie professionnelle.[6] Et davantage, cette définition reconnaît que nous sommes fondamentalement des êtres sociaux et que notre participation aux interactions humaines non seulement modifient la nature des personnes que nous devenons mais aussi nous situent dans des collectivités différentes de nos unités familiales et dans des contextes plus grands et plus étendus.[7]

Le moment est venu d'inclure les « communautés de pratique » dans le développement de notre identité professionnelle — soit

CET ARTICLE A ÉTÉ REVU PAR LES PAIRS. Cet article est un commentaire personnel sur les Buts de l'ACHD déterminés par le conseil d'administration de l'ACHD.
***Correspondante à :** Sandy Lawlor, présidente de l'ACHD; prédisent@cdha.ca*

Dr. Fones could not have had the foresight of the impact his dental hygiene school would have in marking a path for the creation of a professional identity that highlights health promotion and disease prevention through therapeutic care. Over time, dental hygienists, individually and collectively, have come to embrace their role as primary healthcare practitioners.

The CDHA "end" or goal based on professional identity states, "Members have a shared understanding of the purpose and value of Registered Dental Hygienists as an integral part of the health care team".[8] To meet this end, evidence based documents and position papers are developed and published that contribute to professional identity. For instance, published documents such as *Pathways to support the oral health of Canadians: The CDHA Dental Hygiene Agenda*[9] and *Entry-To-Practice Competencies and Standards for Canadian Dental Hygienists*[10] keep the profession in the political and public eye. This ensures dental hygienists are recognized as primary health professionals who participate in interprofessional practice. It also reinforces that professional identity adapts to the current environment.

CDHA strives to engage its members through opportunities for feedback and direction. Sometimes this is done through surveys where members share their personal narratives and concerns. CDHA also has created communities of practice through committees such as the Education Advisory Committee and Research Advisory Committee. Another example is the Educators' Listserve where new information is shared, and often lively debate and discussion ensue.

Another challenge members are encouraged to embrace is professional identity through seizing opportunities to engage and share ideas. This can be done by volunteering to sit on a committee or task force, advocating to elected officials both nationally and provincially, and engaging in dialogue with CDHA's board of directors. It is through these interactions that both the organization and the profession grow stronger, and can explore innovative ways to allow professional identity to evolve.

Dental hygienists were once referred to as "teeth cleaners".[11] Hard work, advocacy and educating other professionals, politicians and the public have given dental hygienists the respect that comes with being primary health professionals who practise interprofessionally.

Our professional identity has grown[3,12] since Dr. A.C. Fones opened that first dental hygiene school, and dental hygienists continue to build on that identity—national competencies for entry to practice,[13] self regulation for more than ninety per cent of Canadian dental hygienists[14] and the ability to practise independently.[15] The professional identity of dental hygiene is and should always be an evolutionary process.

RESOURCES

1. Herschfeld JJ. Classics in dental history. Alfred C. Fones—father of the dental hygiene movement. *Bull Hist Dent.* 1989 Oct;37(2):129–34.
2. Founder of dental hygienist education: Alfred C. Fones (1869–1938). *TIC.* 1975;34(2):6.

la formation de groupes de partage des expériences permettant de comprendre collectivement ce que l'on apprend. Une telle interaction communautaire permet alors d'utiliser l'échange des connaissances pour raffiner les stratégies antérieures et intégrer les stratégies nouvelles qui contribuent à la réussite de la pratique.[7]

Plusieurs modèles soulignent les étapes de parachèvement d'une identité professionnelle, et beaucoup de collègues ont tendance à inclure une composante qui leur permet de se comparer mutuellement lors de l'adhésion à des valeurs et à des stratégies fondamentales.[5,6] *Il en résulte que la description de l'expérience d'une personne s'intègre dans sa propre identité professionnelle. C'est lorsque la description personnelle se combine à celles des pratiques communautaires qu'émerge le vrai développement d'une identité personnelle.*

Le Dr Fones pouvait difficilement prévoir l'impact qu'aurait eu son école d'hygiène dentaire en marquant un pas vers la création d'une identité professionnelle mettant en évidence la promotion de la santé et la prévention de la maladie par des soins thérapeutiques. Au fil du temps, les hygiénistes dentaires, individuellement ou collectivement, en sont venues à percevoir leur rôle comme étant celui de praticiennes en soins de santé primaires.

La « fin », ou le but, fondée sur l'identité professionnelle stipule que « les membres partagent une compréhension des buts et valeurs des hygiénistes dentaires inscrites comme faisant partie intégrale de l'équipe des soins de santé ».[8] *À cette fin, la rédaction et la publication de documents et de prises de position contribuent à l'identité professionnelle. Ainsi en est-il par exemple de certaines publications traitant* The Pathways to support the oral health of Canadians: The CDHA Dental Hygiene Agenda[9] *et* Compétences et normes d'agrément et de pratique pour les hygiénistes dentaires au Canada[10], *qui maintiennent la profession dans l'optique de la politique et celle du public. Cela assure la reconnaissance des hygiénistes dentaires comme étant des professionnelles des soins de santé primaires. Cela renforce aussi le fait que l'identité professionnelle s'adapte à l'environnement actuel.*

L'ACHD s'efforce d'engager occasionnellement ses membres à participer par leurs réactions et orientations. Cela se fait parfois par des sondages où les membres partagent leurs évaluations et préoccupations. L'ACHD a aussi créé des pratiques communautaires par des comités tels que le Comité consultatif de formation et le Comité consultatif de la recherche. Un autre exemple est le Serveur de liste des pédagogues servant au partage des nouveaux renseignements et souvent des débats et discussions qui s'ensuivent.

Un autre défi que les membres sont invités à relever consiste à embrasser l'identité professionnelle en saisissant les occasions d'engagement et de partage d'idées. Cela peut se faire en se portant volontaires pour siéger à un comité ou à un groupe de travail, en alertant les dirigeants élus, nationaux et provinciaux, et en s'engageant dans des dialogues avec le conseil d'administration de l'ACHD. Par ces interactions, l'organisation et la profession se renforceront et pourront alors explorer de nouvelles voies permettant l'évolution de l'identité professionnelle.

Les hygiénistes dentaires ont déjà été désignées comme étant des « nettoyeuses de dents ».[11] *Le dur travail, l'intervention et la formation d'autres professionnelles, des politiciens et du public ont suscité envers les hygiénistes dentaires un respect qui en fait*

3. Canadian Dental Hygienists Association. *Our History.* 2010. Available at: www.cdha.ca/AM/Template.cfm?Section=History
4. The Fork. *Professional Identity.* Available at: www.forkmodel.net/index.php/apps/professional-identity
5. Mieg HA. Professionalism and professional identities of environmental experts: the case of Switzerland. *Environmental Sciences.* March 2008;5(1)41–43.
6. Ibarra H. *Provisional Selves: Experimenting With Image and Identity in Professional Adaptation.* Harvard Business School Working Knowledge Archive. 2000 Jan. 22. Available at: http://hbswk.hbs.edu/archive/1275.html
7. Kahan S. Engagement, Identity and Innovation: Etienne Wenger on Community of Practice. *Journal of Association Leadership.* Winter 2004.
8. Canadian Dental Hygienists Association. *CDHA Ends.* Revised February 2013. Available at: www.cdha.ca/AM/Template.cfm?Section=About_CDHA [Revision in process.]
9. Canadian Dental Hygienists Association. *Pathways to support the oral health of Canadians: The CDHA Dental Hygiene Education Agenda.* Ottawa: Canada. 2008. Available at: www.cdha.ca/pdfs/Profession/Policy/EducationAgenda.pdf
10. Canadian Dental Hygienists Association. *Entry-To-Practice Competencies and Standards for Canadian Dental Hygienists.* January 2010.
11. Woodall I. Dental hygiene more than just cleaning teeth. *RDH.* 1989;8(7).
12. Johnson PM. Dental hygiene regulation: a global perspective. *Int J Dent Hyg.* 2008;6(1):221–28. Available at: http://onlinelibrary.wiley.com/doi/10.1111/j.1601-5037.2008.00317.x/full
13. McKeown L, Sunell S, Wickstrom P. The discourse of dental hygiene practice in Canada. *Int J Dent Hyg.* 2003;1(1)43–48. Available at http://onlinelibrary.wiley.com/doi/10.1034/j.1601-5037.2003.00006.x/full
14. Canadian Dental Hygienists Association. *CDHA National list of Service Codes.* Revised 2012. Ottawa. p.3. Available at: www.cdha.ca/pdfs/profession/IP/CDHAservicecodesDecember_2012.pdf
15. Canadian Dental Hygienists Association. *Dental Hygiene at a Crossroads: Knowledge Creation and Capacity Building in the 21st century.* June 2009. Ottawa. p.9

des professionnelles des soins de santé primaires qui exercent dans un cadre interprofessionnel.

Notre identité professionnelle a grandi[3,12] depuis que le Dr A.C. Fones a ouvert la première école d'hygiène dentaire et les hygiénistes dentaires continuent d'accroître cette identité — compétences nationales d'accès à la pratique,[13] autoréglementation pour plus de quatre-vingt-dix pour cent des hygiénistes dentaires canadiennes[14] et capacité d'exercer indépendamment.[15] L'identité professionnelle en hygiène dentaire est et devrait toujours être un processus évolutif.

Introducing Sensodyne® Repair & Protect

Powered by NovaMin®

Sensodyne Repair & Protect is the first fluoride toothpaste to harness patented NovaMin® calcium and phosphate technology to do more than treat the pain of dentin hypersensitivity.

- **Repairs exposed dentin*:** Builds a robust hydroxyapatite-like layer over exposed dentin and within dentin tubules.[1–5]
- **Protects patients from the pain of future sensitivity*:** The hydroxyapatite-like layer is up to 50% harder than the underlying dentin[6] and resistant to daily mechanical and chemical challenges.[1,6–8]

* With twice-daily brushing.

Think beyond pain relief and recommend Sensodyne Repair & Protect

GlaxoSmithKline Consumer Healthcare Inc.

1. Burwell A, et al. *J Clin Dent.* 2010;21(Spec Iss):66–71. **2.** LaTorre G, et al. *J Clin Dent.* 2010;21(3):72–76. **3.** West NX, et al. *J Clin Dent.* 2011;22(Spec Iss):82–89. **4.** Earl J, et al. *J Clin Dent.* 2011;22(Spec Iss):62–67. **5.** Efflant SE, et al. *J Mater Sci Mater Med.* 2002;26(6):557–565. **6.** Parkinson C, et al. *J Clin Dent.* 2011;22 (Spec Iss):74–81. **7.** Earl J, et al. *J Clin Dent.* 2011;22(Spec Iss):68–73. **8.** Wang Z, et al. *J Dent.* 2010;38:400–410.

Letters to the editor

We encourage our readers to submit letters on articles and other content published in recent issues of CJDH. Letters should not exceed 500 words. No illustrations, please.

The editor reserves the right to edit for purposes of clarity or conciseness. The views of the letter writer are not necessarily an endorsement of the CDHA or the journal's policies.

Send us your letters:
- *ScientificEditor@cdha.ca or*
- *Journal@cdha.ca*

When good things go around

First, congratulations to *Canadian Journal of Dental Hygiene* on the astute decision to go open access. I particularly appreciated Dr. Katherine Zmetana's editorial in the February issue, *Open access is a good thing*, which provided a well informed overview of the advantages to open access publication especially as future educational trends point toward accommodating lifelong learning to anyone without restrictions.

Second, the editorial provided a great summary of the difference between "open access" and "open content" as well as a reminder of proper copyright etiquette especially since recent new copyright laws through Bill C-11 have now been formally ratified. Under the new copyright law, the scope of fair dealing has been expanded to allow access to research articles for personal study and further research without payment or the need for permission, and we gratefully acknowledge the time, energy and effort that go into these works. Continued publication of research needs to be promoted and encouraged, therefore despite open access, it is important to be hyper vigilant in crediting authors and sources of information.

As an advocate for open education to create learning communities where there are no barriers to learning, I am excited and encouraged to read that our national dental hygiene journal has adopted this direction. *Way to go* ... !

Loni Spletzer, RDH
Prince George, BC

Radiograph

I'm writing to express my concern regarding the image used in the *CJDH* advertisement on page 38 of the February 2013 issue, volume 47.1. While I understand this is a stock image, there are some glaring errors in the image which I feel reflect poorly on the profession, particularly since this is an advertisement representing our professional organization. The most prominent error is that the woman in the image is holding the radiograph *upside down*.

Additionally, we can assume she had some difficulties with processing the image as there are brown marks on the image. Also, she is holding the image up to an overhead light to "read" it. Radiographic evaluation and interpretation requires a good light source such as a light box; holding the radiograph up to the light is an unacceptable shortcut. It is unclear why she is wearing a mask and safety glasses to view the radiograph and it is a minor issue, but she should be wearing them properly. Instead the inferior border of her mask has not been pulled back under her chin. While some of these issues may appear trivial, is this how we want to present ourselves as professionals? At a time when we are trying to increase awareness of our profession and scope of practice to the public and other health professionals, we should also be advancing this cause *within* the profession. I have shared these concerns in hope that going forward, that images used by CHDA and others within our profession will be vetted more thoroughly prior to publication to more adequately reflect the professionalism and skills we expect from ourselves.

Denise M. Laronde, PhD, RDH
Assistant Professor
Department of Oral Biological and Medical Sciences
University of British Columbia

Chuckle for the day

Just wanted to drop you a line, and to thank you for the chuckle of my day.

I was looking through my Feb issue of *CJDH*. I came to page 38, and to the ad which offers us the opportunity to send in a letter to the editor. Ideally, we should elevate or add to the level of scientific discussion in a previously published article.

My contribution for consideration is this: the "hygienist" in the photo is intently scrutinizing a panoramic radiograph. I have two recommendations for her: she should use a light box, and she should turn the radiograph right side up.

Linda Mantei, RDH

EDITOR'S NOTE

Image issue

We thank those of you who took the time to notify us of your views regarding the CJDH *Call for Letters to the editor ad that we published in our February 2013 issue of* CJDH*, volume 47(1):38. The oral health professional in the ad was holding the radiograph* upside down*. We replied individually to each reader who contacted us, and have selected two representative letters for publication. We purchased that image from an image bank library, and we do not intend to reproduce the image again. We agree that the picture depicts an incorrect representation.*

We are using the responses to discrepancies in this advertised image as an opportunity for progressive reflection and action. We encourage you to submit your own pictures of dental hygienists in clinical settings, at work, at study, in a research facility, at conferences … . ***That way we can feature real professionals practising in real ways.*** *We could use your submitted picture in any of CDHA's publications or website, or other CDHA promotional vehicles and events. Please email your picture(s) to marketing@cdha.ca, noting the following requirements:*

1. *Picture(s) in any of these file formats: .jpg, .jpeg, .tiff, . png, .pdf, or .ai., .eps*
2. *Picture(s) in high resolution with pixel strength of 300 dpi*
3. *Your coordinates — email, phone and mailing address*
4. *A completed photo release form, available at: www.cdha.ca/pdfs/photo VideoRelease.pdf*

We encourage you to participate constructively through our forum, "Letters to the editor", on published articles in the Canadian Journal of Dental Hygiene*. Critiques and negative comments on content should be written in a thoughtful and analytical manner to provoke further insight and discussion, rather than to judge or discredit any person or organization. We support and encourage negative comments that are expressed with sensitivity and rationale, a crucial quality in correspondence that also represents an image perception of the profession we'd like to portray in this forum. The two letters we published above are excellent examples which serve this point.*

We value our readers' responses and contributions. Thank you for defending and upholding our standards of quality.

Chitra Arcot, *MA (Pub.), MA (Eng.)*
Publishing editor, CDHA
journal@cdha.ca

Continued on page 75

Practicum experience to socialize dental hygiene students into long term care settings

Sharon M. Compton*, DipDH, BSc, MA (Ed), PhD; **Sandra J. Cobban**†, DipDH, MDE, PhD; **Lisa A. Kline***, PhD

ABSTRACT

Introduction: As the population ages, educational health care programs must increase efforts to provide geriatric health knowledge to students and to socialize them into settings such as long term care (LTC). **Methods:** A new practicum was developed in which dental hygiene (DH) students were scheduled onsite in LTC facilities. A guiding objective for the practicum was to socialize students into this environment by providing them with practical knowledge and experience that could give them the confidence, attitudes, and desire to work with this population upon graduation. This study provides a qualitative analysis of data acquired from focus groups with the students and from individual interviews with the registered dental hygienist (RDH) instructors who guided them. **Results:** Six main themes were identified from the student focus group data: 1) communication challenges between students and LTC staff; 2) communication challenges between students and LTC residents; 3) uncertainty about follow up for oral health recommendations; 4) barriers to provision of daily mouthcare; 5) uneasiness of students in LTC environment; and 6) appreciation for the practicum experience. Transcripts from the RDH interviews revealed two themes: 1) challenges in the facility context; and 2) challenges and enhancements for student learning. **Discussion:** From these results, we determined that changes need to be made to the practicum, including: providing more classroom preparation before the practicum; beginning the practicum earlier in the year to provide students with more experience; arranging onsite visits to correspond to the schedules of the residents and staff; improving and increasing interactions between students and LTC staff; and developing and establishing clear protocols for what students should do under specific conditions, and how their recommendations for residents can be implemented. **Conclusion:** We believe that the practicum successfully contributed to the socialization of DH students into the LTC environment by building their awareness of the complexities of working in this context with this population.

RÉSUMÉ

Introduction : Avec le vieillissement de la population, les programmes d'enseignement des soins de santé doivent accroître leurs efforts pour instruire les étudiantes et étudiants concernant les soins gériatriques et les amener à se joindre à des cadres comme celui des soins de longue durée (SLD). **Méthodes :** L'on a donc a mis au point une nouvelle pratique amenant les étudiantes en hygiène dentaire (HD) à faire des stages dans des services de SLD. L'un des objectifs de cette pratique a pour objet de familiariser les étudiantes avec cet environnement, en leur procurant des connaissances pratiques et des expériences susceptibles d'affermir leur confiance, développer leurs attitudes et les inciter à travailler chez cette population après la réception de leur diplôme. Cette étude présente une analyse qualitative des résultats obtenus de groupes cibles d'étudiantes et des entrevues personnelles avec des hygiènes dentaires agréées (HDA) instructrices qui les ont guidées. **Résultats :** Les étudiantes du groupe ciblé ont souligné six thèmes principaux : 1) les défis de la communication entre les étudiantes et le personnel des SLD; 2) les défis de communication entre les étudiantes et les résidents des SLD; 3) l'incertitude du suivi des recommandations en santé buccodentaire; 4) les obstacles de la prestation des soins buccodentaires quotidiens; 5) les malaises des étudiantes dans l'environnement des SLD; 6) l'appréciation de l'expérience pratique. La transcription des entrevues en HDA a révélé deux thèmes : 1) les défis dans un contexte de facilité et 2) les défis et l'amélioration de l'apprentissage des étudiantes. **Discussion :** De ces résultats, nous avons conclu qu'il fallait apporter des modifications à la pratique, notamment : offrir plus de préparation en classe avant d'entreprendre la pratique; entreprendre la pratique plus tôt dans l'année pour accroître l'expérience des étudiantes; organiser des visites sur place correspondant aux calendriers des étudiantes et du personnel; améliorer et accroître l'interaction entre les étudiantes et le personnel des SLD; élaborer et établir des protocoles clairs pour ce que les étudiantes doivent faire dans des conditions particulières et mettre en pratique leurs recommandations pour les résidentes. **Conclusion :** Nous estimons que la pratique a contribué efficacement à l'intégration des étudiantes en HD dans le cadre des SLD en les sensibilisant à la complexité du travail chez le type de population.

Key words: older adults, older seniors, geriatrics, dental hygiene student practicum, long term care, socialization

BACKGROUND

Developed countries worldwide have steadily increasing numbers of older persons as the population ages: in 2000, 20 per cent of the population in these regions was aged 60 and older, and this is expected to increase to 33.3 per cent by 2050.[1] In Canada, individuals aged 65 and older currently comprise 14.4 per cent of the total population, and it is estimated that these numbers will increase to 24.5 per cent by 2036.[2,3] There is some question as to whether the inevitably increasing need for health care in the growing older adult population can be met or if the health professions are severely underprepared in training and attitude.[4] Oral health care, in particular, is an area of great concern, particularly for older adults living in long

THIS IS A PEER REVIEWED ARTICLE. Submitted 11 Mar. 2013. Revised 1 Apr. 2013. Accepted 3 Apr. 2013.

* University of Alberta, Edmonton.

Correspondence to: Dr. Sharon Compton; scompton@ualberta.ca, professor and director, dental hygiene program

† This work is dedicated in memory of Dr. Sandy Cobban who passed away on January 11, 2013.

term care (LTC): a review of the literature reveals that the current provision of oral care in LTC facilities worldwide is inadequate, with frail dependent elderly people often receiving little or no oral care.[5–23]

One of the steps that can be taken to address the growing numbers of older adults and the care they will require is to focus on the education of future health professionals. There are two key areas of focus for this educational initiative: curricula must ensure that students from all health disciplines learn how to maintain and improve oral health, and that students be socialized into working with older adults, particularly in the long term care environment.

The reason all health professions must be involved in oral health maintenance and promotion is because poor oral health, a potentially serious condition in itself, is also linked to or associated with other health complications to which older persons, such as the frail elderly in LTC or assisted living, are particularly susceptible.[24] For example, evidence indicates that poor oral health may lead to an increased risk of developing or worsening illnesses or conditions, including pneumonia,[25–32] influenza,[33–35] heart disease,[36–38] stroke,[39,40] diabetes,[41] and malnutrition.[42,43] Poor oral health may also affect one's quality of life by impacting chewing, eating, swallowing, and speaking, as well as poor facial aesthetics—such as decayed teeth, breath malodour—all or many of which may result in self consciousness and isolation due to reduced inclination to interact socially with others.[44–56]

While many studies have provided considerable evidence of oral–systemic relationships, health curricula may not be adequately addressing this issue. For instance, a comprehensive study was conducted to explore the amount of information related to oral–systemic science currently being taught in the predoctoral or undergraduate professional curricula of nursing, medical, and pharmacy schools in universities across Canada, the United States, Europe, Asia, Australia, and New Zealand.[57] This study, which involved circulating an online survey to associate or academic deans at these schools, found substantial deficiencies in the provision of oral health education and oral–systemic health education to their students.[57] In a different survey of baccalaureate nursing students, it was revealed that, although students believed that oral health is important to nursing practice and knew that there was an association between oral health and other health issues, most of them lacked sufficient knowledge and understanding of the components of an oral health examination to be able to conduct a proper oral health screening.[58] Researchers concluded that the oral health content of nursing courses was inadequate, and that improvements would have to be made so that students' awareness of the importance of oral health to overall health can be translated to practice in a way that will benefit the health outcomes of patients.[58]

One way to improve the oral health knowledge and practice of nursing students can be found in an interprofessional educational initiative at George Brown College in Ontario, Canada.[59] Recognizing the association between oral health and overall health, this program initiative combines students from the Bachelor of Science in Nursing program with students from DH.[59] This program enables the students to learn from one another and to develop an understanding of how they can combine their skills and knowledge and thus work collaboratively to provide better oral care as well as better overall health care.[59] However, there is a lack of information concerning oral health education in the non dental health sciences, which may reflect the fact that much progress has yet to be made.

Improving the quality and quantity of oral health education, while extremely important and in need of growth, is in itself insufficient to ensure that there will be a health care workforce prepared to manage the increasing number of older adults. It is also essential to focus on the socialization of students in the area of geriatric health care, and there have been many calls to improve geriatric education in the health professions.[60–68] Some of the obstacles that must be overcome concern the attitudes and perceptions of health care students towards working with the older adult population. In three different studies of medical,[69] dental,[70] and nursing[71] students, it was revealed that many students, prior to any experience working with this population, exhibited negative attitudes and perceptions towards working with older persons and had minimal or no inclination to want to work with them. However, it was also found that, after having some experience working with this population, the same students developed more positive attitudes and perceptions. Researchers concluded that it is essential for there to be increased practicums in which students can interact with older adults, and that the positive attitudes and perceptions that arise from these experiences must be fostered and supported during their education, which may result in a desire to work with older adults upon graduation.[69–71]

There have been reports of positive developments in which some educational health care programs offer training and practicums in LTC so that students can acquire first hand experience working with this complex population. The aforementioned educational initiative with the collaboration between nursing and DH takes place in the LTC environment.[59] One nursing school has developed a program of academic and service partnerships in which faculty and students conduct clinical practice in four LTC homes—two large urban residences and two small rural residences.[68] The objectives of this program are to increase communication, share resources, allow interactive learning, and use nursing expertise to develop the competence of nursing students, resulting in new nursing graduates considering a career in LTC.[67] Although it is too early to determine if the student objectives have been met, the preliminary report on this program revealed positive outcomes for the other objectives.[68] Other educational programs are targeted directly for students by providing them with LTC experience so they can learn to apply their knowledge in a practical setting as well as acquire a better understanding of the challenges and rewards of working with the frail older adult population. For example, there have been reports from nursing,[72,73] medicine,[74,75] and

speech-language pathology[72,76] programs in the USA, from nursing schools in New Zealand[77] and Australia,[78] and from dentistry schools in Canada,[79,80] all demonstrating that educational curricula are beginning to address the need to prepare future health professionals for the growing older adult population, particularly in LTC. In addition to providing students with practical knowledge of geriatric health care, these programs also aim to socialize students into geriatric health care environments so that they may seriously consider choosing to work with that population when they graduate.

The success of these programs with regards to student socialization has been mixed. In one study, undergraduate nursing students and graduate speech-language pathology students participated in a service learning project with residents with dementia at an LTC facility.[72] Aims of this program included encouraging students to:

1. Acknowledge that the person, rather than the disorder, comes first.
2. Consider the impact of the relationship between a person and other people in the person's life, such as family, caregivers, and community members.
3. Become well rounded professionals with experience and insight beyond their fields.
4. Participate in qualitative analysis of their own learning processes through journalling.

Students were prepared for the project by classroom instruction and self study assignments. The speech-language pathology students, or the "experimental group", received more instruction about dementia and communicating with individuals with the condition than the nursing students, or the "control group"; the experimental group also had to create a "personalized connection kit" for each resident, whereas the nursing students did not.[72] Results of this project, based on questionnaires, indicated that students from both groups obtained benefit in terms of taking more responsibility for their own learning, enhancing their personal growth, and gaining a broader understanding of community needs and service; therefore, in these respects, the project was deemed successful.[72] Speech-language pathology students found the experience, regarding the socialization aspects of the project, to be very beneficial to their professional development and said that they were inclined to continue to volunteer or work or do both in the LTC community.[72] Nursing students, however, felt more classroom time spent covering dementia would have been more beneficial to their professional development than community time, and they said they were unlikely to want to continue to volunteer or work in the LTC community after the completion of the course.[72] The speech-language pathology students had more extensive training and knowledge to prepare them to work with the LTC population and dementia patients in particular, which contributed to their more positive attitudes.[72]

In another study of baccalaureate nursing students, senior students spent four days of their clinical rotation in an LTC setting where they completed basic assessments of residents using the MDS (minimum data set), and participated with the care planning team at the LTC facility to learn how the MDS contributes to care planning.[73] The main goal of the practicum was to improve students' attitudes about older adults and to create increased interest in geriatric nursing. While attitudes may have improved, based on focus group results a week afterwards in which most students rated their experience positively, none of the students said that they planned to work in LTC immediately after graduation, prompting researchers to suggest that their program is not as effective as it could be.[73]

A common theme that emerges in most of the studies on student experiences in LTC concerns the emotional impact upon the students. In two different studies, one with medical students[74] and the other with nursing students,[78] it was revealed that many students were somewhat overwhelmed by the range and intensity of emotions they experienced while working with the LTC residents. In both reports, it was concluded that greater support must be provided to help students not only prepare for the emotions they will feel, but to teach them how to deal with those emotions in a way that will be beneficial. However, other studies of student experiences in LTC demonstrate more positive results arising from students' emotional experiences. For example, in various studies with dental students,[79,80] medical students,[75] and speech-language pathology students,[76] many students expressed that the emotional learning they experienced helped them grow as professionals and as individuals, increasing their understanding and appreciation for the lives and situations of the older adults in their care. The many positive experiences revealed in these various studies may encourage students, upon graduation, to work with older adults and in the LTC environment.

If the health professions are going to be adequately prepared to manage the increasing numbers of older adults, it is important to increase and improve efforts to provide oral health and general geriatric health knowledge to health care students. Perhaps most importantly, however, would be to socialize them into the LTC environment, so they will have the knowledge, experience, confidence, attitude, and desire to return upon graduation or later in their careers.

ElderSMILES: A dental hygiene program practicum

ElderSMILES (Strengthening Mouthcare In Long-term Eldercare Settings) is a practicum that was initiated in the dental hygiene program at the University of Alberta in January 2011. The primary objectives for the practicum were to socialize DH students to the long term care environment, to assess resident's oral health and to provide daily mouthcare for residents. The purpose of this paper is to report the qualitative data based on the first objective which was the socialization of DH students to the long term care setting.

Two long term care facilities were chosen and were located within reasonable proximity to the university which facilitated student access to each facility. The two facilities differed in their structural organization and in some services offered, so each had the potential of providing a range of experiences for the students.

Table 1: Focus group and interview questions.

Focus group questions

- From your practicum in LTC, describe the learning experience that stands out most for you. (*Note to facilitator – try to have each student respond to this question.*)
- Describe any challenges you experienced.
- Describe how communication and directions transpired from the time you entered the facility to completion of the day's experience. For example, were you met upon arrival and directed to your area as planned?
- Describe any challenges you had with performing the oral assessments.
- Describe any challenges you had with mouthcare instruction with residents.
- Describe any challenges you had with mouthcare instruction with HCAs? Others? (*If others, who were they? RNs? Other caregiver?*)
- How do you feel you were able to communicate with residents? HCAs? Others? (*If others, who were they?*)
- Did you feel part of an interdisciplinary team? If so, how? If not, why not? (*Provide an example.*)
- How would you describe the receptiveness of the facility staff to the ElderSMILES program, and having dental hygiene students on site?
- Please share any suggestions for the future of this practicum

Interview questions

- Overall, what stood out for you when you reflect on the practicum experience?
- Describe any overall challenges you experienced.
- Describe how communication and directions transpired from the time you entered the facility to completion of the day's experience. For example, were you met upon arrival and directed to your area as planned?
- How were residents identified for you and the students to see each week?
- Describe any challenges you or students had with performing the oral assessments.
- Describe any challenges you or students had with mouthcare instruction with residents.
- Describe any challenges you or students had with mouthcare instruction with HCAs? Others? (*If others, who were they? RNs? Other caregiver?*)
- How do you feel you or students were able to communicate with residents? HCAs? Others? (*If others, who were they?*)
- Did you feel part of an interdisciplinary team? If so, how? If not, why not? (*Provide an example.*)
- How would you describe the receptiveness of the facility staff to the ElderSMILES program, and having dental hygiene students on site?
- Please comment on how the assessment tools worked for you and the students? Easy to follow? Difficult to follow? Suggestions?
- Please share any suggestions for the future of this practicum.

Senior level DH diploma students were at each site one day per week over a 13-week period. A registered dental hygienist (RDH) who was also a clinical instructor in the DH program guided the students at each site. Students worked in pairs to complete an intra oral assessment for residents using a modified Oral Health Assessment Tool (OHAT)[81] and, when appropriate, provided daily mouthcare and oral hygiene instructions to the resident. The chosen modification of the OHAT was selected because the Edmonton Zone of Alberta Health Services modified the OHAT developed by Chalmers[82] and subsequently, has recommended incorporating it into the resident's assessment for long term care facilities. Students also assessed and recorded the amount of plaque and hard debris on the teeth using a disposable dental mouth mirror and a visual inspection. When possible, students also provided demonstrations for health care aides on how to effectively complete daily mouthcare for a resident.

There were 48 participating DH students, all of whom were in the final year of a 3-year diploma program. None of the students had any prior experience with long term care (LTC) facilities other than a few students with personal experience with family members. Each student was scheduled for the ElderSMILES practicum for two days and a few students were scheduled for three days. Prior to the start of the practicum, students and the RDH clinical instructors attended a workshop that included a presentation from one of the facilities and a detailed orientation to the processes to be followed during the LTC practicum experience. Students and the registered dental hygienist (RDH) clinical instructors were provided with a resource manual.

Onsite at each facility, the RDH instructor would begin each day with a briefing session and, after seeing each resident, the group would debrief and determine next steps. Oral assessment details and recommendations were recorded in the resident's care plan and when possible, discussed with the registered nurse who develops and monitors the resident's care plan.

METHODS

Following the 13-week period, two focus groups were conducted with DH students. Each focus group included three students who had volunteered to participate. Focus groups were chosen for gathering data from the students because this research method provides the opportunity to capture interaction with the group that can better reflect the collectivity of student experiences in the practicum.[83] Focus groups also allow for the expansion of ideas by stimulating the thinking of the individuals as they reflect on and respond to what other members of the group say, providing potentially rich and detailed perspectives from participants.[84] In addition, individual interviews were conducted with the two RDH instructors. The questions for both focus groups and individual interviews were developed by the authors, and approval for the evaluation of the practicum was granted by the Health Research Ethics Board at the University of Alberta as well as the Covenant Health Research Centre. Focus group and interview questions are outlined in Table 1.

The focus groups with students were conducted by the second author, who was not involved in the onsite practicum experience. She was assisted by a master's level graduate student who was not involved in the practicum but is a registered dental hygienist. The assistant recorded notes. The interviews with the RDH clinical instructors were conducted by the first author. Both the focus groups and the interviews were audio taped and transcribed verbatim. The full transcriptions were first reviewed by the second author who read each transcript and identified thematic categorization. The first author reviewed them independently and the two authors later met to compare themes. Any discrepancies that occurred in the categorization of data into a particular theme were discussed by the authors until consensus was reached.

RESULTS

Qualitative analysis of the transcripts revealed six main themes from the focus groups conducted with the students:

1. Communication challenges between students and LTC staff
2. Communication challenges between students and LTC residents
3. Uncertainty about follow up for oral health recommendations
4. Barriers to provision of daily mouthcare
5. Uneasiness of students in LTC environment
6. Appreciation for the practicum experience

1. Communication challenges between students and LTC staff

The predominant concern was that the health care aides (HCAs) were not present when the student was visiting the resident in LTC. This made it impossible for the student to demonstrate or to explain the importance of proper mouthcare to the HCAs, which was to have been part of the practicum experience. If the HCAs had been present, students believed that it would have improved their ability to work with the residents. Students also found that the HCAs were so busy with their many duties that it was not feasible to interact with them: *"We could not really communicate with them, just due to time factor."* Students also experienced communication challenges with the RNs: *"You kind of feel uncomfortable because you feel the nurses are kind of saying, 'What are you doing here? You are wasting our time'."*

2. Communication challenges between students and LTC residents

Communication challenges between the students and the residents were due to many factors, including residents not knowing or understanding what the student was doing, students' minimal understanding of the residents' cognitive and physical capacities, and the physical challenges of working with frail seniors. *"Some residents were great. Others, not so much."* Learning how to approach the residents in their rooms was a new and challenging experience for the students. In one student experience, she noted, *"She [the resident] thought we were there to do something to her and she didn't know us and she seemed afraid and that's why she was defensive. I guess what I am trying to say is if you can find a way to communicate with them, they may be willing to cooperate but if they do not understand what we are there for, they are not going to be receptive."* Obtaining a meaningful level of rapport with residents in order to perform oral assessments and to provide some daily mouthcare for the residents in their rooms was challenging, but students appreciated the complexity of the rapport building process after their interactions with residents.

3. Uncertainty about follow up for oral health recommendations

Students expressed uncertainty and frustration about follow ups to their recommendations for oral care for residents: *"I feel after we leave, what happens next? All the referrals we recorded… does that ever get looked at by anybody?"* Students had the impression that what they were doing would not have any lasting impact: *"It almost seemed defeating. You know, you are writing these notes down and you know that no one is going to see that. That's what I felt."* It seemed to most of the students that, as soon as they were gone, mouthcare would again be minimally performed and their recommendations for oral care would be ignored.

4. Barriers to provision of daily mouthcare

Some of the barriers to provision of daily mouthcare that were encountered by the students included residents not being in their rooms when the students arrived: *"[We had problems] fitting into their busy schedules. They [residents] were not where they were supposed to be or they had something else planned."* They also faced uncooperative residents who created physical challenges for the students, by making it difficult to perform mouthcare: *"Basically, it took four people to brush her [the resident's] teeth and it was 20 minutes to get the whole mouth done."* Other physical challenges included the fact that many residents are in wheelchairs, which made it difficult for the students: *"You're bending down, it is dark in their room and the flashlight is bothering them. And I had one lady who would keep pushing herself in the wheelchair, moving around a lot."* Many students suggested that some of the greatest barriers to provision of daily mouthcare were due to the situations and inherent limitations at the LTC facilities. The fact that students were unable to interact with the HCAs during the practicum led to the comment: *"I think the biggest challenge was the people that actually would be providing the daily mouthcare were not the ones we were teaching it to."* As well, it was noted that: *"They [the staff] are really busy. Like they are overworked for sure. So to throw another task on top of everything else, well, it just seems almost impossible for them to do it."*

5. Uneasiness of students in LTC environment

Students experienced considerable emotional challenges working in the LTC environment. Many of them had never had experiences with older adults and had never been to a long term care facility: *"Some people [students]; including me, the initial reaction was a little overwhelming just because it is the first time we are dealing with this population. Like, I love old people but being in the facility where they are sick, they are in a wheelchair and slouched down… it was just*

overwhelming. So sad. And I was initially like, 'oh my gosh! I don't know how to deal with this'." Many students expressed that they felt overwhelmed and did not know how to adequately deal with the people and situations that they faced: *"It was really challenging emotionally. We went in one resident's room and she had … her shirt bunched up and in her mouth and she was chewing on her shirt. My instructor helped remove it but she [the resident] just looked like she was in a lot of pain and maybe that was why she was chewing on her shirt."* In another situation, it was noted that: *"We [DH students] were approached by one older man and he was saying, 'Can you guys get me out of here?' and we were like, uhm, now what?"*

6. Appreciation for the practicum experience

Even with many challenges and frustrations experienced by the students, they still expressed appreciation for how much they learned during the practicum, with the onsite experience enriching their classroom, theory based learning. As one student noted, *"I think it was a great idea and I'm so glad [the practicum] was started. Just the exposure for us as some students would have no idea about the cognitive changes and the combative ways. We would not ever have seen that and no matter what, it's just a great experience and it is good to have it."* It also helped students become more aware of the need to improve the standards of oral care provided to LTC residents, for as another student said, *"I learned a lot. We hear in our class that this population has poor oral health and are under served but to actually see how bad it is, that gets your mind going. What is being done? What can be done?"* Students therefore recognized the value for having the practicum, and supported further developing and continuing the practicum: *"Hopefully, [the practicum] can grow and improve in some areas"* and, *"…maybe this first year was somewhat unorganized and we lacked some communication, but now it gives us hope that improvement will be made."*

From the interviews that we conducted with the registered dental hygienists who were clinical instructors, qualitative analysis of the transcripts identified the following two themes: challenges in the facility context, and challenges and enhancements for student learning.

1. Challenges in the facility context

The RDH instructors identified numerous challenges that arose from the situations they encountered at the LTC facilities, frequently echoing sentiments expressed by the students. They noted that it was difficult to work within the daily routine and activities of the residents. The scheduled time of the practicum being from 9 a.m. to 3 p.m., did not coincide with when morning mouthcare was provided, leading to the suggestion that a start time of 7 a.m. would be better, to be onsite when the mouthcare was provided by HCAs. Differences were found in staff attitudes towards the DH group at the two facilities, for it was noted that staff in facility #1 were accommodating and generally helpful, although the DH group did not feel as though they were a part of the health care team. Staff in facility #2 were not welcoming to the DH group, and it was noted that: *"I think if we didn't show up, I do not think anyone would miss us."* It was also expressed that: *"There needs to be a better system to incorporate us into the daily flow."* RDH instructors also commented that HCAs were extremely busy, and so there was minimal interaction with them, preventing the HCAs from being involved in mouthcare instruction by the students. And finally, the RDHs expressed uncertainty regarding follow up on the recommendations for oral care for residents: *"We made comments in the chart but I am not sure what happened after that."*

2. Challenges and enhancements for student learning

The RDHs were able to provide important feedback as instructors as to their perceptions on the student experience. One practical concern that was noted was that facility #1 was very crowded, with no place to have a pre and post case discussion in private, which hampered learning opportunities. RDHs were aware that the students were often overwhelmed with emotion from their interaction and observation of residents: *"I would ask if this was their first time in a nursing home and I was surprised at how many said yes."* As a result, students needed a lot of coaching and encouragement. Recognizing that there was much variability in comfort level of students and their ability to communicate with residents, one RDH noted that: *"I tried to partner a weaker communicator with a stronger one."*

RDHs also felt that students should have had more didactic preparation prior to having the practicum experience, although some did extremely well. The instructors noted that students recognized the challenges of doing oral assessments in the resident's room, such as the lack of light and difficulty using a head lamp or a flash light. They also acknowledged some of the physical challenges facing students when they tried to complete oral assessments with some residents, noting: *"There were a few residents [for whom] we used six handed Tai Chi in order to provide effective care."* Tai Chi is a form of Chinese martial art emphasizing gentle force and a sensitive response to the movements of others with whom one is in contact. It was also noted by the RDHs that it was challenging for students to decipher the complex resident chart, but that it was good experience for students to review the charts and thus to learn about the complexity of the residents and about the different assessments.

DISCUSSION

Many lessons were learned from insights we obtained from the DH students and the RDH instructors in our study of the ElderSMILES practicum. It highlighted many of the challenges of working in the LTC environment with its complex population. One of the main issues that arose concerns the emotional challenges students face working with LTC residents for the first time. Similar challenges have been reported in other studies of student practicums in LTC, which often highlight inadequate preparation causing students to feel emotionally overwhelmed, and thus, to be potentially discouraged from returning to LTC upon graduation. For example, as reported in one study, after second year Bachelor of Nursing students completed a 3-week clinical placement in LTC facilities working

specifically with dementia patients, results indicated that students were, on the whole, completely unprepared for dealing with residents with dementia, having little or no knowledge and experience from which to draw.[78] Students mainly reported experiencing fear, confusion, shock, and sadness.[78] It was also revealed that the students did not receive adequate support from nurse mentors, the latter of whom underestimated how apprehensive and naïve the students were.[78] It was concluded that, unless nursing students receive a far more comprehensive education about dementia, it is likely that their unpleasant experiences in LTC during clinical placements will undermine their interest in working in such settings upon graduation.[78]

Increased preparedness before a practicum appears to be a key element in the effective socialization of students into an LTC environment. In two studies of dental students who participated in LTC practicums, it was found that there was a significant gap between what they learned in the classroom and what they found to be the case in practice, particularly concerning the complexity of the LTC environment and residents.[79,80] Similar to the results of our study, students suggested their knowledge and training was not sufficient to adequately prepare them for the practical challenges of working with the LTC population.[79,80] However, despite this knowledge gap, the students did report overall positive experiences and an increased sense of professional responsibility towards the older adult population,[79,80] and this is also what we found to be the case in our study.

Most of the previous studies done on student practicums in LTC, while highlighting similar challenges to those we encountered, did not involve DH students, but only students in other health disciplines.[59,68,72–80] However, the oral health care provided to LTC residents has been shown to be severely inadequate[5–23] making it imperative that DH curricula address this issue and develop practicums like ours, to increase the future likelihood of having a regular DH presence in LTC. One study which involved a collaboration of nursing and dental hygiene—consisting of clinicians and students from both disciplines—was able to address one of the main challenges that we encountered in our practicum, namely the difficulty DH students had working with the LTC residents.[85] In this collaborative study, nursing members of the team were able to use their specific training to interact with the residents in such a way that minimized disruptive or resistive behaviours, enabling the DH members of the team to use their specific training to conduct oral health assessments, scoring oral hygiene and DMFT (decayed, missing, and filled teeth).[85] Perhaps if the students in our practicum had been able to interact more effectively with the LTC staff, it may have had a similar result, reducing some of the physical and emotional challenges faced by our students when they were working with the LTC residents.

In addition to identifying challenges, numerous recommendations were made by the students and RDH instructors who took part in our study, which will enable us to modify the practicum in ways that will address some of the problems encountered in its first year of implementation. The recommendations include:

- Increasing classroom theory content prior to the practicum to better prepare students to manage and work with complex residents who have cognitive and physical impairments.
- Developing clear protocols for various scenarios that students may face.
- Increasing awareness with staff at the facilities as to what students are doing, in order to lead to more student–staff communication and interaction.
- Trying to ensure that LTC staff is present when the students are onsite.
- Providing oral care in service training sessions for LTC staff.
- Developing and establishing protocols for follow up in regards to referrals and recommendations made for residents.
- Starting the practicum earlier in the academic year to provide the students with more experience.
- Scheduling of the daily practicum hours to coincide better with the daily schedules of the residents.

Since the implementation and evaluation of the ElderSMILES practicum, many of these changes have been made and the practicum continues to be developed and offered. More theory has been added to the didactic course that accompanies this practicum, and case scenarios are being developed to facilitate small group discussions in class. Some detailed protocols have been developed to guide clinical instructors and students when onsite at the practicum and more mock scenarios are being created that will be used for learning activities in class time.

The practicum is in its third term onsite; it has been noted by the clinical instructors that dental hygiene has established a known presence at the facilities and that it took more than the initial 13 week term for this relationship to be developed. Additionally, at one facility early in 2013, students were able to provide numerous in service education sessions for the staff and the sessions were very well attended. The clinical instructors have also been able to discuss follow up referrals and recommendations with the registered nurse on the units who are responsible for ensuring any recommendations made in a resident's care plan are attended to. As we complete our third term onsite in the same LTC facilities, relationships are developing with facility staff and we have an increased presence and involvement in the oral care for residents.

The scheduling of the practicum has remained the same both in terms of when it is held during the academic year (winter term) and in terms of hours of the day, 0900–1530 hours. Consideration has been given to increasing the length of time students spend onsite for the LTC practicum. However, other commitments in the DH program would have to shift to accommodate the change and these are being considered. The students were onsite from 0900 to 1530 hours, and these hours were set to accommodate the facility schedules around mealtimes and other activities. For the most part, the hours were appropriate for the practicum except for the fact that health care aides perform any daily mouthcare for residents when they are getting the residents up in the morning and ready for the day. Therefore, this created a challenge for the students

to interact with the HCAs to offer any guidance for their daily mouthcare techniques or to demonstrate any oral health issues for them to be aware of and possibly report. The staff in service sessions were increased this year at one facility in an attempt to provide further education for staff on oral health issues and daily mouthcare techniques.

We believe that the changes we have made to the practicum, arising from what we learned from the results of this study, will diminish some of the challenges that students face. We intend to conduct additional qualitative studies in order to assess whether or not these changes lead to a more positive experience for the students that may ultimately contribute to their socialization into the LTC environment.

CONCLUSION

Student feedback from our study suggests that the ElderSMILES practicum was a huge awareness building experience for them. Comments concerning their appreciation of the practicum confirm our premise that it will serve the dental hygiene profession well if students are exposed to the long term care environment prior to graduating. As has been found in similar studies of LTC practicums in other health professional programs,[58,67,71–79] we were able to provide students with essential practical knowledge and experience working with older adults as well as build within them a desire and perhaps even a sense of obligation to work in LTC upon graduation.

This study clarified elements of our practicum that required further assessment and development in order to address the challenges encountered by the students. We are optimistic that future implementations of this practicum, incorporating lessons learned from this study, will produce a more positive educational experience for students, emphasizing the rewards of working with this population. Follow up studies of graduates who have completed this and other LTC practicums will be essential to determine how many choose careers working with the growing older adult population, and thus if socialization efforts within educational programs have been successful.

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.

REFERENCES

1. United Nations Population Division. *World Population Prospects: The 2002 Revision.* New York, NY, USA: United Nations; 2003.
2. Turcotte M, Schellenberg G. *A Portrait of Seniors in Canada 2006*. Catalogue No.89-519-XIE. Published by the Minister of Industry, Statistics Canada Social and Aboriginal Statistics Division, 2007.
3. Statistics Canada. *Population estimates, age distribution and median age as of July 1, 2011, Canada, provinces and territories*. 2011. [Cited 2012, Oct, 26.] www.statcan.gc.ca/daily-quotidien/110928/t110928a3-eng.htm
4. Chowdhry N, Aleksejuniene J, Wyatt C, Bryant R. Dentists' perceptions of providing care in long-term care facilities. *J Can Dent Assoc.* 2011;77:b21.
5. Arpin S, Brodeur J-M, Corbeil P. Dental Caries, Problems Perceived and Use of Services among Institutionalized Elderly in 3 Regions of Quebec, Canada. *J Can Dent Assoc.* 2008 Nov;74(9):807.
6. Dharamsi S, Jivani K, Dean C, Wyatt C. Oral Care for Frail Elders: Knowledge, Attitudes, and Practices of Long-Term Care Staff. *J Dent Educ.* 2009;73(5):581–88.
7. MacEntee MI. Missing Links in Oral Health Care for Frail Elderly People. *J Can Dent Assoc.* 2006;72(5):421–25.
8. MacEntee MI, Wyatt CCL, Beattie BL, Paterson B, Levy-Milne R, Candless L, Kazanjian A. Provision of mouth-care in long-term care facilities: an educational trial. *Community Dent Oral Epidemiol.* 2007;35:25–34.
9. Wyatt CCL. Elderly Canadians residing in long-term care hospitals: Part I: Medical and dental status. *J Can Dent Assoc.* 2002;68(6):353–58.
10. Wyatt CCL. Elderly Canadian resdiding in long-term care hospitals: Part II. Dental caries status. *J Can Dent Assoc.* 2002;68(6):359–63.
11. Finkleman GI, Lawrence HP, Glogauer M. The impact of integration of dental services on oral health in long-term care: qualitative analysis. *Gerodontology.* 2012;29:e77–e82.
12. MacEntee MI, Thorne S, Kazanjian A. Conflicting priorities: oral health in long-term care. *Spec Care Dentist.* 1999;19(4):164–72.
13. Matthews DC, Clovis JB, Brillant MGS, Filiaggi MJ, McNally ME, Kotzer RD, Lawrence HP. Oral health status of long-term care residents: A vulnerable population. *J Can Dent Assoc.* 2012;78:c3.
14. de Mello ALSF, Padilha DMP. Oral health care in private and small long-term care facilities: a qualitative study. *Gerodontology.* 2009;26:53–57.
15. Glazar I, Urek MM, Brumini G, Pezelj-Ribaric S. Oral sensorial complaints, salivary flow rate and mucosal lesions in the institutionalized elderly. *J Oral Rehabil.* 2010;37:93–99.
16. Henriksen BM, Ambjornsen E, Laake K, Axell TE. Oral hygiene and oral symptoms among the elderly in long-term care. *Spec Care Dentist.* 2004;24(5):254–59.
17. Murray PE, Ede-Nichols D, Garcia-Godoy F. Oral health in Florida nursing homes. *Int J Dent Hygiene.* 2006;4:198–203.
18. Rabiei M, Kasemnezhad E, Masoudi rad H, Shakiba M, Pourkay, H. Prevalence of oral and dental disorders in institutionalised elderly people in Rasht, Iran. *Gerodontology.* 2010;27:174–77.
19. Simunkovic SK, Boras VV, Panduric J, Zilic IA. Oral health among institutionalised elderly in Zagreb, Croatia. *Gerodontology.* 2005;22:238–41.
20. Unluer S, Gokalp S, Dogan BG. Oral health status of the elderly in a residential home in Turkey. *Gerodontology.* 2007;24:22–29.
21. Yip KH, Smales RJ. Root surface caries in elderly people in residential care. *Journal of disability and oral health.* 2004 Oct;5(2):70–76.
22. Dounis G, Ditmyer MM, McCants R, Lee Y, Mobley C. Southern Nevada assisted living residents' perception of their oral health status and access to dental care. *Gerodontology.* 2012 Jun;29(2):e150–54.
23. Coleman P, Watson NM. Oral care provided by certified nursing assistants in nursing homes. *J Am Geriatr Soc.* 2006;54:138–43.
24. Munro CL, Grap MJ, Jablonski R, Boyle A. Oral health measurement in nursing research: State of the science. *Biol Res Nurs.* 2006;8:35–42.
25. El-Solh AA. Association between pneumonia and oral care in nursing home residents. *Lung.* 2011;189:173–80.
26. Drinka PJ, El-Solh AA. The tongue, oral hygiene, and prevention of pneumonia in the institutionalized elderly. *J Am Dent Assoc.* 2010 Sep:465–67.
27. Mojon P. Oral health and respiratory infection. *J Can Dent Assoc.* 2002;68(6):340–45.
28. Pace CC, McCullough GH. The association between oral microorgansims and aspiration pneumonia in the institutionalized elderly: Review and recommendations. *Dysphagia.* 2010;25:307–22.

29. Sarin J, Balasubramaniam R, Corcoran AM, Laudenbach JM, Stoopler ET. Reducing the risk of aspiration pneumonia among elderly patients in long-term care facilities through oral health interventions. *J Am Med Dir Assoc.* 2008;9:128–35.
30. Adachi M, Ishihara K, Abe S, Okuda K, Ishikawa T. Effect of professional oral health care on the elderly living in nursing homes. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2002;94:191–95.
31. Yoneyama T, Yoshida M, Ohrui T, Mukaiyama H, Okamoto H, Hoshiba K, et al. Oral care reduces pneumonia in older patients in nursing homes. *J Am Geriatr Soc.* 2002;50:430–33.
32. Fields LB. Oral care intervention to reduce incidence of ventilator-associated pneumonia in the neurologic intensive care unit. *J Neurosci Nurs.* 2008;40(5):291–98.
33. Ishikawa A, Yoneyama T, Hirota K, Miyake Y, Miyatake K. Professional oral health care reduces the number of oropharyngeal bacteria. *J Dent Res.* 2008;87(6):594–98.
34. Abe S, Ishihara K, Adachi M, Sasaki H, Tanaka K, Okuda K. Professional oral care reduces influenza in elderly. *Arch Gerontol Geriatr.* 2006;43(2):157–64.
35. Adachi M, Ishihara K, Abe S, Okuda K. Professional oral health care by dental hygienists reduced respiratory infections in elderly persons requiring nursing care. *Int J Dent Hyg.* 2007;5(2):69–74.
36. Nishimura T, Takahashi C, Takahashi E. Dental hygiene residential care in a 3-year dental hygiene education programme in Japan: Towards dysphagia management based on the dental hygiene process of care. *Int J Dent Hyg.* 2007;5(3):145–50.
37. Ford PJ, Yamazak K, Seymour GJ. Cardiovascular and oral disease interactions: what is the evidence? *Prim Dent Care.* 2007 Apr;14(2):59–66.
38. Brown TT, Dela Cruz E, Brown SS. The effect of dental care on cardiovascular disease outcomes: an application of instrumental variables in the presence of heterogeneity and self-selection. *Health Econ.* 2011;20(10):1241–256.
39. Hung HC, Willett W, Merchant A, Rosner BA, Ascherio A, Joshipura KJ. Oral health and peripheral arterial disease. *Circulation.* 2003 Mar;107(8):1152–157.
40. Kim HD, Sim SJ, Moon JY, Hong YC, Han DH. Association between periodontitis and hemorrhagic stroke among Koreans: a case-control study. *J Periodontol.* 2010;81(5):658–65.
41. Albert DA, Ward A, Allweiss P, Graves DT, Knowler WC, Kunzel C, Leibel RL, Novak KF, Oates TW, Papapanou PN, Schmidt AM, Taylor GW, Lamster IB, Lalla E. Diabetes and oral disease: Implications for health professionals. *Ann NY Acad Sci.* 2012;1255:1–15.
42. Sim SJ, Kim HD, Moon JY, Zavras AI, Zdanowicz J, Jang SJ, Jin BH, Bae KH, Paik DI, Douglass CW. Periodontitis and the risk for non-fatal stroke in Korean adults. *J Periodontol.* 2008 Sep;79(9):1652–658.
43. Rauen MS, Moreira EAM, Calvo MCM, Lobo AS. Oral Condition and Its Relationship to Nutritional Status in the Institutionalized Elderly Population. *J Am Diet Assoc.* 2006;106:1112–114.
44. Soini H, Muurinen S, Routasalo P, Sandelin E, Savikko N, Suominen M, et al. Oral and nutritional status – Is the MNA a useful tool for dental clinics? *J Nutr Health Aging.* 2006;10(6):495–501.
45. Gagliardi DI, Slade GD, Sanders AE. Impact of dental care on oral health-related quality of life and treatment goals among elderly adults. *Aust Dent J.* 2008;53(1):26–33.
46. Locker D. Dental status, xerostomia and the oral health-related quality of life of an elderly institutionalized population. *Spec Care Dentist.* 2003;23(3):86–93.
47. Brondani MA, Bryant SR, MacEntee MI. Elders assessment of an evolving model of oral health. *Gerodontology.* 2007;24:189–95.
48. Emami E, Lavigne G, de Grandmont P, Rompré PH, Feine JS. Perceived sleep quality among edentulous elders. *Gerodontology.* 2012;29:e128–e134.
49. Heydecke G, Locker D, Awad MA, Lund JP, Feine JS. Oral and general health-related quality of life with conventional and implant dentures. *Community Dent Oral Epidemiol.* 2003; 31:161–68.
50. MacEntee MI. Quality of life as an indicator or oral health in older people. *JADA.* 2007;138(9 supplement):47S–52S.
51. Matear DW, Locker D, Stephens M, Lawrence HP. Associations between xerostomia and health status indicators in the elderly. *J R Soc Promot Health.* 2006;126(2):79–85.
52. Michaud P-L, de Grandmont P, Feine JS, Emami E. Measuring patient-based outcomes: Is treatment satisfaction associated with oral health-related quality of life? *J Dent.* 2012;40:624–31.
53. Swoboda, J, Kiyak HA, Persson RE, Persson GR, Yamaguchi DK, MacEntee MI, Wyatt CCL. Predictors of oral health quality of life in older adults. *Spec Care Dentist.* 2006;26(4)137–44.
54. Naito M, Kato T, Fujii W, Ozeki M, Yokoyama M, Hamajima N, Saitoh E. Effects of dental treatment on the quality of life and activities of daily living in institutionalized elderly in Japan. *Arch Gerontol Geriatr.* 2010;50(1):65–68.
55. Ohno T, Uematsu H, Nozaki S, Sugimoto K. Improvement of taste sensitivity of the nursed elderly by oral care. *J Med Dent Sci.* 2003;50(1):101–07.
56. Brukiene V, Aleksejuniene J, Gairionyte A. Salivary factors and dental plaque levels in relation to the general health of elderly residents in a long-term care facility: a pilot study. *Spec Care Dentist.* 2011;31(1):27–32.
57. Hein C, Schonwetter DJ, Iacopino AM. Inclusion of oral-systemic health in predoctoral/undergraduate curricula of pharmacy, nursing, and medical schools around the world: A preliminary study. *J Dent Educ.* 2011;75(9):1187–199.
58. Clemmens D, Rodriguez K, Leef B. Knowledge, attitudes, and practices of baccalaureate nursing students regarding oral health assessment. *J Nurs Educ.* 2012;51(9):532–35.
59. Grant L, McKay LK, Rogers LG, Wiesenthal S, Cherney SL, Betts LA. An interprofessional education initiative between students of Dental Hygiene and Bachelor of Science in Nursing. *Can J Dent Hygiene.* 2011;45(1):36–44.
60. Ettinger RL. The development of geriatric dental education programs in Canada: An update. *J Can Dent Assoc.* 2010;76;a1.
61. Coleman P. Opportunities for nursing-dental collaboration: Addressing oral health needs among the elderly. *Nurs Outlook.* 2005;53:33–39.
62. Chalmers JM, Ettinger RL. Public health issues in geriatric dentistry in the United States. *Dent Clin N Am.* 2008;52:423–46.
63. Bailey R, Gueldner S, Ledikwe J, Smiciklas-Wright H. The oral health of older adults: An interdisciplinary mandate. *J Gerontol Nurs.* 2005;July:11–17.
64. Daniel BT, Damato KL, Johnson J. Educational issues in oral care. *Semin Oncol Nurs.* 2004;20(1):48–52.
65. Dickinson C, Beatty CF, Marshall D. A pilot study: Are dental hygienists in Texas ready for the elderly population explosion? *Int J Dent Hygiene.* 2012;10:128–37.
66. Best H. Educational systems and the continuum of care for the older adult. *J Dent Educ.* 2010;74(1):7–12.
67. Washington M. Dental hygiene students' impact on improving oral health in nursing home settings. *Access.* 2007;May–June:50–51.
68. Campbell SL, Jeffers BR. The Sister Model: A framework for academic and service partnerships in nursing home settings. *J Gerontol Nurs.* 2008;34(9):18–24.
69. Fitzgerald JT, Wray LA, Halter JB, Williams BC, Supiano MA. Relating medical students' knowledge, attitudes, and experience to an interest in geriatric medicine. *Gerontologist.* 2003;43(6):849–55.
70. Fabiano JA, Waldrop DP, Nochajski TH, Davis EL, Goldberg LJ. Understanding dental students' knowledge and perceptions of older people: Toward a new model of geriatric dental education. *J Dent Educ.* 2005;69(4):419–33.
71. Koh LC. Student attitudes and educational support in caring for older people: A review of literature. *Nurse Educ Pract.* 2012;12:16–20.
72. Corwin M, Owen D, Perry C. Student service learning and dementia: Bridging classroom and clinical experiences. *J Allied Health.* 2008;37(4):e278–e295.

73. Williams KN, Nowak J, Scobee RL. Fostering student interest in geriatric nursing: Impact of senior long-term care experiences. *Nurs Educ Perspect.* 2006;27(4):190–93.
74. Helmich E, Bolhuis S, Prins J, Laan R, Koopmans R. Emotional learning of undergraduate medical students in an early nursing attachment in a hospital or nursing home. *Med Teach.* 2011; 33:e593–e601.
75. Hsieh C, Arenson CA, Eanes K, Sifri RD. Reflections of medical students regarding the care of geriatric patients in the continuing care retirement community. *J Am Med Dir Assoc.* 2010;11:506–10.
76. Kaf WA, Barboa LS, Fisher BJ, Snavely LA. Effect of interdisciplinary service learning experience for audiology and speech-language pathology students working with adults with dementia. *Am J Audiol.* 2011;20:S241–S249.
77. Mossop M, Wilkinson T. Nursing education in gerontological clinical settings: What do elderly patients think of student-rendered care? *J Gerontol Nurs.* 2006;June:49–55.
78. Robinson A, Cubit K. Caring for older people with dementia in residential care: nursing students' experiences. *J Adv Nurs.* 2007;59(3):255–263.
79. Brondani MA, Chen A, Chiu A, Gooch S, Ko K, Lee K, Maskan A, Steed B. Undergraduate geriatric education through community service learning. *Gerodontology.* 2012;29:e1222–e1229.
80. MacEntee MI, Pruksapong M, Wyatt CCL. Insights from students following an educational rotation through dental geriatrics. *J Dent Educ.* 2005;69(12):1368–376.
81. Alberta Health Services (AHS) Integrated Facility Living Edmonton Zone. *Oral hygiene guideline for residents in integrated facility living.* August 2010. Edmonton, AB, Canada. [Report]
82. Chalmers JM, King PL, Spencer AJ, Wright FAC, Carter KD. The Oral Health Assessment Tool: Validity and reliability. *Aust Dent J.* 2005;50(3):191–99.
83. Duggleby W. What about focus group interaction data? *Qual Heath Res.* 2005;15:832–40.
84. Asbury J. Overview of focus group research. *Qual Heath Res.* 1995;5:414–20.
85. Jablonski RA, Swecker T, Munro C, Grap MJ, Ligon M. Measuring the oral health of nursing home elders. *Clin Nurs Res.* 2009 Aug;18(3):200–17.

CDHA 2013 National Conference

CELEBRATING OUR ROOTS, OUR WINGS

October 3-5, 2013 - Toronto

Celebrating 50 years of CDHA & 100 years of the dental hygiene profession worldwide

CDHA President

WELCOME MESSAGE

Sandra Lawlor, RDH, BA(Psych), BSW

On behalf of the CDHA board of directors, I would like to invite you to our 2013 national conference in Toronto, Ontario. We look forward to seeing you in Ontario's capital city, Toronto, where we will explore the conference theme "Celebrating our Roots…Our Wings" in honour of CDHA's 50th anniversary and 100 years of the dental hygiene profession. A wide range of topics and exciting social events has been planned to provide registrants with the opportunity to learn from and network with each other. See you in Toronto!

TRADESHOW / EXHIBITS

Thursday, October 3, 5:00 – 9:00 p.m.
Join the exhibitors and other delegates at the opening reception. View new products, speak to company representatives and connect with dental hygienists from across Canada.

Friday, October 4, 9:00 a.m. – 4:30 p.m.
Enjoy buffet lunch in the exhibit hall. The trade show will be open to delegates all day. Be sure to visit the CDHA booth to receive a special gift.

REGISTRATION*

Early bird special! Register before September 15 and save up to $175 on your registration fee. Visit www.cdha.ca/2013conference

	Member	Student (limited numbers available)
Early Bird	$375	$250
Regular	$550	$275

** Additional fees apply for pre-conference workshops. Registration now open.*

Photo Credit - Doug Brown

CONFERENCE SITE AND ACCOMMODATION

The conference will be held at the Toronto Airport Marriott Hotel, located close to Pearson International Airport, and just minutes from Toronto, Brampton, and Mississauga. A block of rooms has been reserved for CDHA 2013 delegates and exhibitors. Reservations must be made by Wednesday, September 11, to secure the special conference rate of $135/night (plus tax) for the standard room.

Reservations can be made online at:
https://resweb.passkey.com/go/CDHA2013
Reservations Toll Free: 1-855-823-6348
Reservations Local Phone: 416-674-9400
Quote code CDHN.

TRANSPORTATION

Toronto is served by Pearson International Airport. For transfer from the airport to the Toronto Airport Marriott Hotel, complimentary shuttles are available by calling 1-416-674-9400.

Airlines

Air Canada is offering CDHA delegates discounted travel fares from Thursday, September 26 to Saturday, October 12. Book online at www.aircanada.com and quote promotion code NF4W4ND1 in the search panel. Discount applies only to Tango Plus and higher flights.


Photo Credit - Francisco Pardo

SOCIAL EVENTS

Plan to join the fun at one or more of the following social activities.

THURSDAY, OCTOBER 3

- **Welcome reception dance party and exhibit extravaganza**

FRIDAY, OCTOBER 4

- **Those were the days**—buffet luncheon in the exhibit hall
- **Birthday party**—celebrate 50 years of CDHA and 100 years of the profession SUNSTAR
- Chartered bus to downtown—gather some friends and enjoy a night on the town (additional fees apply)

SATURDAY, OCTOBER 5

- SunLife™ sponsored breakfast (limited to 100 people) Sun Life Financial
- **Awards luncheon and AGM**
- **Celebrate in the sky**—dinner atop the CN tower (additional fees apply)

PRE-CONFERENCE WORKSHOPS*

THURSDAY, OCTOBER 3— FULL DAY WORKSHOPS

Sign up for one of the five limited attendance workshops with a concentrated focus.

1. **Skills for Job Seekers Workshop**
2. **Annual Educators' Workshop**
3. **Clinical Refresher Workshop**—Infection Prevention and Control & Maintain Your Edge
4. **Mastery of Skills Workshop**—hands on instrumentation session
5. **Reach New Depths in Periodontal Therapy Workshop**—hands on instrumentation session Hu-Friedy

** Additional fees apply*

PLENARY

Eva Grayzel, BA
Founder of Six-Step Screening

Friday, October 4, during opening ceremonies from 8:00 to 10:00 a.m

TONGUE TIED: A STORY **NOT** SILENCED BY ORAL CANCER Crest + Oral-B

At age 33, Eva Grayzel, a performance artist, developed an ulcer on her tongue, eventually being diagnosed with late stage oral cancer and given a 15% chance of survival. Laugh, cry, and feel the power of gratitude as Eva describes her delayed diagnosis and how she found the strength to persevere through radical treatment. Experience an oral cancer patient's firsthand account.

Kate O'Hanlan, MD, FACOG, FACS, SGO
Founder of Laparoscopic Institute for Gynecologic Oncology (LIGO)

Saturday, October 5, from 8:00 to 10:00 a.m

GYNEDONTICS: EXPLORING THE HIDDEN LINKS Johnson & Johnson

Dr. Kate O'Hanlan, a surgeon for all pelvic problems including cancers, will review the advice we give our clients around oral cancer screening and self care, and correlate it with other screening standards. Learn to listen to your inner healthy messages and follow the screening standards for optimal total body health. Protect your own health first to actively benefit yourself, your family, your community and your clients.

Saturday, October 5, during closing ceremonies from 5:00 to 5:45 p.m.

DENTAL HYGIENE THROUGH THE DECADES Crest + Oral-B

A panel of past CDHA presidents, representing each of the six decades of our existence, will discuss the evolution of CDHA and the profession in a moderated discussion. They will share victories and struggles faced during their time on the CDHA executive. Through the panel's stories, participants will gain a unique perspective and realize that although our roots are deep, our wings are still spreading.

EDUCATIONAL PROGRAM

Preliminary list of topics and speakers (subject to change)

FRIDAY

Oral Cancer 2013: Are you up to date?
David Clark, BSc, DDS, MSc., (Oral Pathology) FAAOP, FRCDC

The 4-Cs in Solving the Caries Puzzle
Lillian Caperila, RDH. MEd

Gyn Phys-Understanding Your Gynecology and Oral Health ("Gin Fizz!")
Kate O'Hanlan, MD, FACOG, FACS, SGO
Founder of Laparoscopic Institute for Gynecologic Oncology (LIGO)

Preparing for a Health & Safety Inspection: Guidance for Dental Practices
Leslie Sanderson, RDH

Getting to the Root of the Problem: Misconceptions About Learning
Adam Persky, PhD, FACSM

Teeth Tell Tales: Join the Fight Against Woman Abuse
Sandra Lawlor, RDH, BA(Psych), BSW

Oral Health Promotion in Infants and Young Children—How, when, why?
Gajanan (Kiran) Kulkarni, BDS, LLB, MSc, DPed Dent, PhD, FRCD(C), Dip ABPD

Social Media Tutorial
Angie D'Aoust, BA

Poor Oral Hygiene, Dependency and Swallowing Impairment: Pneumonia's Perfect Storm
Catriona M. Steele, PhD, CCC-SLP, BRS-S, S-LP(C), ASHA Fellow

Your Job Shouldn't be a Pain in the Neck
Diane Grondin, DC, MHK

A Chair in the Woods
Kathleen Bernardi, RDH

The Profitable Hygienist: Your Role in the Oral Health Industry
Timothy A. Brown, CEO of ROI Corp.

MEMORY LANE EXHIBIT

The Dixon Room hosts the Memory Lane Exhibit of memorabilia, celebrating the history of the profession and CDHA's golden anniversary. These items have been graciously submitted by members and dental industry partners.

SATURDAY

Infection Prevention & Control—What You Need to Know
Linda McLarty, BA

Open Wide Canada – Why Oral Health is an Important Public Health Issue
Dr. Peter Cooney, Chief Dental Officer, Health Canada

Aligning Your Instrumentation Skills and Preserving Your Professional Career
Lillian Caperila, RDH, Med

Reset Mindsets Through Story
Eva Grayzel, BA

How Can Dental Hygienists Incorporate Orofacial Myology into their Practice?
Vera Horn, RDH, COM

Medical Emergencies in the Dental Office: Is There a Doctor in the House?
Peter Nkansah, MSc, DDS, FADSA, Dip.Anaes, Spec. Dental Anaes (ON)

How Comfortable is Your Comfort Zone –Truly?
Beth Ryerse, RDH

Ready, Set, Go! Demystifying Practice Management Software, Billing Codes and Claim Forms for Independent Practice
Panel moderated by Ann E. Wright, RDH, MBA

Independent Dental Hygiene Practice: From Sea to Shining Sea
Panel moderated by Ann E. Wright, RDH, MBA

SCIENTIFIC PROGRAM

The conference abstract review committee used a scientific process to conduct a peer review of the abstract submissions, selecting the highest quality oral and poster presentations.

Oral presentations (Quebec room):

- Friday, October 4, from 10:30 a.m. to 5:00 p.m.
- Saturday, October 5, from 10:30 a.m. to 4:15 p.m.

Poster presentations (Dixon room) Friday and Saturday
Poster presenters will attend in person at the following times:

- Friday, October 4, during lunch hour (12:30 to 1:00 p.m.) and breaks (10:00 to 10:30 a.m. and 3:30 to 4:00 p.m.)
- Saturday, October 5, during morning break (10:00 to 10:30 a.m.)

■ **Letters to the editor** …continued from page 60

Helicobacter pylori eradication revisited

Our senior dental hygiene class is currently taking our course on Evidence Based Practice and have been learning about good study design and conduct along with publication standards, particularly peer review. We have found the *CJDH* to be an excellent source of articles to review for this purpose. Recently we read and critiqued the Short Communication from the February issue of *CJDH*, "Full mouth ultrasonic debridement in *Helicobacter pylori* eradication from the oral cavity: A case series". We have come up with the following list of questions about research design that we were unable to answer.

1. Why was the selection of subjects not limited to those with no stomach bacteria following STT? Instead, the study used two subjects (one with gingivitis and one with periodontitis) who still harboured bacteria in the stomach. The presence of the bacteria in the stomach prior to FMUD could affect the outcomes of eradication with FMUD.
2. According to Table #1, in post test stomach micro analyses, how can the study show if these subjects were re-infected from the mouth if they already had the bacteria in the stomach prior to starting?
3. If no stomach bacteria analyses were done post-test; how do we know if any oral bacteria were transmitted to the stomach?
4. The micro was done three months post FMUD. There was no micro performed immediately post FMUD to see if the intervention did eliminate the bacteria. So those with stomach micro could be re-infected up the gastric route.
5. There is no information on the type of ultrasonic tips used. Did they reach the bottom of the sulcus as would be the case with the modified tips or was merely a universal used? In fact the discussion considers the only option for reaching the sulcus floor is surgery. As dental hygienists, we would consider Cavitron Slimlines, which are known to reach beyond 5 mm.
6. Why was there no control group used?

We wondered if the author would be willing to provide the rationale for his methodology in view of these questions. Many thanks!

Niagara College Dental Hygiene Class of 2013
Instructor, Marilyn Goulding, RDH, BSc, MOS

Author's response

Thank you for the opportunity to clarify certain research aspects of this article. Please find my responses to your numbered questions below:

1. *In fact, this is a case series performed to assess the potential impact of FMUD for the eradication of* H. pylori. *Case series are considered only as observational studies that assist researchers to raise initial questions for future research. Thus, our objective was to see if we could employ this therapy in a future research.*
2. *As commented above, our intention was not to check stomach re-infection. Instead, we wanted to know whether the test therapy could be considered viable for patients presenting the condition reported in the study (i.e., eradication of* H. pylori *from the oral cavity by means of a single session of FMUD).*
3. *Once again, our objective was simply to verify the feasibility of using FMUD for the eradication of* H. pylori *from the oral cavity. Based on preliminary results, additional research may be planned to include a larger sample of subjects, as well as to assess, for instance, re-infection of the stomach. In summary, in order to propose such an assumption, we had to first investigate the local potential of the FMUD therapy.*
4. *No immediate microbiologic analyses were performed because bacteria may be "hidden" in the soft tissues. It is well established that periodontal bacteria may penetrate into the connective tissues from the gingiva. We opted for a three month follow up to allow an appropriate period of re-colonization to occur.*
5. *Yes, periodontal tips. As I used to say to my students, "You have to use a tip that fits the anatomy of the tooth as well as the defect." Nowadays there are several*

types of periodontal tips available on the market. In our clinic, we have found those from EMS Swiss Instruments to be the ones we prefer. We used the S6 tips—they are designed for subgingival scaling—in this study. The hand instruments we used were 5-6, 11-12 and 13-14 Gracey curettes.

6. *Case series are proposed to evaluate the potential of a specific question that has not yet been asked. Based on results, a randomized controlled clinical trial following the CONSORT statement may be conducted.*

Leandro Chambrone, DDS, MSc, PhD Specialist in Periodontology, Specialist in Orthodontics & Dentofacial Orthopedics Professor, Dental Research Division, Department of Periodontics, Guarulhos University, Post-Doctoral Research Fellow, Division of Periodontics, School of Dentistry, University of São Paulo Cochrane Oral Health Group Member, The Cochrane Collaboration, UK

Click here
to watch the
product video.

OPT*IM* 33TB, exceptional cleaning & disinfection capabilities.

A breath of fresh air.

Virucidal. Bactericidal. Tuberculocidal. Just not harmful to you or your patients.OPT*IM*® disinfecting wipes kill germs on surfaces fast – up to 10 times faster than other leading cleaners. OPT*IM* cleans supreme using a patented formulation based on Hydrogen Peroxide that has virtually no odor. Also, the solution readily biodegrades into water and oxygen after disinfection. So OPT*IM* is eco-friendly and people friendly. In fact, it's really only germs that aren't too fond of it. Take control, because the stakes are too high.

For more information, please visit www.scican.com

Your Infection Control Specialist™

SciCan
A Sanavis Group Company

Traumatic gingival recession in dental students: Prevalence, severity and relationship to oral hygiene

Leandro Chambrone*, DDS, MSc, PhD; **Gisele Bonazzio**[¤], DDS; **Luiz Armando Chambrone**[Δ], DDS, MSc, PhD

ABSTRACT

Objectives: The aims of this study were twofold: 1) to evaluate the prevalence and severity of traumatic gingival recessions (GR) in a sample of dental students; and 2) to assess the influence of oral hygiene related factors in the development of such lesions. **Material and Methods:** From the initial sample of 250 dental students enrolled, 80 fulfilled the inclusion criteria. One calibrated examiner interviewed all students using a written questionnaire. The same examiner then assessed the presence of buccal GR. Logistic regression analysis was performed to investigate the association between GR, hygiene habits and deterioration of toothbrush bristles. **Results:** Overall, the prevalence of GR was 86.25 per cent, and the average rate of GR per patient was 4.05. Only the independent variable—deteriorated toothbrush bristles, p=0.02—was found to correlate with the occurrence of GR, with odds ratio of 2.77 and 95% confidence interval of 1.15–6.70. **Conclusion:** The development of GR was associated with deterioration of toothbrush bristles. Further investigation, focusing on the effect of traumatic toothbrushing, is required.

RÉSUMÉ

Objets : Cette étude a un double objet : 1) évaluation de la prévalence et de la gravité des récessions gingivales (RG) traumatisantes dans un exemple pour les étudiantes en soins dentaires; 2) évaluation de l'influence des facteurs associés à l'hygiène buccale dans le développement de telles lésions. **Matériel et Méthodes :** Dans un exemple initial d'enrôlements de 250 étudiantes, 80 ont satisfait aux critères d'inclusion. Un examinateur a utilisé un questionnaire écrit pour interroger toutes les étudiantes et évaluer la présence buccale de RG. L'analyse logique de la régression a servi à investiguer l'association entre la RG, les habitudes hygiéniques et la détérioration des poils des brosses à dents. **Résultats :** En tout, le taux de prévalence de la RG était de 86,25 %, et la moyenne du taux de RG par patient était de 4,05. L'on a constaté que la seule variable indépendante – poils détériorés des brosses à dents, p = 0,02 – trouvée était en rapport avec la présence de la RG, avec des rapports de cote de 2,77 et 95 % d'intervalle de confiance de 1,15 à 6,70. **Conclusion :** Le développement des RG était associé à la détérioration des poils des brosses à dents. Il faudra plus d'investigations sur les effets traumatisants du brossage des dents.

Key words: gingival recession, gingival recession, epidemiology, toothbrushing, adverse effects, oral hygiene

INTRODUCTION

The primary goal of toothbrushing is to remove the dental biofilm deposits or dental plaque that forms on tooth surfaces comprising enamel surfaces and exposed root surfaces. Gingival recession (GR) is a term that designates the oral exposure of the root surface due to a displacement of the gingival margin, apical to the cement enamel junction (CEJ).[1–5] GR is linked to the deterioration of dental aesthetics, root abrasion, caries and dentine hypersensitivity.[6]

Data from diverse studies revealed that gingival and osseous anatomical factors—such as muscular inserts near the gingival margin, osseous dehiscence—chronic trauma, periodontitis and irregular tooth alignment are the main causative factors leading to the development of recession type defects.[1–5,7–9] Different epidemiological surveys performed in representative samples of adult populations also revealed that more than a half of the adult population presents at least one tooth with GR.[10–12]

The development of traumatic GR is assessed by the impact of different traumatic variables—for example, toothbrushing technique, frequency of toothbrushing and type of toothbrush bristles—on the development of recessions. The aims of this study were twofold due to the importance of performing an adequate toothbrushing for the maintenance of periodontal health and of the possible role of this procedure to the development of GR.

1. Evaluate the prevalence and severity of traumatic gingival recessions in a sample of dental students.
2. Assess the influence of oral hygiene related factors in the development of these lesions.

METHODS

Study population and exclusion criteria

The present descriptive cohort trial was conducted to collect data from the prevalence of GR in a sample of high–medium social class of dental students. The study protocol was approved by the Ethics on Research Committee of the Methodist University of São Paulo where it was conducted, and is in accordance with the Helsinki Declaration of 1975 as revised in 2000. The subjects participating in the study were non smoker volunteers who received detailed information about the proposed research, and gave

THIS IS A PEER REVIEWED ARTICLE. Submitted 26 Nov. 2012. Revised 5 Feb. 2013. Accepted 11 Feb. 2013.

* Department of Periodontology, Dental Research Division, Guarulhos University, Brazil and Division of Periodontics, Department of Stomatology, School of Dentistry, University of São Paulo, Sao Paulo, Brazil.

¤Δ Private practice, São Paulo, Brazil.

Correspondence to: Dr. Leandro Chambrone; chambrone@usp.br

informed consent in writing. Subjects with age <18 years, a known systemic disease, destructive periodontal disease, locomotor problems, with fewer than twenty permanent teeth in occlusion or undergoing active orthodontic treatment were excluded from the study. In total, 250 dental students had enrolled, of which 80 participants—20 males and 60 females—meeting the inclusion criteria were selected (Table 1).

Interview and clinical examination

Initially, all participants were asked to bring their toothbrush for a visual evaluation of the condition of bristles. They answered five questions of a questionnaire on their hygiene habits. The examiner assessed the condition of their toothbrush's bristles and responded to the final query, item 6 of the questionnaire. Subsequently, buccal gingival recession, measured from the CEJ to the gingival margin at the deepest point, was recorded by the same calibrated investigator—with intraclass correlation=0.85—using a MM Goldman Fox colour style periodontal probe. Calibration was performed in two different full mouth examinations, with a 48 hour interval between one and the next, in eight subjects or 10 per cent of the final sample size who did not participate in the study. The measurements were rounded to the nearest 0.5 mm. Third molars and teeth, presenting prosthetic restorations at the level of the gingival margin, were not included.

Statistical analyses

The analyses were performed using the NCSS 2007 software package, Number Cruncher Statistical System, NCSS, Kaysville, UT, USA. Descriptive statistics were used to synthesize collected data. Logistic regression analysis was performed to investigate the association between hygiene habits with gingival recession due to toothbrushing. The dependent variable was the presence of gingival recession $\geq$2 mm; subjects who had at least one tooth with such a defect were more likely to experience traumatic gingival recession. An odds ratio with a 95% confidence limit was calculated. A significant level for rejection of the null hypotheses was set at α=0.05.

RESULTS

The total number of teeth present in the study cohort of 80 students was 2,197 (mean 27.46 $\pm$ 1.30). During clinical examination, 324 teeth (14.74% of all teeth present) showed GR. From these teeth, 236 (72.84%) showed a recession depth (RD) of 1 mm, 84 teeth (25.93%) showed RD of 2 mm, and four teeth (1.23%) showed RD of 3 mm (Table 2). The average rate of GR per participant was 4.05 teeth. More than a half (54.32%) of the GRs affected anterior teeth, incisors and canines. However, the majority of teeth with GRs were premolars—45 mandibular premolars and 88 maxillary premolars—whereas molar teeth were the least affected (Table 3). Table 4 shows the number of teeth with GR: 11 students (13.75%) had teeth with no GR, four students (8.75%) had one tooth with GR, 13 students (16.25%) had two teeth with GR, 10 students (12.50%) had three teeth with GR, and 39 (48.75%) had four or more teeth with GR. In this study, almost one-fifth

Table 1. Distribution of subjects according to gender.

Gender	With gingival recession (GR)	Without gingival recession (GR)	Total
Male	18 (22.5%)	2 (2.5%)	20 (25.0%)
Female	51 (63.8%)	9 (11.2%)	60 (75.5%)
Total	**69 (86.2%)**	**11 (13.8%)**	**80 (100.0%)**

Table 2. Distribution of teeth with gingival recession, excluding 3rd molars.

Teeth	Upper right	Upper left	Lower left	Lower right	Total
Central incisor	9	4	5	6	24
Lateral incisor	23	25	11	17	76
Canine	11	19	23	23	76
1st premolar	30	24	11	11	76
2nd premolar	23	11	14	9	57
1st molar	6	4	1	2	13
2nd molar	1	1	0	0	2
Total	**103**	**88**	**65**	**68**	**324**

Table 3. Distribution of gingival recession according to the recession depth, excluding 3rd molars.

Teeth	>1 mm	> 2 mm	> 3 mm	Total
Incisors	81	19	0	100
Canines	37	35	4	76
Premolars	111	22	0	133
Molars	7	8	0	15
Total	**236**	**84**	**4**	**324**

Table 4. Distribution of dental students according to the number of sites with gingival recession.

Gender	0 to 3 recessions	4 to 9 recessions	>10 recessions	Total
Male	4 (5.0%)	12 (15.0%)	4 (5.0%)	20 (20.0%)
Female	37 (46.2%)	21 (26.3%)	2 (2.5%)	60 (80.0%)
Total	**41 (51.2%)**	**33 (41.3%)**	**6 (7.5%)**	**80 (100.0%)**

of the GR (20.67%) was found in only six students (7.50%), diagnosed with ten or more GR each.

The written questionnaire (Figure 1) recorded hygiene habits and data from students with GR as reported in Table 5. However, the degree of association between the dependent variable ≥2 mm and the suspected predictor factors was investigated by statistical analysis in an attempt to avoid confounding effects. The results of the logistic regression analysis are shown in Table 5. The independent variable—deteriorated toothbrush bristles—was found to correlate with the occurrence of GR (p=0.02) with odds ratio of 2.77 (95% confidence interval: 1.15 – 6.70). On the other hand, no significant differences (p>0.05) were found between the dependent variable and the other predictor factors such as self reported excessive pressure during toothbrushing, Bass technique of toothbrushing, type of bristles, and frequency of toothbrushing. The variable, powered toothbrush, was not entered into the regression analysis due to the low number of subjects who had reported the use of this device.

DISCUSSION

GR is often responsible for the majority of attachment loss during the first thirty-five years of age.[13–15] The purpose of the present study was to assess the relationship between hygiene habits and the development of traumatic recession type defects in a sample of dental students between 18 and 30 years of age. Overall, the prevalence of GR was 86.25 per cent, and the mean rate of teeth with GR per patient was 4 teeth. Furthermore, nineteen participants (23.75%) accounted for almost half (49.69%) of the sites with GR. These findings were similar to those presented in other studies.[10,11]

The influence of different independent variables—deteriorated toothbrush bristles, self reported excessive pressure during toothbrushing, toothbrushing technique, type of bristles, and frequency of toothbrushing—on traumatic toothbrushing were estimated with logistic regression analysis (Table 5). Only one variable, deteriorated toothbrush bristles, was statistically significant (p=0.02). However, other local systemic and environmental factors such as gingival anatomy, smoking, parafunctional oral habits and previous orthodontic treatment, not evaluated in this study, may contribute to the development and severity of the recession defects.

Takehara et al.[16] reported that subjects who brushed their teeth with a 400 g pressure were 2.43 times more likely to develop GR. Results from a systematic review[17] showed potential associations among duration of toothbrushing, frequency of toothbrushing, frequency of changing the toothbrush, type of bristles, and tooth brushing technique. Molar teeth were less susceptible to GR, while premolars were the most affected teeth (Table 2). On the other hand, canines were the teeth with the highest percentage of GR ≥2 mm (12.03%). In general, approximately two-third of the GRs found (72.83%), had a recession depth of 1 mm (Table 3).

This study had some areas that were not explored. First

Table 5. Logistic regression analysis: Predictors of gingival recession due to oral hygiene.

Toothbrush		Number	Students with GR	Students with at least one tooth with GR > 2 mm	Regression coefficient	Standard error	Wald Z-value	Wald Prob-value	Odds ratio	Confidence interval 95%
Deteriorated bristles	No	38	44	56	1.02	0.44	2.27	0.02	2.77	(1.15 - 6.70)
	Yes	42	36	24	—	—	—	—	—	—
Soft bristles	No	69	69	77	- 0.42	0.67	- 0.63	0.52	0.65	(0.17 - 2.44)
	Yes	11	11	3	—	—	—	—	—	—
Toothbrushing frequency (> twice a day)	No	10	21	50	- 0.06	0.64	- 0.10	0.92	0.93	(0.26 - 3.29)
	Yes	70	59	30	—	—	—	—	—	—
Self reported excessive pressure during toothbrushing	No	2	14	46	0.01	1.45	0.01	0.99	1.01	(0.05 -17.63)
	Yes	78	66	34	—	—	—	—	—	—
Bass technique	No	40	54	68	- 0.49	0.47	-1.05	0.29	0.60	(0.24 - 1.53)
	Yes	31	26	12	—	—	—	—	—	—
Powered toothbrush	No	78	78	78	*	*	*	*	*	*
	Yes	2	2	2						

* The variable powered toothbrush was not entered in the regression analysis.

of all, only factors associated to traumatic toothbrushing were used in the statistical analysis. The association between age, gender, occlusion and anatomical conditions were not evaluated. Second, the sample size had only 32 per cent (80 participants) of the total pool of dental students examined. A sample size calculation of this selected group showed that only twenty-six study subjects would be necessary for this population of dental students. However, epidemiologic surveys are characterized by the representative sample of subjects.[10,11] Third, data from other clinical measurements, such as periodontal probing depth and clinical attachment level, were not reported in this study. However all participants were examined, and none of them presented loss of periodontal attachment—cementum, alveolar bone and periodontal ligament.

Fourth, although students undergoing orthodontic treatment were not included in this study, the majority of the participants had previously undergone orthodontic treatment during adolescence. The dental literature seems controversial regarding the influence of orthodontics in the development of GR.[18–21] Some studies found that the clinical crown length can be significantly improved following the buccal proclination of lower incisors.[19,20] However, other investigators did not find significant differences.[18,21] In the present study, it was opted not to include this variable in the statistical analysis due to the lack of precise information on the type of orthodontic therapy, period of treatment and anatomical conditions before treatment for each subject who had undergone orthodontics.

Fifth, the analyses were performed on participants presenting different clinical and systemic conditions than those found in representative samples. Gingival anatomical factors, mucogingival phenotypes, smoking habits, poor hygiene levels or known systemic diseases can modify the host response.[4,22–24] Consequently, these conditions can cause more variability of the results when extrapolated to larger epidemiological surveys. Moreover, discrepancies among subjects presenting similar clinical and systemic conditions may occur. For instance, six subjects experienced ten or more GRs. This condition may be linked to other important factors that were not measured in this study.

CONCLUSION

In conclusion and within the limits of this study, analyses of the selected group of dental students suggest a significant association between traumatic toothbrushing—deterioration of toothbrush bristles—and development of buccal gingival recessions. Further investigation in clinical trials with larger samples is required, with a focus on the effect of traumatic toothbrushing.

Figure 1. Written questionnaire applied for this study.

Note: Only one answer can be marked (X) for each question.

Toothbrush

1) Do you brush your teeth with a soft bristles toothbrush?
   a) ❑ Yes
   b) ❑ No

2) Do you brush your teeth with a powered toothbrush?
   a) ❑ Yes
   b) ❑ No

Toothbrushing

3) Do you brush your teeth more than twice a day?
   a) ❑ Yes
   b) ❑ No

4) Do you brush your teeth using the Bass technique?
   a) ❑ Yes
   b) ❑ No

5) Do you brush your teeth using too much or excessive pressure?
   a) ❑ Yes
   b) ❑ No

Visual evaluation of toothbrush bristles by calibrated examiner after participants answered the first five questions.

6) Are the bristles deteriorated in the toothbrush that the student is currently using?
   a) ❑ Yes
   b) ❑ No

REFERENCES

1. Camargo PM, Melnick PR, Kenney EB. The use of free gingival grafts for aesthetic purposes. *Periodontol 2000.* 2001;27:72–96.
2. Chambrone L, Sukekava F, Araujo MG, Pustiglioni FE, Chambrone, L.A, Lima LA. Root coverage procedures for the treatment of localised recession-type defects. *Cochrane Database of Syst Rev.* 2009;(2):CD007161.
3. Chambrone L, Chambrone D, Pustiglioni FE, Chambrone LA, Lima LA. Can subepithelial connective tissue grafts be considered the gold standard procedure in the treatment of Miller Class I and II recession-type defects? *J Dent.* 2008;36:659–71.
4. Chambrone L, Chambrone D, Pustiglioni FE, Chambrone LA, Lima LA. The influence of tobacco smoking on the outcomes achieved by root coverage procedures: a systematic review. *J Am Dent Assoc.* 2009;140:294–306.
5. Chambrone L, Lima LA, Pustiglioni FE, Chambrone LA. Systematic review of periodontal plastic surgery in the treatment of multiple recession-type defects. *J Can Dent Assoc.* 2009; 75:203a–03f.
6. Chambrone LA, Chambrone L. Subepithelial connective tissue grafts in the treatment of multiple recession-type defects. *J Periodontol.* 2006;77:909–16.
7. Chambrone L, Chambrone LA. Gingival recessions caused by lip piercing: Case report. *J Can Dent Assoc.* 2003;69:502–05.
8. Khocht A, Simon G, Person P, Denepitiya JL. Gingival recession in relation to history of hard toothbrush use. *J Periodontol* 1993;64:900–05.
9. Yoneyama T, Okamoto H, Lindhe J, Sockransky SS, Haffajee AD. Probing depth, attachment loss and gingival recessions. Finding from a clinical examination in Ushiko, Japan. *J Clin Periodontol.* 1988;15:581–91.
10. Albandar JM, Kingman A. Gingival recession, gingival bleeding, and dental calculus in adults 30 years of age and older in the United States, 1988–1994. *J Periodontol.* 1999;70:30–43.
11. Yoneyama T, Okamoto H, Lindhe J, Sockransky SS, Haffajee AD. Probing depth, attachment loss and gingival recessions. Finding from a clinical examination in Ushiko, Japan. *J Clin Periodontol.* 1988;15:581–91.

12. Thomson WM, Broadbent JM, Poulton R, Beck JD. Changes in periodontal disease experience from 26 to 32 years of age in a birth cohort. *J Periodontol.* 2006;77:947–54.
13. Schätzle M, Löe H, Bürgin W, Ånerud Å, Boysen H, Lang NP. Clinical course of chronic periodontitis. *J Clin Periodontol.* 2003;30:887–901.
14. Heitz-Mayfield LJA, Schätzle M, Löe H, Bürgin W, Ånerud Å, Boysen H, Lang NP. Clinical course of chronic periodontitis. II. Incidence, characteristics and time of occurence of initial periodontal lesion. *J Clin Periodontol.* 2003;30:902–08.
15. Schätzle M, Löe H, Lang NP, Heitz-Mayfield LJA, Bürgin W, Ånerud Å, Boysen H. Clinical course of chronic periodontitis. III. Patterns, variation and risks of attachment loss. *J Clin Periodontol.* 2003;30:909–18.
16. Takehara J, Takano T, Akhter R, Morita M. Correlations of noncarious cervical lesions and occlusal factors determined by using pressure detecting sheet. *J Dent.* 2008;36:774–79.
17. Rajapakse PS, McCracken GI, Gwynnett E, Steen ND, Guentsch A, Heasman PA. Does tooth brushing influence the development and progression of non inflammatory gingival recession? A systematic review. *J Clin Periodontol.* 2007;34:1046–61.
18. Årtun J, Grobéty D. Periodontal status of mandibular incisors after pronounced orthodontic advancement during adolescence: A follow-up evaluation. *Am J Orthod Dentofac Orthop.* 2001;119:2–10.
19. Årtun J, Krogstad O. Periodontal status of mandibular treated incisors following excessive proclination. A study in adults with surgically treated mandibular prognathism. *Am J Orthod Dentofac Orthop.* 1987;91:225–32.
20. Coatoam GW, Behrents RG, Bissada NF. The width of keratinized gingiva during orthodontic treatment: Its significance and impact on periodontal status. *J Periodontol.* 1981;52:307–13.
21. Ruf S, Hansen K, Pancherz H. Does orthodontic proclination of lower incisor in children and adolescents cause gingival recession? *Am J Orthod Dentofac Othop.* 1998;114:100–06.
22. Chambrone LA, Chambrone L. Tooth loss in well maintained patients with chronic periodontitis during long-term supportive therapy in Brazil. *J Clin Periodontol.* 2006;33:759–64.
23. Müller HP, Eger T. Gingival phenotypes in young male adults. *J Clin Periodontol.* 1997;24:65–71.
24. Olsson M, Lindhe J. Periodontal characteristics in individuals with varing form of the upper central incisors. *J Clin Periodontol.* 1991;18:78–82.

You take care of other people every day.
Take care of yourself today!

As a dental hygienist, you look after clients to try to ensure optimal oral health and you educate clients about the importance of protecting their teeth and gums.

Now's the time to look after yourself to ensure your financial health and protect your financial future!

As a member of the Canadian Dental Hygienists Association, you receive very competitive rates on the following insurance products:

- Long Term Disability
- Critical Illness
- Term Life
- Extended Health Care
- Accidental Death and Dismemberment
- Office Overhead Expense
- Dental

ATTENTION recent grads!!

If you're a recent graduate or about to graduate, visit the website to learn more about a special offer available to you – **www.cdha.ca/SunLife**

Learn how to protect yourself and your family –
visit www.cdha.ca/SunLife
or
call toll-free 1-800-669-7921
Monday to Friday,
8:30 a.m. – 5:00 p.m. EST.

Sun Life Financial

Life, and your teeth!
are brighter... under the sun

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

A multi strategy approach for RDHs to champion change in long term care

Carol-Ann P. Yakiwchuk, DipDH, BScDH, MHS, RDH

ABSTRACT

Nearly 200,000 Canadians live in long term care (LTC); many are more than sixty-five years of age, frail, and dependent on others for their daily care. With the growing trend of older adults successfully retaining more of their own teeth longer in life, their need for assistance with daily oral care and access to onsite preventive dental hygiene care is significantly different than in any previous generation. Yet, oral healthcare is widely recognized as inadequate in care facilities, resulting in widespread oral disease, and challenges to residents' overall health and quality of life. This article identifies dental hygienists as ideally suited to champion and sustain oral healthcare change in LTC. A multi targeted, multi strategy approach that extends beyond the focus of clinical care is proposed, along with strategies and tips for carrying it through. This proposed approach is based on dental hygienists' years of experience in caregiver engagement, education and training, resource development, and interprofessional collaboration within the LTC environment, and is modelled on the ADPIE format.

RÉSUMÉ

Plus de 200 000 Canadiens et Canadiennes vivent sous des soins de longue durée (SLD); beaucoup d'entre eux, ayant plus de 65 ans, mènent une vie fragile et dépendent des autres pour leurs soins quotidiens. Vu la tendance croissante des adultes plus âgés à conserver leurs dents plus longtemps dans leur vie, leurs besoins d'assistance en matière de soins buccaux quotidiens et d'accès sur place aux soins d'hygiène dentaire diffèrent de ceux de toutes les générations précédentes. Toutefois, la programmation des soins de santé buccale est grandement considérée comme étant inadéquate dans les services de soins, vu la vaste étendue de la maladie buccale et les défis que cela pose à la santé globale et à la qualité de vie des résidents. Cet article indique que les hygiénistes dentaires sont les intervenantes idéales pour promouvoir et soutenir la modification des soins de santé buccale de longue durée. La proposition comporte alors une approche à cibles et stratégies multiples, allant au-delà des soins cliniques proposés, et suggère des moyens de les réaliser. L'approche mise de l'avant se fonde sur les années d'expérience des hygiénistes dentaires en regard de leurs engagements relativement à la prestation des soins, à l'enseignement et la formation, au développement des ressources et à la collaboration interprofessionnelle avec les services de SLD. Le modèle suit le format ADPAE (analyse, diagnostic, planification, application et évaluation).

Key words: caregiver, dental hygienist, elderly, frail older adults, health promotion, long term care, oral health, oral hygiene

INTRODUCTION

A large number of the estimated 200,000 residents of long term care facilities (LTC) in Canada are more than sixty-five years old, frail, cognitively impaired, medically compromised, and dependent on others for activities of daily living.[1,2] With older adults successfully retaining a larger percent of their natural teeth later in life than any previous generation, more and more individuals who enter care will require assistance in caring for their teeth.[3,4] Yet, the provision of daily oral care, and access to professional dental care within care facilities remains significantly inadequate, resulting in widespread oral disease among dependent older adults both here in Canada and elsewhere.[5–9]

Inadequate dental plaque removal and the presence of oral disease can lead to significant oral health challenges for this population, including pain, infection, and tooth loss.[6,7] An unclean, unhealthy mouth can also challenge a frail elder's quality of life and overall health through reduced social interactions, weight loss, extensive dental treatment needs, and an increased risk for aspiration pneumonia (AP).[6,7,10–12] There is now sufficient evidence that effective daily oral hygiene can reduce one's risk for AP, an often fatal infection among the elderly care dependent population.[11,12]

Caregivers report many barriers and challenges surrounding oral care—competing priorities, a strong dislike for the task, a lack of knowledge, training, time, supplies, and administrative support, and dealing with care resistant behaviours.[12–14] While there are many contributing factors to the current problem, past research efforts have predominantly focused on caregiver education.[14–17] These interventions failed to demonstrate consistent sustainable improvements in residents' oral health status, regardless of who delivered the training.[14–17] However, several pilot studies reported positive outcomes using a designated staff champion.[18,19] Once trained, the champion was responsible for providing daily oral care, mentoring staff, and helping build momentum among caregivers to provide daily care.[18,19] Dental hygienists, in

THIS IS A PEER REVIEWED ARTICLE. Submitted 31 Jul. 2012. Revised 12 Feb. 2013. Accepted 20 Feb. 2013.
Correspondence to: Carol-Ann Yakiwchuk; cyakiwchuk@vcc.ca
Community Health Advisor and Clinical Instructor, Department of Dental Hygiene, Vancouver Community College, Vancouver, British Columbia.

their many roles as advocates, educators, clinicians, and health promoters can help garner staff commitment and momentum by supporting and mentoring staff champions. These collaborative partners can help identify and negotiate for structural changes that can then support caregivers' daily oral care efforts in practical ways.[20] The importance of partnering with internal champions who understand the context and culture of the organization cannot be understated as a key ingredient in translating health promotion efforts to sustainable oral healthcare change.[20]

Dental hygienists, with their repertoire of critical thinking skills, knowledge in oral health sciences, and experience in managing diverse and often complex oral care needs of clients, are ideally suited to champion this change in LTC. A heightened sense of social responsibility towards vulnerable populations, enabling legislation, direct billing acceptance by insurance providers, and a shortage of employment opportunities provide the impetus for dental hygienists to consider this area of practice.[21] Through the use of creative funding approaches, a number of dental hygienists are trail blazing this focused role in health promotion, and serving as role models and mentors for future LTC based dental hygienists.

This article provides interested dental hygienists with suggestions towards becoming champions of change in LTC. The presented strategies and tips are organized within the dental hygiene paradigm of care, and described in the ADPIE format: Assessment, Diagnosis, Planning, Implementation, and Evaluation. They are drawn from dental hygienists' years of experience in caregiver engagement and training, resource development, and interprofessional collaboration within the LTC environment.

This approach arose in collaboration with colleagues of the University of Manitoba's Health Promotion Unit (HPU) during their years of striving to bring about oral health change among underserved populations. It is aimed at dental hygienists who are ready to take on a new challenge by leading oral health change in LTC.

METHODS

Assessment: Gathering information and making decisions

The problem of oral disease in LTC is complex, and requires a multi targeted approach that involves all stakeholders including administrators, nurses, frontline caregivers, allied health professionals, and family members.[3,4,15] Before connecting with a facility, it is recommended that dental hygienists:

- Self assess their knowledge, attitudes, and beliefs about this population.
- Identify the regulatory requirements for independent practice.
- Develop a personalized learning plan that includes learning and mentoring opportunities. For example, in Manitoba, like minded dental hygienists learned and realized opportunities in LTC as members of an access to care study group supported by the Manitoba Dental Hygienists Association and the regulatory body [Wener M., Personal communication, December 9, 2012].
- Reflect on the degree of commitment they foresee as feasible and investigate options for remuneration.

Learning about and understanding the LTC environment and its challenges are paramount. An evidence based approach should be used to gather pertinent information from a variety of dental, dental hygiene, nursing, and other professional journals to build

Table 1. Site visit checklist.

Site visit checklist

Facility: _____ Date: _____

Address: _____

Key contact information: _____

The facility:

- ❑ Number of beds
- ❑ Type of units _____

Policies:

- ❑ Oral care policy*
- ❑ Resident bill of rights document*
- ❑ Philosophy of care*
- ❑ Welcome package for new residents*

* Obtain copies

LTC staff:

- ❑ Shifts
- ❑ Types and number of caregivers and allied health professionals _____
- ❑ Staff education program
  - Ideal length and time of day
  - Audio-visual equipment
  - Group size

Residents profile:

- ❑ Average age
- ❑ Level of care required
- ❑ Prevalence of dementia, care resistant behaviour

Oral care program:

- ❑ Admission oral assessment
- ❑ Individualized daily oral care plan
- ❑ Quarterly oral screening
- ❑ Oral products
- ❑ Professional dental services: current access, facility space; funding
- ❑ Oral care barriers, needs, and wants

Table 2. Essential components of a quality oral health program in LTC.

Essential components

- ❑ Internal oral health champions are identified
- ❑ Oral health professionals are part of the onsite healthcare team
- ❑ Everyone in facility is on board, supportive and kept up to date
- ❑ Staff receive regular oral health education and hands on training, including on unit coaching
- ❑ Policies and protocols are regularly updated and enforced
- ❑ Palliative oral care standards are in place
- ❑ Oral care products are available on site
- ❑ Daily oral care is provided, documented, and evaluated for quality/frequency
- ❑ Oral assessment is done initially, quarterly, and as needed
- ❑ Individualized daily oral care plans are based on current assessments
- ❑ Caregivers connect with family/guardian regarding oral health
- ❑ Residents have access to professional dental services
- ❑ Regulatory authorities enforce responsibility of all professional groups
- ❑ Legislation requires oral care in LTC; promotes access to professional care

a reference collection of important articles and resources. Other resources include:

- Current information on caregiver engagement and training, assessment tools, policy development, oral–systemic research, specialized products, resources, and managing care resistant behaviours.
- Site visits to speak with a variety of staff, and use of a checklist to help gather pertinent information (Table 1).
- Shadowing an RDH in LTC practice.

Effective listening and interview skills, detailed note taking, a non judgemental attitude, and a genuine willingness to learn and help are key strategies for success during this stage of assessment.

Diagnosis and planning: Preparing oral health solutions

The next step in the process is to analyze assessment findings and to meet with LTC administrators and other decision makers to collaboratively formulate a plan based on realistic goals and measureable outcomes. A flexible approach is paramount as the plan will likely evolve and change based on valuable feedback and learning. Administrators, focused on improving resident outcomes and meeting standards, policies, and legislated requirements, often identify caregiver education as their primary need. When expertly delivered, these education sessions also provide an excellent springboard for caregivers to discuss organizational and personal barriers and propose realistic strategies to improve oral healthcare in their facility. As individuals plan their program, the anticipated outcome should be to create an interactive session that appeals to all learning styles using caregiver friendly terms. Introducing the session's learning objectives and inviting participants to identify their learning needs can help ensure all receive the information they need. The educational session should highlight concrete benefits to providing oral care and offer realistic solutions for care resistant behaviours.

Setting the stage by sharing a personal story about a resident's oral health can be a powerful way to elevate the importance of a quality oral health program. The author's group also liked to incorporate catchy phrases to help caregivers make the connection between dental and medical issues. Phrases like "oral care is infection control" and "gum disease can result in a hidden bed sore the size of the palm of your hand" raised eyebrows and helped attendees understand that although the mouth is "out of sight", it is an important area of care that should not be ignored. Providing information on *why* oral care is integral to overall health and quality of life before teaching *how* to provide care, helps caregivers realize the deep significance of their role in preventing life threatening infections and makes them more receptive to learning. Once the plan is in place, dental hygienists are recommended to seek and incorporate feedback from other dental hygiene experts, gather resources to supplement caregiver knowledge, and create a demonstration kit that can be used for practice and discussions.

- The Registered Nurses Association of Ontario has an extensive resource collection available at: http://ltctoolkit.rnao.ca/resources/oralcare#Education-Resources.
- University of Manitoba's Centre for Community Oral Health (CCOH) collection of LTC handouts and "how to" videos may also be helpful and are located at: http://umanitoba.ca/dentistry/ccoh/ccoh_longTermCareFacts.html.

Implementation: Beginning with small steps

There are many stakeholders involved in the care of older adults, each with their own abilities, responsibilities, and priorities. Acknowledging each participant's role and contribution communicates respect and understanding. When caregivers report common challenges, such as a lack of skill in performing oral care, recognizing their issues and barriers lays the groundwork for learning to take place.[4,6,11,16] A crucial strategy which empowers caregivers is showing "how-to" demonstrations or videos, before having participants practise on typodonts or on willing residents. The demonstration kit should contain large handled toothbrushes, a proxabrush, floss wand and floss, denture brush, dry mouth products, multi sided speciality toothbrushes, mouth rests, typodonts, and dentures. Up to date handouts, which reinforce recommendations, provide caregivers with an ongoing resource to help

improve their practice. Nurses and other caregivers often remark that they have never been taught comprehensive oral care, and appreciate the "why and how" method of information and hands on instruction.

While caregiver training is important and necessary, it must not be the sole focus of a dental hygienist's efforts to champion change. The individual needs to implement a comprehensive plan that carefully considers the facility's organizational context, and engage all levels of stakeholders using a variety of activities.[18] Some suggestions are: working with managers to address barriers, speaking at the family council meeting, collaborating with other health professionals, contributing to the facility's newsletter, training nurses and speech–language pathologists to screen for oral problems, updating the oral care policy, incorporating oral health information in the facility's welcome package, having the gift shop or a local pharmacy stock recommended oral supplies, and working with others to ensure residents have access to affordable dental services within the facility. A list of important components of a LTC oral care program is provided, and represents the "big picture" vision shared with all stakeholders (Table 2). Personal attributes encompass a willingness to partner and collaborate with others, participate in research, solve problems creatively and propose novel, yet practical solutions. These attributes look far beyond the boundaries of clinical practice and caregiver education, and will serve each champion well as she or he works towards implementing improvements.

Evaluation: Learning from others

Evaluation, a critical component of any oral health program, affirms program effectiveness and identifies areas for improvement. A quality assurance program (QAP) is essential to help champion change by providing tangible evidence of the current program's efficacy. A good QAP program should include a random sampling of chart audits and Minimal Data Set (MDS) entries, oral screenings, and evaluations of the condition, storage, and labelling of oral care supplies. Feedback from stakeholders should also be collected and considered, to help shape efforts and direction for caregiver training. The HPU evaluation form gathered information on participants' knowledge (true/false questions), program appraisal, what they were surprised to learn, what they wanted more information on, areas they felt needs improving, and the level of priority they assigned to daily oral care. After each session, the collected feedback and any suggestions for improvement are reviewed. Participants' feedback and QAP data can identify new areas of focus and be used to provide evidence to key decision makers as dental hygienists strive to bring forth positive change.

CONCLUSION

The current problem of oral disease among dependent older adults requires the leadership of an oral health expert. Dental hygienists, in their dual role as oral health promotion experts and clinicians, are ideally suited to become champions of change in LTC. Those new to this area of practice should adopt a skills development approach by reviewing the current literature and seeking additional learning and mentoring opportunities. Using the strategies suggested in this article, dental hygienists can have a significant impact on the quality of life and health of dependent older adults, and become important members of the interprofessional LTC team.

Acknowledgement

The presented approach to health promotion in LTC arose collaboratively with dental hygiene colleagues and partners, Mickey Wener and Mary Bertone, at the University of Manitoba's Centre for Community Oral Health (CCOH). The author would also like to recognize the role of the CCOH, the faculty of Dentistry's non profit department, in addressing the oral health needs of underserved populations in a non profit, upstream approach.

REFERENCES

1. Canadian Institute of Health Research. *Facility based continuing care in Canada, 2004–2005: An emerging portrait of the continuum.* 2006. [Cited 2011, October 20]. Available at: http://secure.cihi.ca/cihiweb/products/ccrs_annualreport06_e.pdf
2. McGregor MJ, Ronald KA. *Residential long-term care for Canadian seniors: Non profit, for-profit or does it matter?* Institute for Research on Public Policy. 2011 January. [Cited 2011, October 14]. Available at: www.irpp.org/pubs/IRPPstudy/2011/IRPP_Study_no1.pdf
3. US Department of Health and Human Services. *Oral Health in America: A Report of the Surgeon General.* Rockville, MD. 2000. National Institute of Dental and Craniofacial Research. Available at: www2.nidcr.nih.gov/sgr/sgrohweb/home.htm
4. Nuttall NM, Steele JG, Pine CM, White D, Pitts NB. Adult dental health survey: The impact of oral health on people in the UK in 1998. *Br Dent J.* 2001;190:121–26.
5. Chalmers J, Pearson A. Oral hygiene care for residents with dementia: A literature review. *J Adv Nurs.* 2005;52(4):410–19.
6. MacEntee MI. Missing links in oral health care for frail elderly people. *J Can Dent Assoc.* 2006:72(5):421–25.
7. Petersen PE, Yamamoto T. Improving the oral health of older people: The approach of the WHO Global Oral Health Programme. *Community Dent Oral Epidemiol.* 2005;33(2):81–92.
8. Unfer B, Braun KO, de Oliverra Ferreira AC, Ruat GR, Batista AK. Challenges and barriers to quality oral care as perceived by caregivers in long stay institutions in Brazil. *Gerodontology.* 2012 Jun;29(2):e324–30.
9. Coleman P, Watson HM. Oral care provided by certified nursing assistants in nursing homes. *J Am Geriatr Soc.* 2006;54(1):138–43.
10. Lux J. Review of the oral disease-systemic disease link Part II: Preterm low birthweight babies, respiratory disease. *Can J Dent Hygiene.* 2007;41(1):8–21.
11. Azarpazhooh A, Leake JL. Systematic review of the association between respiratory diseases and oral health. *J Periodontol.* 2006;77(9):1465–482.
12. El-Solh AA. Association between pneumonia and oral care in nursing home residents. *Lung.* 2011 Jun;189(3):173–80.
13. Dharamsi S, Jivani K, Dean C, Wyatt C. Oral care for frail elders: Knowledge, attitudes, and practices of long-term care staff. *J Dent Edu.* 2009:73(5):581–88.
14. Wårdh I, Jonsson M, Wikström M. Attitudes to and knowledge about oral health care among nursing home personnel – an area in need of improvement. *Geriodontology.* 2012 Jun;29(2):e787–92.
15. Munoz N, Touger-Decker R, Byham-Gray L, Maillet JO. Effect of an oral health assessment education program on nurses' knowledge and patient care practices in skilled nursing facilities. *Spec Care Dent.* 2009;29(4):179–85.

16. Gammack JK, Pulisetty S. Nursing education and improvement in oral care delivery in long-term care. *J Am Med Dir Assoc.* 2009;10:658–61.
17. MacEntee MI, Wyatt CC, Beattie BL, Paterson B, Levy-Milne R, McCandless L, Kazanjian A. Provision of mouth-care in long term care facilities: An educational trial. *Community Dent Oral Epidemiol.* 2007;35:25–34.
18. Pronych GJ, Brown EJ, Horsch K, Mercer K. Oral health coordinators in long-term care—a pilot study. *Spec Care Dent.* 2010;30(2):59–65.
19. Wårdh I, Hallberg LR, Berggren U, Andersson L, Sörensen S. Oral health education for nursing personnel; experiences among specially trained oral care aides: One-year follow-up interviews with oral care aides at a nursing facility. *Scan J Caring Sci.* 2003;17(3):250–56.
20. Thorne S, Kazanjian A, MacEntee M. Oral health in long-term care: The implications of organizational culture. *J Aging Stud.* 2001;15:271–83.
21. Marsh L. Dental hygienist attitudes toward willingness to volunteer care for the underserved population. *ProQuest Dissertations and Theses.* 2011. Available from: http://udini.proquest.com/view/dental-hygienist-attitudes-toward-pqid:2325102931/

Advertisers' Index

Book reviews in the *CJDH*

The ***Canadian Journal of Dental Hygiene*** is opening a new category for scholarly reviews of professional books—recently published or not—that are of compelling interest to dental hygienists. Your review should evaluate content, quality and significance of the book regarding current context and future implications of dental hygiene practice or research. Your review should be between 500 and 1000 words.

We encourage all members to participate. If you are interested in this writing proposition, you may wish to consult the resource ***How to Write a Scholarly Book Review for Publication in a Peer-Reviewed Journal***. (Lee AD, Green BN, Johnson CD, Nyquist J in ***J Chiropr Educ***. 2010 Spring; 24(1): 57–69.) Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC2870990/

Contact journal@cdha.ca

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

Credit C. Arcot

Ethics and professionalism in oral health care

When we speak of ethics and professionalism it is difficult to determine the boundaries of each in defining them. The terms are inextricably tied together, and are often used interchangeably. Nevertheless, they are essential to the role of the dental hygienist, whether in private practice, community service or public health. As the healthcare map widens to include more health disciplines in integrated approaches to patient care, more thought is being given to the teaching of the skills involved in interprofessionalism. But before teaching these skills, it is important to appreciate both the philosophy and application of them. Research has been conducted and papers written on current use and practice of ethics and professionalism across the health disciplines, although perhaps more so in nursing, medicine and dentistry than in dental hygiene. But much of what has been written is directly applicable to the field of dental hygiene and serves as valuable resource in preparing dental hygienists to work in new and demanding environments. The following titles have been selected as references for further study and discussion.

Search terms, "ethics in oral health care", "professionalism in oral health care", "ethics and professionalism in health care", gathered these peer reviewed articles from the National Library of Medicine's database, PubMed, and from Google Scholar. Not all of these articles are available as open access, and we recommend readers to request their university or professional organizations to access these suggested readings.

1. Medical professionalism requires that the best interest of the patient must always come first: No.
Buetow S.
J Prim Health Care. 2013 Mar 1;5(1):76–77.
Abstract: www.ncbi.nlm.nih.gov/pubmed/23457699 [PubMed in process]

2. How do dentists and their teams incorporate evidence about preventive care? An empirical study.
Sbaraini A, Carter SM, Evans RW, Blinkhorn A.
Community Dent Oral Epidemiol. 2013 Jan 28. doi: 10.1111/cdoe.12033. [Epub]
Abstract: www.ncbi.nlm.nih.gov/pubmed/23356457

3. The butterfly effect of caring - clinical nursing teachers' understanding of self-compassion as a source to compassionate care.
Wiklund Gustin L, Wagner L.
Scand J Caring Sci. 2013;27(1):175–83.
Abstract: www.ncbi.nlm.nih.gov/pubmed/22734628

4. The ADA's statement on dental patient rights and responsibilities.
Maihofer M.
J Mich Dent Assoc. 2012;94(6):20–21.
Available: www.ada.org/sections/about/pdfs/statements_ethics_patient_rights.pdf

5. Dental ethics case 19: What are my ethical responsibilities when I suspect a colleague of substance abuse?
Naidoo S.
SADJ. 2012 Mar;67(2):82–84.
Abstract: www.ncbi.nlm.nih.gov/pubmed/23189897

6. Professionalism: challenges for dentistry in the future.
Ozar DT.
J Forensic Odontostomatol. 2012;30 Suppl 1:72–84.
Abstract: www.ncbi.nlm.nih.gov/pubmed/23221268

7. Enlightened self-interest and public/private partnerships.
Slavkin HC.
J Public Health Dent. 2012;72 Suppl 1:S68.
No Abstract: www.ncbi.nlm.nih.gov/pubmed/22433109

8. Oral health and social justice: opportunities for leadership.
Niessen LC.
Tex Dent J. 2011;128(12):1270–276.
No Abstract: www.ncbi.nlm.nih.gov/pubmed/22375445

9. Dental therapists and dental hygienists educated for the New Zealand environment.
Coates DE, Kardos TB, Moffat SM, Kardos RL.
J Dent Educ. 2009;73(8):1001–08.
Abstract: www.ncbi.nlm.nih.gov/pubmed/19648571

10. The need for dental ethicists and the promise of universal patient acceptance: response to Richard Masella's "Renewing professionalism in dental education".
Patthoff DE.
J Dent Educ. 2007;71(2):222–26.
Abstract: www.ncbi.nlm.nih.gov/pubmed/17314383

11. Service-learning in dental education: meeting needs and challenges.
Hood JG.
J Dent Educ. 2009;73(4):454–63.
Abstracts: www.ncbi.nlm.nih.gov/pubmed/19339432

12. Web modules on professionalism and ethics.
Hendee W, Bosma JL, Bresolin LB, Berlin L, Bryan RN, Gunderman RB.
J Am Coll Radiol. 2012;9(3):170–73.
Abstract: www.ncbi.nlm.nih.gov/pubmed/22386162

13. Which experiences in the hidden curriculum teach students about professionalism?
Karnieli-Miller O, Vu TR, Frankel RM, Holtman MC, Clyman SG, Hui SL, Inui TS.
Acad Med. 2011;86(3):369–77.
Abstract: www.ncbi.nlm.nih.gov/pubmed/21248599

14. Teaching professionalism across cultural and national borders: lessons learned from an AMEE workshop.
Cruess SR, Cruess RL, Steinert Y.
Med Teach. 2010;32(5):371–74.
Abstract: www.ncbi.nlm.nih.gov/pubmed/20423254

15. How do we care for our future caregivers? Rethinking education in bioethics with regard to professionalism and institutions.
Wallner J.
Med Law. 2010 Mar;29(1):21–36.
Abstract: www.ncbi.nlm.nih.gov/pubmed/22457995

16. The future of education and training in dental technology: designing a dental curriculum that facilitates teamwork across the oral health professions.
Evans J, Henderson A, Johnson N.
Br Dent J. 2010;227–30.
Abstract: www.ncbi.nlm.nih.gov/pubmed/20228758

17. Beneficence and the professional's moral imperative.
Kinsinger FS.
J Chiropr Humanit. 2009 Dec;16(1):44–46.
Abstract: www.ncbi.nlm.nih.gov/pubmed/22693466

18. An Innovative Approach to Teaching Ethics and Professionalism.
Schwartz B.
J Can Dent Assoc. 2009;75(5).
Free full text: www.ncbi.nlm.nih.gov/pubmed/19531330

19. Current perceptions of the role of dental hygienists in interdisciplinary collaboration.
Jaecks S, Kelli M.
J Dent Hyg. 2009;83(2):84–91.
Abstract: www.ncbi.nlm.nih.gov/pubmed/19470234

Guidelines for authors

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

The *Canadian Journal of Dental Hygiene* (*CJDH*) provides a forum for the dissemination of dental hygiene research to enrich the body of knowledge within the profession. Further, the intent is to increase interest in, and awareness of, research within the dental hygiene community.

The *Canadian Journal of Dental Hygiene* is a peer reviewed journal. It invites manuscripts relevant to dental hygiene practice and policy including theory development and research related to education, health promotion, and clinical practice. Manuscripts should deal with current issues, make a significant contribution to the body of knowledge of dental hygiene, and advance the scientific basis of practice. Manuscripts may be submitted in English or French. All accepted submissions will be edited for consistency, style, grammar, redundancies, verbosity, and to facilitate overall organization of the manuscript.

Criteria for submission:

A manuscript submitted to the *CJDH* for consideration should be an original work of author(s), and should not have been submitted or published elsewhere in any written or electronic form. It 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.

Pre-submission enquires and submissions to:

scientificeditor@cdha.ca or journal@cdha.ca

CJDH welcomes your original submissions on:

1. **Professionalism**: manuscripts dealing with issues such as ethics, social responsibility, legal issues, entrepreneurship, business aspects, continuing competence, quality assurance, and other topics within the general parameters of professional practice.
2. **Health promotion**: manuscripts dealing with public policy and a variety of elements integral to building the capacity of individuals, groups and society at large. Based on the key elements described in the Ottawa Charter, this may include health public policy, creating supportive learning environments, developing abilities, strengthening community action, and reorienting oral health services.
3. **Education**: manuscripts related to teaching and learning at an individual, group and community level. It includes education related to clients, other professionals, as well as entry to practice programs.
4. **Clinical practice:** manuscripts dealing with interceptive, therapeutic, preventive, and ongoing care procedures to support oral health.
5. **Community practice**: manuscripts dealing with oral health programs including topics related to program assessment, planning, implementation, and evaluation.
6. **Oral health sciences**: manuscripts dealing with knowledge related to the sciences that underpin dental hygiene practice.
7. **Theory**: manuscripts dealing with dental hygiene concepts or processes.

Categories of manuscripts accepted for submission:

1. **Studies/Research paper** – no longer than 6000 words, and a maximum of 150 references. Abstract within 300 words.
2. **Systematic review** – between 3000 and 4000 words, abstract in 250 words and references as necessary.
3. **Literature review** – no longer than 4000 words and as many references as required. Abstract within 250 words.
4. **Position paper** – no longer than 4000 words and a maximum of 100 references. Abstract within 250 words. This category includes position papers developed by CDHA.
5. **Case report** – between 1000 and 1200 words, and a maximum of 25 references, and 3 authors. Abstract of 100 words.
6. **Editorial** – by invitation only, and may be between 1000 and 1500 words, using as many references as required. No Abstract.
7. **Letter to editor** is limited to 500 words, a maximum of 5 references, and 3 authors. No Abstract.
8. **Short communication** – no longer than 2000 words. Abstract within 150 words.
9. **Book review** – between 500 and 1000 words.

Peer Review: All papers undergo initial screening for suitability by the Scientific Editor with assistance from the Editorial Board. Suitable papers are then peer reviewed by two or more referees. This also applies to position papers generated by CDHA, given that they involve an analysis of literature. Additional specialist advice may be sought for peer review if necessary, for example from a statistician.

Revision: When a manuscript is returned to the corresponding author for revision, the revised version should be submitted within 6 weeks of the author's receipt of the referee reports. The author(s) should address the revisions asked in the cover letter, either accepting the revisions or providing a rebuttal. If a revised manuscript is returned thereafter, it will generally be considered as a new submission. Additional time for revision can be granted upon request, at the Publishing Editor's discretion.

Appeal for re-review may be addressed to the Scientific Editor by e-mail (journal@cdha.ca) who will take it forward to the CDHA 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.

Submission checklist:

	Check	Elements
1		Used standardized fonts such as Arial, New Times Roman, Verdana in 10–12 points.
2		Double spaced text in body of manuscript.
3		Manuscript has standard margins of 1 inch (2.5 cm) at the top, bottom, left and right.
4		Pages are numbered consecutively, starting with title page.
5		Cover letter accompanies manuscript with your declaration of originality, any conflict of interests, and your contact information.
6		Placed figures, tables, graphs, photos at the end of the manuscript.
7		Provided signed permissions for any text or pictures of client/patient.
8		Are all previously published illustrations appropriately credited? Have you checked their publisher's website for restricted use or permissions?
9		Included corresponding author's contact information in the title page.
10		Included all the authors' academic titles, and their current affiliation(s).
11		Cover letter contains names and contact information of 2 possible and willing reviewers for your submission.
12		Key words are terms found in MeSH database in Search "MeSH": www.ncbi.nlm.nih.gov/mesh
13		Used only the Vancouver style of referencing in the manuscript: www.nlm.nih.gov/bsd/uniform_requirements.html
14		Used abbreviated titles of journals from PubMed database, in Search "Journals": www.ncbi.nlm.nih.gov/journals

Manuscript components:

1. **Title page:** The title must provide a clear description of the content of the submission in 12 words. It should be followed by each author's name (first name, middle initial and last name) with respective degrees and any institutional affiliation(s). Corresponding author's name, address, and e-mail. All authors should have participated sufficiently in the work to be accountable for its contents.
2. **Abstract:** Typical formats are outlined below.
   a. Study and Research paper: Background (including study question, problem being addressed and why); Methods (how the study was performed); Results (the primary statistical data); Discussion, and Conclusion (what the authors have derived from these results).
   b. Literature Review: Objective (including subject or procedure reviewed); Method (strategy for review including databases selected); Results and Discussion (findings from and analysis of the literature), and Conclusion (what the authors have derived from the analysis).
   c. Position paper: Same format as Literature Review.
   d. Case Report: Introduction (to general condition or program); Description of case (case data) Discussion (of case grounded in literature), and Conclusion.
3. **Key words:** Provide 6–10 key words or short phrases from the text for indexing purposes. Terms from the Medical Subject Headings (MeSH) list of *Index Medicus* are preferredwww.ncbi .nlm.nih.gov/mesh
4. **Text**
   a. Studies and Research papers consist of original work arising from the exploration of research questions. Presentation of the study will vary based on the type of research being presented. **Introduction:** a concise background and rationale for the study. It should include the purpose of the study and its relevance to practice and the profession. A brief review of key themes from current literature is included to provide the reader a context from which to understand the research question. **Methods:** a clear description of the methodology including materials (stating manufacturer's name and location; city/state/province/country) if applicable. The study design must be clear and appropriate for the question addressed. **Ethics approval:** All studies involving human or animal subjects should include an explicit statement in the methods section identifying the review and ethics committee approval, if applicable. Editors reserve the right to reject papers if there is doubt as to whether the study was conducted in accordance with the Tri-Council Policy Statement for Ethical Conduct for Research or the Declaration of Helsinki. **Results:** a logical sequence as befits the methods used. Tabular data should include relevant test statistics based on the statistical tests used. **Discussion:** an interpretation of work in light of the previously published work in the area. It should highlight the contribution of the study to dental hygiene practice as well as its limitations. **Conclusions:** drawn from the body of original work within the context of the literature in the area being studied. Areas of future research to support the further development of knowledge in the area may be highlighted.
   b. **Systematic reviews (SR)** identify, investigate, and critically answer a focussed question or questions reviewing the latest published evidence. Such evidence based reviews synthesizing information will address the questions raised how such information and resolution contribute to a new perspective of the reader's understanding and practice in the education, policy framing or delivery of optimal oral healthcare. The SR is structured with objective(s); statement of the problem; background, methods for conducting the SR; results; discussion; conclusion (see #11 – writing a systematic review).
   c. **Literature Reviews** provide a synthesis of published work in a particular area. They should be organized in a logical manner. Tables, illustrations, and photographs are encouraged. **Objective:** a concise background and rationale for the inquiry. It should include the purpose of the inquiry and its relevance to practice and the profession. **Method:** a clear description of search strategies used including the databases accessed and the key words used in searches. Inclusion and exclusion criteria are also documented if applicable. **Results and Discussion:** findings from the literature reviewed, its comparison and contrast, and an account for possible differences within the findings. **Conclusion:** implications of the inquiry for practice and the profession. Conclusion must be supported by the literature analyzed.
   d. **Position papers:** the organization supporting the position should be highlighted. Open structure with subheadings according to the relevance of the topic discussed.
   e. **Case Reports** are designed to shed light on decision-making within the context of practice problems. The case being profiled should differ to some degree from what is considered a common practice problem. For example, it could involve a unique perspective or challenging diagnostic or treatment focus. It could also relate to a unique program or intervention, and its outcomes. Authors must provide signed client consent for both identifying text and any images, along with manuscript at the time of submission, without which the submission will not be considered. **Introduction**: If a clinical case, the presenting problem plus a very brief overview of the disease or condition. If a community, population, health or education-based case, the background of the problem or issue that was studied should be described. How does the case benefit the reader? **Case Description:** should provide demographics of the client(s) or population being studied with intervention(s), clinical or otherwise. If a team is involved in managing the client(s) or situation, the role of each health-care professional in the team should be outlined. Results of actions or interventions should follow. **Discussion:** results or findings of the case with reference to the literature. What would typically be expected in this or similar situations? **Conclusion(s):** implications of the study for clinical practice, community care or educational practice. Conclusion must be supported by the case(s) presented.
   f. **Letters to the Editor:** discussion or balanced opinions on current issues in the dental hygiene profession or with a focus on articles in the previous editions of the journal in a 6-month period. The editor reserves the right to edit letters for clarity.
   g. **Short Communication:** Brief article on a topic of significant and relevant interest to the Dental Hygiene community. It should be no longer than 2000 words. It needs to include title, abstract (maximum 150 words) and description sections. The guidelines for a literature review or study should be followed in all other respects. It will be sent for peer review.
   h. **Book reviews:** scholarly reviews of professional books—recently published or not—that are of compelling interest to dental hygienists. Your review should evaluate content, quality and significance of the book regarding current context and future implications of dental hygiene practice or research. Your review should be between 500 and 1000 words.
5. **Acknowledgements:** Acknowledge any assistance or support given by individuals, organizations, institutions, or companies. Those identified here must have provided informed consent for you to cite their names as this may imply endorsement of the data and/or the conclusions.
6. **Conflict of interest:** Authors must declare, in the interests of transparency, whether they have any competing interests in their submission, such as research funding for the study.
7. **Artwork** includes any illustrations, figures, photos, graphs, and any other graphics that clearly support and enhance the text in

their original file formats (source files).

- Acceptable file formats include .eps, .pdf, .tif, .jpg, .ai, .cdr in high resolution, suited for print reproduction:
  i. minimum of 300 dpi for grayscale or colour halftones,
  ii. 600 dpi for line art, and
  iii. 1000 dpi minimum for bitmap (b/w) artwork.
- All colour artwork submitted in CMYK (not RGB) colour mode.
- Should be numbered sequentially and cited in the text.
- The author(s) must provide proof of signed consent from the source for previously produced artwork and acknowledge the source in the caption.
- The editorial office reserves the right to reschedule publication of an accepted manuscript should there be delays to obtaining artwork with questionable print quality.

8. **Data or Tables** may be submitted in Excel or Word formats. These tables or data may also be included at the end of the Word document.
9. **Abbreviations and Units:** must conform to the Système Internationale d'Unités (SI). SI symbols and symbols of chemical elements may be used without definition in the body of the paper. Abbreviations should be defined in brackets after their first mention in the text, not in a list of abbreviations.
10. **Supplementary information:** Any supplementary information supplied should be in its final format because it is not subedited and will appear online exactly as originally submitted.

    Supplementary information is peer reviewed material directly relevant to the conclusions of an article that cannot be included in the printed version owing to space or format constraints. It is posted on the journal's web site and linked to the article when the article is published and may consist of additional text, figures, video or extensive tables. Sources of supplementary information should be acknowledged in the text, and permission for using them be sent to the editorial office at the time of submission.

11. **Useful resources for the author**
    - *Good reporting of research studies*
      www.equator-network.org/index.aspx
    - *Uniform requirements for manuscripts submitted to biomedical journals*
      www.icmje.org/
    - *Scientific writing*
      www.biomedcentral.com/1472-6947/5/15
    - *Writing a systematic review*
      i. www.medicine.ox.ac.uk/bandolier/painres/download/whatis/Syst-review.pdf
      ii. www.prisma-statement.org/
    - *Writing a case report*
      www.stfm.org/Fullpdf/march00/fd2.pdf
    - *How to Write a Scholarly Book Review for Publication in a Peer-Reviewed Journal.*
      www.ncbi.nlm.nih.gov/pmc/articles/PMC2870990/
12. **Referencing Style and Citations**
    The reference style is based on Vancouver style, the preferred choice in medical journals. References should be numbered consecutively in the order in which they are first mentioned in the text. Use the previously assigned number for subsequent references to a previously named citation (i.e., no "op cit" or "ibid"). Use superscript arabic numerals to identify the reference within the text (e.g.,[1,2] or [3–6]). The Reference section lists these in numerical order as they appear in the text. www.nlm.nih.gov/bsd/uniform_requirements.html

Samples:

Journal articles
Books and other monographs
Other publications
Unpublished material
Electronic material

Journal articles

Standard article
Orban B, Manella VB. A macroscopic and microscopic study of instruments designed for root planing. *J Periodontal*. 1956;27:120–35.

Volume with supplement
Orban B, Manella VB. A macroscopic and microscopic study of instruments designed for root planing. *J Periodontal*. 1956;27 Suppl 7:S6–12.

Conference proceedings – abstract
Austin C, Hamilton JC, Austin TL. Factors affecting the efficacy of air abrasion [abstract]. *J Dent Res*. 2001;80(Special issue):37.

Organization as author
Canadian Dental Hygienists Association. Policy framework for dental hygiene education in Canada. *Probe*. 1998;32(3):105–7.

Books and other monographs

Personal authors
Hooyman NR, Kiyak HA. *Social gerontology: a multidisciplinary perspective*. 6th ed. Boston: Allyn & Bacon; 2002.

Editors as authors
Cairns, J Jr, Niederlehner BR, Orvosm DR, editors. *Predicting ecosystem risk*. Princeton (NJ): Princeton Scientific Publications; 1992.

No author
What is your role in the profession? [editorial] *J Dent Topics*. 1999;43:16–7.

Chapter in book
Weinstein L, Swartz MN. Pathological properties of invading organisms. In: Soderman WA Jr, Soderman WA, editors. *Pathological physiology: mechanisms of disease*. Philadelphia: WB Saunders; 1974. p. 457–72.

Conference paper
Calder BL, Sawatzky J. A team approach: providing off-campus baccalaureate programs for nurses. In: Doe AA, Smith BB, editors. Proceedings of the 9th Annual Conference on Distance Teaching and Learning; 1993 Sep 13–15; Ann Arbor, MI. Madison (WI): Ann Arbor Publishers; 1993. p. 23–26.

Scientific or technical report
Murray J, Zelmer M, Antia Z. *International financial crises and flexible exchange rates*. Ottawa: Bank of Canada; 2000 Apr. Technical Report No. 88.

Personal communication
These should be cited in parentheses in the body of the text. The author should obtain permission from the source to cite the communication.

Other publications

Newspaper article
Rensberger B, Specter B. CFCs may be destroyed by natural process. *Globe and Mail*. 1989 Aug 7;Sect. B:24.

Audiovisual
Wood RM, editor. *New horizons in esthetic dentistry* (videocassette). Chicago: Chicago Dental Society; 1989.

Unpublished material
Smith A, Jones B. The whitening phenomenon. *J Nat Dent*. (Forthcoming 2004)

Electronic material

Monograph on Internet
National Library of Canada. *Canadiana quick reference* [monograph on the Internet]. Ottawa: The Library; 2000 [cited 2003 Nov 30]. Available from: www.nlc-bnc.ca/8/11/index-e.html

Journal on Internet
Walsh MM. Improving health and saving lives. *Dimensions Dent Hyg* [serial on Internet] 2003 Nov/Dec [cited 2004 Jan 12] Available from: www.dimensionsofdentalhygiene.com/nov_dec/saving_lives.htm

Homepage/web site
Canadian Dental Hygienists Association [homepage on the Internet]. Ottawa: CDHA; c1995 – [cited 2003 Nov 20]. Available from: www.cdha.ca/

(Last updated: May 2013)

NUPRO®

NEW

EXPLORE A **NU WORLD** OF TROPICAL FLAVOUR

Introducing Pina Colada and Fruit Punch

Now part of the NUPRO® Prophy Paste line that offers the largest selection of great tasting, gluten-free flavours to satisfy almost any patient preference[1]

- Excellent stain removal and polishing performance
- Unique proprietary formulation designed to deliver consistent, splatter-free performance
- Rinses easily and completely
- Colour-coded grit options

For more information, call 1.800.263.1437 or visit www.dentsply.ca

NUPRO®
Pioneers in Protection™
MADE IN THE USA

For better dentistry
DENTSPLY CANADA

Reference: 1. Data on file.

 NUP01-0712-1

The New Philips Sonicare FlexCare Platinum

More innovation. Less plaque between teeth.

NEW INTERCARE BRUSH HEAD TECHNOLOGY

- Deeper interdental cleaning
- Removes up to 6x more plaque between teeth[1]

NEW PRESSURE SENSOR

- Resonates when too much pressure is applied
- Interactive guidance for proper brushing technique

ADJUSTABLE MODES AND INTENSITY SETTINGS

- Clean: Low, Medium and High
- White: Low, Medium and High
- Gum Care: Low, Medium and High

Sonicare FlexCare Platinum removes significantly more plaque than Oral-B Professional Care 5000 in all areas of the mouth.[2]

Contact your Sonicare representative to set up a demonstration or to purchase a specially priced trial unit.

philipsoralhealthcare.com (800) 278-8282

PHILIPS sonicare

1 M. Ward, W. Jenkins, K. Argosino, S. Souza, M. Nelson, J. Milleman, K.R. Milleman. Assessment of a Sonic Toothbrush on Plaque and Gingivitis. J Dent Res 92 (Spec IssA):3753, 2013.

2 Defenbaugh J, Liu T, Souza S, Ward M, Jenkins W, Colgan P. Comparison of Plaque Removal by Sonicare FlexCare Platinum and Oral-B Professional Care 5000 with Smart Guide. Data on file, 2013. Not yet verified by peer-reviewed research.