Dental Hygienists' Preferences for Continuing Education Content and Delivery Formats

Differences in Masculine and Feminine Perceptions of Quality of Life and Oral Health

Training and Utilization of Dental Hygienists in Kuwait

Dental Unit Waterlines (Student Paper)
We Need Your Help!

by Patty Wickstrom

The mission statement of the Canadian Dental Hygienists Association reads as follows: “The Canadian Dental Hygienists Association is the collective voice and vision of dental hygienists in Canada advancing the profession, supporting its members and contributing to the oral health and general well-being of the public.” To be able to carry out our mission, we need a variety of current and credible documents with which to work. One of these documents is the CDHA Bylaws.

Now I know the subject of bylaws is not usually one to quicken the pulse or have you racing for a copy. But they are important although they reside in the background most of the time. Quite simply, bylaws are the rules that govern the association, its board of directors, and the members. It’s the bylaws that state the composition of the board, its duties, and powers. Here also you will find out all about membership—categories, qualifications, and voting rights. And these bylaws have to be approved by you, the members of the association.

We need members’ input to ensure that the bylaws meet the members’ needs.

It was during the past year that the CDHA Board of Directors, while working on the association’s policies, realized that the current bylaws were not explicit and more complex than necessary. This resulted in confusion of meaning.

Therefore in late summer 2003, CDHA retained the services of Association Xpertise Inc. (AXI) to prepare a brief background paper to help us consider possible amendments to the existing bylaws. The Board of Directors then held a teleconference with AXI during the board meeting in October 2003. During that conversation, some key issues were singled out for future thought and discussion. These included (1) delineating the reason for CDHA’s existence, (2) defining the moral membership, (3) defining relationships, and (4) spelling out the values of the association. During the same teleconference, we also concluded that further input was needed to develop these issues. A stakeholder meeting hosted by CDHA and facilitated by AXI was held in Calgary.

L’énoncé de mission de l’Association canadienne des hygiénistes dentaires se lit comme suit : « L’Association canadienne des hygiénistes dentaires est l’organisme qui agit comme porte-parole des hygiénistes dentaires du Canada et qui propose une vision propre à faire avancer la profession, à soutenir ses membres et à contribuer à la santé buccale et au bien-être général du public. » Pour pouvoir remplir notre mission, nous avons besoin d’une variété de documents à jour et crédibles avec lesquels nous puissions travailler. Les règlements de l’ACHD sont au nombre de ces documents.


L’année dernière, la constatation suivante s’est imposée au conseil d’administration de l’ACHD, alors qu’il travaillait aux politiques de l’association : les règlements actuels étaient à la fois pas assez explicites et trop complexes, et qu’ils ne pouvaient qu’être source de confusion.

À la fin de l’été dernier, on a donc retenu les services d’Association Xpertise Inc. (AXI) pour préparer un court document de fond pour aider à l’étude des amendements qu’il y aurait lieu d’apporter aux règlements actuels. Ensuite, le conseil d’administration a tenu une téléconférence avec AXI, lors de sa réunion d’octobre 2003. À cette occasion, quelques points particulièrement importants sont ressortis pour réflexion et discussion ultérieures. Il s’agit de : (1) la description de la raison d’être de l’ACHD, (2) la définition du membership au sens moral, (3) la définition des relations, et (4) l’articulation des valeurs de l’association. Au cours de cette téléconférence, nous avons également conclu à la nécessité de consulter davantage pour élaborer ces questions.

Une réunion d’intervenants, convoquée par l’ACHD et animée par AXI, s’est donc tenue à Calgary, le 31 janvier 2004. Y participaient les présidentes des associations.
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The apparent insufficiency of every individual to his own happiness or safety compels us to seek from one another assistance and support. The necessity of joint efforts for the execution of any great or extensive design, the variety of powers disseminated in the species, and the proportion between the defects and excellences of different persons demand an interchange of help and communication of intelligence, and, by frequent reciprocations of beneficence, unite mankind in society and friendship.

— Samuel Johnson (Rambler #104, March 16, 1751)

CDHA’s mission is “to be the collective voice and vision of dental hygienists in Canada advancing the profession, supporting its members and contributing to the oral health and general well-being of the public.” As a “collective voice,” CDHA strives to understand its members—their aspirations and needs—and to speak with the voice of intelligence.

Where does CDHA get the information from its members in order to speak on their behalf? Through various means:

- You comment directly through surveys (three since 2000).
- Your provincial representatives, dental hygiene educators, and registrars sit as board members and bring forward the views of their jurisdictions.
- Workshops or stakeholder consultations are held regularly. The CDHA Code of Ethics, Dental Hygiene: Definition, Scope and Practice Standards, and Research Agenda were all drafted by nation-wide committees drawn from different work settings. All dental hygiene stakeholder groups met in Calgary at the end of January to discuss the role of CDHA.
- Individual members write or call with their feedback and opinions, either spontaneously or with more formal comments on specific topics, such as position papers.
- In the coming months, you will be asked to comment on one paper examining the link between oral health and

Do your part to participate, share your views

C

L a mission de l’ACHD, est d’être « l’organisme qui agit comme porte-parole des hygiénistes dentaires du Canada et qui propose une vision propre à faire avancer la profession, à soutenir ses membres et à contribuer à la santé buccale et au bien-être général du public ». À titre de « voix collective », l’ACHD s’efforce de comprendre ses membres, — leurs aspirations et leurs besoins —, et de parler avec la voix de l’intelligence.

Où l’ACHD prend-elle l’information de ses membres afin de parler en leur nom ? Par divers moyens :

- Vous faites vos commentaires directement par le truchement des sondages (trois depuis 2000).
- Vos représentants provinciaux, les éducateurs en hygiène dentaire et les registraires siégent comme membres du conseil et font valoir les points de vue de leur champ de compétence.
- Des ateliers ou des consultations d’intervenants sont tenus régulièrement. Le Code de déontologie de l’ACHD, le document L’hygiène dentaire : définition, portée et normes de pratique, et le programme de recherche ont tous été rédigés par des comités d’envergure nationale dont les membres étaient tirés de différents milieux de travail. Tous les groupes d’intervenants en hygiène dentaire se sont rencontrés à Calgary, à la fin de janvier, pour discuter du rôle de l’ACHD.
- Les membres, à titre individuel, nous écrivent ou nous
Looking at “How are you?”

by Gladys Stewart, MSc, BA, RDH*

“Hey are you?” A usual greeting, but we should not forget how seemingly simple words can strongly affect others. In the dental hygiene profession, we work at developing our skills in interpersonal communications and choosing the most appropriate approach to clients in any given situation. When I became the patient/client a couple of months ago, I realized how very important those three little words can be to someone who is worried or in pain.

It was a brisk Saturday in January when I tripped in our garage and suffered a displaced and severe elbow fracture. Fortunately my husband could whisk me to a nearby sports medicine clinic within minutes. What happened and “how are you?” was very easily managed at the admitting desk and with the doctor on call. In a short period of time, the staff took radiographs quickly and gently, gave me the diagnosis, put on a temporary cast, and started the process of booking the inevitable surgery. I was very pleased with the care I received.

My next visit and interaction was at a major hospital in Winnipeg and the interest in my health continued with “how are you” and messages of concern and care. The bad news was I would have to wait until Monday for surgery. However, I was once again fortunate as the orthopedic surgeon consulted was the “elbow expert” and I was reassured that I was in very good hands.

Monday morning, I arrived at the hospital at 8 a.m. to be admitted for emergency surgery. The orthopedic surgeon stopped by the admitting department to say, “Hello, and how are you?” and I was as relaxed as one could be waiting for surgery! A hospital volunteer (with a gaze from another day and no words to say) escorted me to the 4th floor. On the silent trip, I wondered why she chose to be a volunteer.

When I arrived at the nursing desk on the 4th floor, it was “Who are you” rather than “How are you?” Egad! My name was not on their admitting list! I did not have an appointment! After a couple of quick phone calls, a nurse escorted me to a locker room with a purple plastic bag. I was told to undress, change into hospital attire, and given foam slippers (correct size!). After almost managing the task of undressing and dressing with my good right arm, I was told to wait in the TV waiting area with several other day surgery patients. I walked back to the desk to ask for a blanket to cover myself to help stop the painful shivers. Tears welled up in my eyes, but it was the wonderful visitors in the waiting area who asked, “How are you?” and provided comfort. I was later moved to a recovery room to wait for surgery and spent the next eight hours observing the recovery process of day surgery patients. Many hospital personnel had little interest in patient care and apparently lacked any interest in finding out how the patients were doing. I repeatedly heard “You have to pee” and “We are closed at 7 p.m.” After hours of waiting, reflecting, and bearing the pain, I was transferred to the general surgery floor and the comfort of warm hands on my shoulder and the positive interactions of “How are you?”

So what happened to the 4th floor?

I do not need to be nice to her; I will not see this patient again.
It is just a fracture and the patient is not sick.
I am bored with my job and I am just not interested in her care.
We cannot waste time talking or we will never be able to close by 7 p.m.

Health care professionals occupy different work environments. Whatever the setting, the effect of this environment and personal interest are important factors influencing our patients’ well-being. None of us wants his or her work environment—it a dental office, a clinic, a school program—to resemble that cold 4th floor day surgery.

The words “How are you?” can be interpreted in various ways and different interpretations lead to different emotional reactions. The message we bring to others through the tone of our voice, our eye contact, our interest, and our care is a personal element that is an essential skill in our discipline of dental hygiene. We should examine how we communicate and look for the personal in even the most impersonal situations. There are occasions when we do not want to be personal—we are distracted, tired, busy, or just not interested. But we have to remember that the way we communicate with others can affect their feelings to a significant degree.

So how are you? ☺

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* Instructor and Undergraduate Education Coordinator in the Department of Community Health Sciences, Faculty of Medicine, University of Manitoba. A graduate of the University of Manitoba’s Dental Hygiene Program, Gladys has a BA in Anthropology and a MSc in Community Health from the same institution. Her research and academic interests are in population health, injury prevention, and community-based learning. Gladys is a past CDHA Board member, provincial president, was Scientific Coordinator of the 1999 CDHA conference, and is currently a member of the CDHA Scientific Advisory Group.

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GUEST EDITORIAL
Smoking Cessation and the Dental Hygienist

CDHA is conducting a research review of smoking cessation and the role of the dental hygienist. Smoking is a major cause of cancer and heart disease and is implicated in periodontal disease. Dental hygienists play an important role in educating clients about the risks of smoking and recommending effective smoking cessation interventions. This review will highlight and analyze the most recent research on this topic and give some direction to dental hygienists regarding their role in smoking cessation. Watch for and comment on the draft paper through a web site consultation. If you would like to share some smoking cessation information or research, please contact Judy Lux at <jal@cdha.ca>. The finished review article will be posted on the CDHA web site and published in Probe. This project has been made possible with the generous support of Pfizer, makers of Nicorette and NicoDerm.

“Access and Care: Towards a National Oral Health Strategy”

Symposium at University of Toronto, May 13–15, 2004

This symposium will offer a searching look at oral health policies in Canada. This is a timely and crucial examination for the following reasons: dentistry was not considered in the Romanow Report; there is no recent country-wide survey of Canadians’ oral health status; future dental provider roles or requirements are virtually unplanned for; no national dental care program for children and expectant women exists; hospital-based dental clinics have been closed; public programs for seniors and children have been cancelled; extreme limits exist on dental coverage for the poor and seniors; employer-paid dental insurance is provided free of income tax consequences.

Provider groups, all three levels of government, community organizations serving those who have difficulties accessing oral health care, employers, and dental insurance carriers should plan to attend.

The symposium is hosted by the Toronto Oral Health Coalition, George Brown College, and the University of Toronto, and sponsored by CDHA, the Canadian Association of Public Health Dentistry, Health Canada, and the Ontario Association of Public Health Dentistry.

For more information and how to register, please contact Continuing Education, Faculty of Dentistry, University of Toronto, at 416-979-4902, ext. 7.

“Staying the Course: Literacy and Health in the First Decade”

Canadian Conference on Literacy and Health: Ottawa, October 17–19, 2004

The Second Canadian Conference on Literacy and Health will bring together learners, practitioners, and leading experts from across Canada to discuss the health of Canadians with low literacy skills. The conference is hosted by the Canadian Public Health Association (CPHA) and sponsored by the National Literacy Secretariat of HRDC. CPHA has set up an on-line discussion group to help shape the conference program. To learn more about the conference, visit <www.nlhp.cpha.ca>. To become a member of the discussion group, e-mail <chiarelli@cpha.ca>.

New Diploma Program in Dental Hygiene

The APLUS Institute of Technology, Healthcare and Business in Thornhill, Ontario, will open a new advanced Dental Learning Centre with a Diploma Program in Dental Hygiene in March 2004. The 18-month program combines academic study with supervised clinical experience, incorporating advances in technology and courses in the biomedical, dental, clinical, and behavioural sciences.

The Institute, in operation since 1996, is registered under the Private Career Colleges Act by the Ontario’s Ministry of Training, Colleges and Universities, is a member of the Ontario and National Associations of Career Colleges, and is registered with the HRDC as an authorized training provider. It is at present non-accredited. More information can be obtained from their web site (www.aplusinst.com) or by contacting them at 905-907-8002.

New Brunswick activities — National Dental Hygienists Week 2003

Raising awareness of the need for good oral hygiene and of the role of dental hygienists prompted various activities around the province during National Dental Hygienists Week in October 2003. In Moncton, dental hygienists attended career fairs at several high schools and visited a preschool/daycare in Dieppe, and toothbrushes were distributed to the Moncton City Hospital and the Extra Mural Hospital. In Saint John, the local dental hygienist group sponsored the Canadian Blood Services for NDHW, providing blood donors with toothbrushes and posters and distributing pamphlets explaining the role of dental hygienists. They also manned a booth at the Saint John High school career expo and generated a great deal of interest in the field. In Fredericton, a display was set up at the Fredericton Mall, displaying a “Happy Tooth” and a “Sad Tooth” with the foods that caused one or the other. One brave dental hygienist dressed up as the Tooth and certainly got a lot of attention, especially from the children! Children received toothbrushes, stickers, pencils, and colouring contest sheets from the CDHA web site. As well, local radio stations ran ads for six days on the importance of brushing and flossing. In the Upper Saint John River Valley, a radio campaign was carried on in Grand Falls.
ABSTRACT

As more health professions have become self-regulating, regulatory authorities have adopted mandatory continuing education (CE) as a mechanism for ensuring standards of practice. Over the last decade, health science information has expanded exponentially and it has become essential that dental hygienists have access to current health information to remain competent. The purpose of this study was to determine dental hygiene preferences for CE content and attitudes toward various delivery formats. Survey questionnaires were mailed to all 1,324 active members of the Alberta Dental Hygienists Association and 663 were returned for a 50% response rate. Respondents identified “to increase knowledge” and “to maintain competence” as the most important for pursuing CE, with mean scores of 5.98 and 5.78 out of 7 respectively. The significant barriers to CE were identified as the cost of the course and travel (59%) and work schedule conflicts (47%). CE methods most frequently utilized in the previous 12 months were lecture-based (98%), audiotapes (21%), and home study programs (14%). When asked to select preferred delivery formats, 25% indicated that all delivery formats were equally suitable, 69% selected videotapes, 60% web-based programs, and 53% selected paper-based correspondence. Eighty per cent of respondents own computers, 80% use e-mail, and 49% rate their computer skill level as intermediate or higher. The main topics of interest included alternative health practices, biopharmaceuticals and antimicrobials, health promotion, and evidence-based practice skills. Dental hygienists are interested in participating in non-lecture-based and web-based CE delivery methods. CE providers must develop programs/courses that cover the desired content and include access to web-based and computer-driven formats.

Key words: Continuing education, educational technology, distance education

INTRODUCTION

Health professions more and more are becoming self-regulating, and regulatory authorities are adopting mandatory continuing education (CE) as a way to determine professional competence and to ensure standards of practice. Studies have shown that health professionals who pursue CE demonstrate a higher level of problem solving and leadership ability, and a higher degree of professionalism and job satisfaction. Mandatory CE requires the individual dental hygienist to upgrade his or her knowledge and skills and to provide evidence of participation in CE that is acceptable to the regulatory body.

The majority of dental hygienists, like physicians and dentists, work in single unit, private practices that typically do not have organized peer-review systems or professional networks that can assist them in determining their CE needs. These working environments often leave it to the individual to determine his or her specific learning needs and to select appropriate CE activities to meet them. Selecting appropriate courses can be difficult, particularly when advertised CE course descriptions do not always accurately reflect the course content.

Accessibility to appropriate CE activities can be hampered by the lack of a variety of CE formats, including computer-mediated programs. On-line dental CE courses available in the 1990s were very difficult to locate on the Internet and this made the information accessible only to people with well-honed computer retrieval skills. Studies in the 1990s found that dental hygienists had low computer skills and did not often use computers for accessing professional information. However, over the last decade, computers have become standard equipment in most dental and medical offices in Canada and the United States.

The emergence of the World Wide Web and the development of multimedia technologies have created corresponding opportunities for the development and delivery of computer-mediated CE health programs. Despite the rapid growth of the World Wide Web and computer technology, there continue to be limited numbers of computer-mediated dental hygiene CE programs available. In Alberta, little
is known about the attitudes of dental hygienists toward computer-mediated CE delivery. Are dental hygienists in Alberta ready and willing to accept computer-mediated CE as a viable delivery mode? Do they have access to technical equipment that will facilitate a variety of electronic CE formats? This study will attempt to answer these questions.

The purpose of this study was to identify dental hygienists’ willingness to participate in various CE formats. It also sought to identify dental hygienists’ access to computers and the technical capacity to receive various electronic CE formats, and to identify their perceived learning needs with respect to content, interest, and attitudes.

LITERATURE REVIEW

There is an identified shortage of relevant, accessible, and professional CE programs.2,15,24 Cost, distance, high registration fees, overnight stays, and incongruent objectives and content are most often cited by health professionals as reasons for not attending programs.2,24 Covington and Craig concur that geographic isolation, time away from families, subject matter relevance, quality of the course, and the cost are barriers cited by dental hygiene respondents.10 Symposia and conferences are the primary continuing education activity for the majority of health care professionals.2

Studies in the early 1990s investigated the information-seeking patterns of dental hygienists and found the preferred methods of accessing information included discussions with colleagues, printed information sources such as journal articles, mailings from professional associations, and “live presentations.”10,13-15 In all of these studies, electronic formats such as audio- and videotapes, Internet, computer-based instruction, and CD-ROM were the least used formats.10,13-15 Covington and Craig’s study revealed that 40% of dental hygiene respondents reported little or no computer skills.10 Gravois et al. found that 65% of dental hygiene respondents owned or had access to computers but a very small percentage (3%) used them for seeking professional information.12 Although identifying access to on-line CE was not the purpose of either of these studies, the findings appear to suggest that barriers to on-line CE could include a lack of technological skill and a lack of on-line CE courses.10,13-15 It must be noted that these studies had small samples sizes from narrow geographic regions.

The emergence of the World Wide Web in the early 1990s and the development of multimedia technologies over the last decade created new opportunities for the development and delivery of CE health programs.18-23 One medical study that investigated the information-seeking habits of primary and hospital physicians found that most participants had computers in their offices. Primary care physicians in single unit practices reported that the Internet was a very important mode of keeping up to date with their profession.9 Similarly, in 2000, a dental study revealed that 64% of the dentist participants’ accessed on-line dental CE through Internet connections from their offices, 31% from home and 3% from a library.16

Cobb’s 2002 study of Canadian dental hygienists’ access to electronic media revealed that 70% of respondents had a computer in their home and over half of these had Internet access. The majority of respondents in this study also indicated they were comfortable using the computer and email.7 Finley-Zarse and others investigated the information-seeking behaviours of practising dental hygienists and full-time dental hygiene educators.25 The results of this study showed that while both dental hygiene groups used traditional information sources as the primary resource for professional information, dental hygiene educators used computer sources at a higher frequency than did the dental hygiene practitioners. Even though practitioners showed a lower rate of use than did educators, a substantially greater percentage of dental hygiene practitioners used electronic information sources than was recorded in earlier studies.25

The move of medical and dental offices to a greater reliance on computers has required health care personnel to attain more technical skills in order to function on a daily basis.16-18 Increased user-comfort and exposure to computer technology has been shown to lead to a greater increase in the acceptance of the computer as a teaching and learning tool and as an education delivery format.26-28 In contrast, Francis and others found that dental participants’ enthusiasm and acceptance of on-line continuing dental education (CDE) programs was independent of computer experience or Internet skills.19 A majority of dental participants in this study indicated they would choose this option again and would refer the course to other dental professionals.19

Despite the rapid change in multimedia technology, traditional lecture-based education continues to be the primary delivery format for formal and continuing education in Canada. A recent study showed that although a number of dental hygiene programs in the United States utilized computer delivery formats (22% of all degree and degree-completion programs), only one program had developed courses specifically for CE.22 Evaluation of this one program indicated that the majority of dental hygiene participants were satisfied with computer delivery as an alternative to classroom education.22 A four-year comparison study of face-to-face delivery versus computer-delivery dental hygiene education showed that learners at both sites performed equally well.23

As computer-mediated formal education gains more momentum, there is a corresponding move toward computer-mediated CE program development.19-21 By understanding the current technical skill levels of dental hygienists and their willingness to participate in a variety of multimedia CE delivery formats, CE developers in Alberta will be better prepared to develop appropriate computer-mediated CE formats. The availability of a variety of delivery modes will afford greater opportunities for dental hygienists to select CE courses that are consistent with a variety of learning preferences.

METHODS

The survey research design was chosen to describe characteristics of a given population and to give participants an opportunity to indicate preferences on a number of variables. The population for the study was the membership of the Alberta Dental Hygienists’ Association (ADHA), which consists of all dental hygienists in Alberta who are licensed to practise. A mailed questionnaire was selected to provide all active members of the association with an opportunity to participate. The survey instrument used in this study was
developed based on the barriers, accessibility issues, motivating factors, and content preferences identified in a previous study conducted by the Faculty of Pharmacy at the University of Alberta.²⁹

This survey was delimited to active members of the ADHA, as all were within the same regulatory jurisdiction and would likely access CE from similar sources. The total population of active dental hygienists registered with the ADHA were included in the survey, to ensure that a sufficient number of responses were received for confidence in the data.

One limitation of survey research is the inherent bias in the potential for non-response; consequently, mechanisms were implemented to reduce any potential effect of this bias. Two different potential types of non-response bias have been identified in the literature—unit non-response and item non-response.³⁰,³¹ To reduce the potential for item non-response, the survey questionnaire was reviewed by practising dental hygienists to determine the clarity of the questions, readability, and ease of completion. It was pre-tested on a convenience sample of 10 practising dental hygienists who were clinical instructors in the U of A's dental hygiene clinic. Minor adjustments to increase item response were made to the instrument following the pre-test, prior to mailing.

Unit non-response refers to the unit of analysis, in this case the individual respondent. Some studies have found that responders tended to have higher academic qualifications.²⁹,³¹ Barriball and While's study of views and perceptions related to continuing professional education found that regular CE attendees were more likely to respond.³⁰ The nature of non-response phenomena is very complex, and most authors agree that careful attention to detail in the study design can reduce both unit non-response and item non-response,³⁰,³⁵ consequently reducing bias in the results. Both unit and item response were addressed in this study design.

Ethical approval to conduct this study was received from Health Research Ethics Board Panel B at the University of Alberta. Funding for this study was received from The Fund for Dentistry Grant Number 2000-13. The survey questionnaire was mailed to 1,324 active members in June 2002 with a July 15 return date. Pre-addressed return envelopes were included in the mailing to reduce unit non-response. There were 663 completed questionnaires returned within the time frame of this study, for a response rate of 50.2%. Nine envelopes were returned as the addressee had moved, and seven questionnaires were received too late to be included in data entry. To protect the confidentiality of respondents, questionnaires were anonymous and were returned to a third-party research assistant.

Data from the 663 questionnaires that had been received within the time frame of this study were entered into the Statistical Package for the Social Sciences (SPSS) software program and analyzed using descriptive statistics, including frequencies and measures of central tendency.

RESULTS

Over 60% of respondents were under the age of 40 years, with the largest group of respondents (19.8%) aged 30 to 34 years. A further 17.9% were aged 25 to 29, and 17.3% were 35 to 39. Table 1 shows the frequency distribution of respondents by age categories. A further column has been added to this table to include the age distribution of the Alberta Dental Hygienists' Association (ADHA) members. Comparing the distributions of respondents to members illustrated that the respondents were representative of the total membership for the characteristic of age.

The majority of respondents (53%) had been registered to practise in Alberta for 10 years or fewer, with 29.6% practising for fewer than 6 years and 23.4% practising for 6 to 10 years. This compared with 29.6% and 14.3% respectively for the membership, suggesting that the respondents who have been practising for fewer than 6 years were representative of the membership for that characteristic. It was not possible to compare number of years registered in Alberta for respondents and members beyond 10 years as the study data and ADHAs membership data were not captured in a consistent format.

The majority of respondents (79.5%) held a dental hygiene diploma, 17.2% held an undergraduate degree, 2.4% held a graduate degree with 0.3% holding a PhD. This characteristic differed slightly for the general membership, with 65.8% holding a diploma, 31.7% holding an undergraduate degree, 2.3% holding a graduate degree with 0.2% holding a doctorate.

Respondents were geographically distributed through differing community sizes, with 101 or 15.3% from communities with fewer than 10,000 population, 205 or 31.2% from communities between 10,000 and 100,000, and 352 or 53.5% from communities with a population of 100,000 or more. In Alberta, Edmonton and Calgary represent the communities with populations greater than 100,000, suggesting that the respondents who were employed on an occasional basis. A further 41.3% were employed part-time, and 1.4% indicated full-time, 41.3% were employed part-time, and 1.4% indicated they were employed on an occasional basis. A further 11 respondents (1.7%) indicated that they were unemployed but wrote in the margin of the questionnaire that they were on maternity leave.

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>%</th>
<th>ADHA members %</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 or under</td>
<td>38</td>
<td>5.7</td>
<td>5.8</td>
</tr>
<tr>
<td>25 to 29</td>
<td>119</td>
<td>17.9</td>
<td>18.6</td>
</tr>
<tr>
<td>30 to 34</td>
<td>131</td>
<td>19.8</td>
<td>19.3</td>
</tr>
<tr>
<td>35 to 39</td>
<td>115</td>
<td>17.3</td>
<td>17.5</td>
</tr>
<tr>
<td>40 to 44</td>
<td>109</td>
<td>16.4</td>
<td>14.8</td>
</tr>
<tr>
<td>45 to 49</td>
<td>94</td>
<td>14.2</td>
<td>13.9</td>
</tr>
<tr>
<td>50 to 54</td>
<td>37</td>
<td>5.6</td>
<td>5.9</td>
</tr>
<tr>
<td>55 to 59</td>
<td>19</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>60 or over</td>
<td>1</td>
<td>0.2</td>
<td>1.3</td>
</tr>
<tr>
<td>Total</td>
<td>663</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 1. Frequency distribution of age of respondents and age of ADHA member population
The mean number of continuing education (CE) activities attended by respondents in the previous 12 months was 4.7, with a mode of 3 and a median of 4. Respondents were asked to rank reasons for participating in CE using a scale of 1 to 7 to describe perceived importance. Mean scores were calculated for the rankings. Respondents could also choose “All of these are of equal importance.” Two hundred and eleven respondents (31.8%) indicated that all reasons were of equal importance. For those who ranked the other choices in order of importance, “To increase knowledge” received the highest mean score at 5.98, followed by “To remain competent” at 5.78. Table 2 illustrates the reasons and mean scores for the rankings (excluding “all reasons are of equal importance.”) Cross-tabulation of the variables “number of CE activities attended” and “population size of home community” showed little difference between the number of CE activities attended by those living in large or small communities.

Respondents were asked to rank order a set of statements (using a scale of 5) to indicate their attitude toward continuing education. They could also choose to respond, “All of these are of equal importance.” Four hundred and sixty-six respondents (70.3%) responded that all were of equal importance. Of the remaining statements, “Health consumers have a right to expect dental hygienists to upgrade their knowledge and skills” was ranked the highest with a mean ranking of 4.05 on a scale of 5. Table 3 displays the attitudinal statements and their mean rankings.

Respondents were also questioned about barriers or obstacles to their participation in continuing education programs. Respondents could check any of six stated obstacles that applied or could write in any other(s) that they experienced. Percentages will add up to greater than 100% to account for multiple responses. The most frequently identified obstacle was “Cost of course/travel,” identified by 393 respondents (59.3%). Other obstacles included “Conflict with work schedule,” identified by 311 respondents (46.9%), and “Topic is not relevant or interesting” (306 or 46.2%). Table 4 displays the frequency distribution of responses for the obstacles specified in the questionnaire. Twenty respondents indicated “Other,” with six (0.9%) indicating “Not convenient,” four indicating that their maximum CE credits had been obtained, three indicating “Topics not current,” and several single responses indicating “Lectures are non-interactive,” “Unaware of options,” and “Lack quality CE.”

Nineteen percent of respondents had 100% of their CE expenses paid by their employer while 37.7% did not receive any assistance from their employer for continuing education expenses. The remainder fell between with 8.7% having from 0%–24% of expenses paid by their employer, 6.9% having 25%–49% paid by their employer, 16.1% having 50%–74% paid by their employer, and 10.6% having 75%–99% paid by their employer. Twelve respondents indicated that they had access to professional development funds through their place of employment.

### Table 2. Mean rankings for statements that best describe why respondent participates in continuing education

<table>
<thead>
<tr>
<th>Reason for participating in CE</th>
<th>Mean ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>To increase knowledge</td>
<td>5.98</td>
</tr>
<tr>
<td>To remain competent</td>
<td>5.78</td>
</tr>
<tr>
<td>For self-improvement</td>
<td>5.54</td>
</tr>
<tr>
<td>CE is mandatory</td>
<td>4.64</td>
</tr>
<tr>
<td>To secure professional advancement</td>
<td>3.36</td>
</tr>
<tr>
<td>To network with colleagues</td>
<td>3.32</td>
</tr>
</tbody>
</table>

### Table 3. Mean rankings of respondents to a set of attitudinal statements

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean ranking (scale of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health consumers have a right to expect dental hygienists to upgrade their knowledge and skills</td>
<td>4.05</td>
</tr>
<tr>
<td>CE participation is an ethical responsibility</td>
<td>3.70</td>
</tr>
<tr>
<td>CE participation by dental hygiene professionals upgrades the profession</td>
<td>3.50</td>
</tr>
<tr>
<td>Mandatory CE is beneficial to the profession</td>
<td>3.32</td>
</tr>
</tbody>
</table>

### Table 4. Frequency distribution of responses to specified obstacles

<table>
<thead>
<tr>
<th>Specified obstacle</th>
<th>n =</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of course/travel etc.</td>
<td>393</td>
<td>59.3</td>
</tr>
<tr>
<td>Conflict with work schedule</td>
<td>311</td>
<td>46.9</td>
</tr>
<tr>
<td>Topic not relevant or interesting</td>
<td>306</td>
<td>46.2</td>
</tr>
<tr>
<td>Conflict with family commitments</td>
<td>250</td>
<td>37.7</td>
</tr>
<tr>
<td>Lack of accessible CE</td>
<td>184</td>
<td>27.8</td>
</tr>
<tr>
<td>Lack of time</td>
<td>169</td>
<td>25.5</td>
</tr>
</tbody>
</table>

* Note that respondents could choose multiple options so percentages will total more than 100

### Table 5. Frequency of participation in various types of continuing education activities

<table>
<thead>
<tr>
<th>Continuing education activity type</th>
<th>n =</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face-to-face workshops/presentations</td>
<td>649</td>
<td>97.9</td>
</tr>
<tr>
<td>Audiotapes</td>
<td>137</td>
<td>20.7</td>
</tr>
<tr>
<td>Home study programs (paper format)</td>
<td>91</td>
<td>13.7</td>
</tr>
<tr>
<td>Videotapes</td>
<td>49</td>
<td>7.4</td>
</tr>
<tr>
<td>Computer courses</td>
<td>34</td>
<td>5.1</td>
</tr>
<tr>
<td>Web-based courses</td>
<td>25</td>
<td>3.8</td>
</tr>
<tr>
<td>Videoconferencing</td>
<td>17</td>
<td>2.6</td>
</tr>
<tr>
<td>Telephone conferencing</td>
<td>9</td>
<td>1.4</td>
</tr>
</tbody>
</table>

* Note that respondents could choose multiple options so percentages will total more than 100
287 or 43.3% did so. The remaining respondents' choices in order of preference were lecture with participation, lecture, case studies (problem-solving approach), interactive scenarios, and small group discussion. Only three respondents indicated they would like “other” delivery formats, but did not specify.

Respondents were then asked to select from a list of distance delivery methods for continuing education those in which they would be interested in participating. Again they could choose the option “All are equally acceptable” and 156 or 23.5% selected it. The order of preference for the remaining options was home study videotapes (343 or 51.7%), on-line computer-assisted programs (298 or 44.9%), correspondence courses (paper format) (266 or 40.1%), packaged computer-assisted programs with printed documents (216 or 32.6%), home study audiotapes (187 or 28.2%), and videoconferencing (76 or 11.5%). Twenty respondents (3.0%) chose “other” and specified live and interactive.

Given that one of the intents of this study was to determine dental hygienists’ willingness to consider alternate delivery formats for continuing education, it was important to investigate their access to and familiarity with computers and software. Of the respondents, 567 (85.5%) reported owning a computer with 43.3% of the computers less than two years old and a further 21.6% being three years old. Two hundred and seventy-three (45.6%) had a telephone modem and 233 (38.9%) had a cable modem. The majority of respondents (379 or 67.1%) reported using Internet Explorer as their browser with 139 (21.0%) using Netscape. Slightly less than half of respondents (46.2%) self-reported their computer experience as “beginner,” with 41.5% self-reporting “intermediate skill,” and 7.5% self-reporting “very skilled.” The remaining 4.8% classified themselves as having “no experience.”

When asked to indicate their immediate feelings about online web-based continuing education by checking any responses that applied from a given list, 65.4% of respondents indicated they were “receptive to the idea” and 192 or 29.0% indicated they would “enjoy the challenge.” Ninety respondents (13.6%) felt they “don’t have the skills to do it” while 29 or 4.4% felt “it would take too much time to learn how to do it.” A further 90 respondents (13.6%) chose the response “I don’t know.” Percentages may add up to greater than 100% as respondents could choose multiple options.

As the purpose of this study was to investigate preferences for content as well as delivery, respondents were asked to rank their top five choices from a list of possible topics for continuing education. They could also add other topics if they chose. Topics chosen in order of preference were as follows: product information and recommended usage; alternative medicine/herbal medicine; biopharmaceuticals and antimicrobial therapies; current health promotion issues; anesthetic/contraindications; how to improve skills in evidence-based practice; aging and related conditions; neuro-muscular conditions (MS, CP, ALS, etc); how to search for dental hygiene topics on the web; client-centred care communications; management of special needs clients; ethical issues; developmental conditions; mental illness; and different practice business plans. Other areas of interest as specified by respondents included current periodontal treatment strategies, degree completion on-line, oral health research, technical workshops, pediatric, practice management, medical emergencies, pharmaceuticals, and radiation protocol.

**DISCUSSION**

Comparing these survey findings with the ADHA registration data shows that respondents in this study were representative of the hygienists in Alberta for the characteristics of age, and years of practice fewer than 10 years. It was not possible to compare beyond 10 years. Respondents differed somewhat for the “characteristic of education” credential, with a greater number of respondents with an undergraduate degree than were found in the total population of hygienists in Alberta. More than half of the respondents were from major urban centres, Calgary and Edmonton.

The overwhelming majority of respondents (94.3%) were currently employed in clinical practice settings. Working in isolation from peers increases the responsibility to determine their learning needs and to develop their own learning plan. Respondents were most likely to have attended three CE activities in the previous 12 months, although the questionnaire did not ask the number of hours of each activity. All of the stated reasons for participating in CE were considered equally important for 31.8% of respondents. The remainder responded that they attended CE primarily to increase their knowledge and to remain competent. In Alberta, dental hygienist registrants (whether active or inactive) are required to achieve a minimum of 75 credit hours of continuing education in a given five-year period. Supporting documentation must accompany their application for approval of the continuing education (CE) courses taken and all courses must be relevant to their professional practice.

Most hygienists had similar attitudes to continuing education with 70% ranking all statements from the given list to be of equal importance. The remainder ranked “Health consumers have a right to expect dental hygienists to upgrade their knowledge and skills” as their top choice. This is consistent with literature that shows there is growing awareness of the public and their expectation for quality care. The most frequently identified barriers were the cost of the course/travel, conflict with work schedules, and a perception that the topic was not relevant or interesting. This is consistent with studies in other professions. Respondents from smaller centres, with populations fewer than 10,000 (43.5%), were more than twice as likely to perceive a lack of accessible CE as a barrier than respondents from larger centres with populations greater than 100,000 (19.9%). To determine whether these differences were significant, the chi square test was used. Chi square analysis using a three (location) by two (perception of barrier) contingency table revealed a significant relationship between population size and perception of lack of access to CE ($\chi^2 = 27.61, df 2$) for a 99.5% confidence level. This suggests the need to consider alternative delivery mechanisms such as computer-mediated strategies. The majority of respondents prefer to attend CE activities in October and November, February, March, and April. Expanding to alternative forms of delivery would increase flexibility of access for those who prefer other times of the year. This information could be very useful for planners of CE programs.
Nearly half of the respondents found a broad spectrum of “live” delivery formats acceptable. Further to this, 23.5% of respondents found all options from a specified list of distance delivery methods to be equally acceptable. The top preferences were home study videotaped courses, online computer programs and correspondence courses (paper format). This finding suggests that responding dental hygienists are interested in a greater range of delivery formats than is currently available in Alberta. The majority of respondents were receptive to the idea of web-based continuing education delivery.

The majority of respondents (85.5%) owned a computer and 65% of the computers being fewer than three years old. The technical capability of the newer computers enables faster access to a broader range of delivery formats. The type of modem connection to the Internet will have an impact on the range and use of different delivery formats. In this study, 45.6% had telephone modem connections, which would mean that course designers would have to design CE courses with this limitation in mind. Nearly half of the respondents (49%) rated themselves as having an intermediate or a high level of computer skills and only 4.8 % reported no computer experience. This represents a dramatic change in dental hygienists’ computer use and skill from that found in previous studies.10,11,14

It is clear that the trend toward electronic CE delivery is here to stay. The conventional lecture format for CE, although acceptable, is less flexible and less adaptable to the learning needs, styles, and thinking of the individual.16-37 CE facilitated through a wide range of multimedia instruction technologies has been shown to be as effective, if not more effective, than face-to-face learning in providing rich learning opportunities and in student achievement.22,23,38 Computerized delivery formats enable multiple learners to engage in analysis, synthesis, and discussion of the information at hand, which leads to a deeper understanding of the meaning of the content.38 Multimedia computer-based delivery formats can accommodate many different learning styles. Text-based software with hyperlinks to topic-related sites are suitable for those who learn best by reading. Recorded presentations viewed on a computer are appropriate for auditory learners while written text with interactive visuals and illustrations emphasizing key points of interest provide a range of options for participants who enjoy a variety of learning approaches.37

CE programmers must consider the expressed wishes of the target audience when selecting and developing the content of future CE programs. This study investigated preferences for content and found that the top six choices were product information and use, alternative/herbal medicine, biopharmaceuticals and antimicrobial therapy, current health promotion issues, anesthetic/contraindications, and how to improve skills in evidence-based practice. CE providers are challenged to develop programs to meet the identified needs of health professionals in order to provide the knowledge they are seeking.

CONCLUSION

In the early and mid-1990s, several studies identified that dental hygienists were not eager to pursue computer-based CE delivery formats.10,14 Reasons for the lack of enthusiasm may have included the lack of exposure to multimedia technology, the lack of accessible and appropriate computer-mediated CE programs, and the lack of computer experience.

However, these issues were not addressed. Recent research on dental hygienists’ exposure and use of computers demonstrates a marked increase in their comfort with electronic technology and a greater acceptance of the media as a delivery format.6,25

Computer interest and computer anxiety has been demonstrated to be associated with length of exposure and level of skill with technology.26-28 The literature also supports that computer-mediated delivery mechanisms are effective in appealing to a wide variety of learning styles.38

This study has clearly demonstrated that Alberta dental hygienists are comfortable using computers and desire access to computer-mediated CE programs. Program developers and providers should be utilizing this medium for the delivery of dental hygiene CE programs.

ACKNOWLEDGMENTS

The authors of this study would like to thank their student research assistant Helen Chung for her conscientiousness, efficiency, and attention to detail in assisting with the mailing and tabulating the data of this study.

REFERENCES

Training and Utilization of Dental Hygienists in Kuwait: Results of a Survey

by Jassem Al Ansari,* DDS, MSD, DSC, and George M. Gillespie,** DDS, MPH

ABSTRACT

The College of Health Sciences, Kuwait, commenced the education of dental hygienists in 1989. From 1991–2001, 79 hygienists were trained in Kuwait in a 26-month program. The purpose of this study was to assess the extent to which practising dental hygienists were utilizing the knowledge gained in training and to identify expressed future needs. A survey questionnaire was distributed to 66 employed dental hygienists in the private and public health sectors in Kuwait. A response rate of 100% was achieved. Of the respondents, 80% were Kuwaiti with national diplomas; 98% of all graduates were trained in and are practising health education, application of fluorides, extra and intra oral examinations, scaling; 98% of respondents had been trained to apply sealants, but only 77% were currently applying that knowledge. X-rays, root planing, oral hygiene indices, and use of antimicrobials were the skills that were most often taught but not applied. Thirty-eight per cent of respondents reported working with assistants. Ninety-two per cent indicated that they were given respect by clients, and 75% by dentists. The most expressed needs were for continuing education, dental assistants, and access to post-diploma education. Changing technology highlights the need for continuing education programs for dental hygienists and for access to post-diploma education. Public programs and private practices should be advised of the skills acquired and honed in continuing education, and subsequent practice should utilize fully the skills of the trained dental hygienists. Greater promotion of the role and value of the dental hygienist should be made by the dental profession.

Keywords: Oral health, dental hygiene, training, utilization, Kuwait

INTRODUCTION

The concept of preventive dentistry for the public was advanced in 1845 and subsequently the need for a subspecialty in dentistry to address oral disease prevention.1,2 Albert Fones conceptualized a preventive oral health worker as early as 1913 and established the first school for the training of dental hygienists in Connecticut, United States.3 Dental hygiene is the study of preventive oral health care and the management of behaviours that are needed to prevent oral disease and to promote health. The central concepts in dental hygiene include the client, the environment, health, oral health, dental hygiene actions, their relationships, and the factors that affect them.4 The dental hygienist has been defined as a licensed professional member of the health care team who integrates the roles of educator, consumer advocate, practitioner, manager, change agent, and researcher to support total health through the promotion of oral health and wellness.4

Dental hygienists were first educated and introduced as a preventive agent, health educator, and effective community health worker in the United States.5,6 Dental hygienists were subsequently educated and utilized in other countries. The curriculum was similar to that of the United States, but the economic, social, and health service environments were different.

The State of Kuwait, occupying a territory of 17,818 square kilometres, is in the Middle East, with borders on Saudi Arabia to the south and southwest, Iraq on the north and northeast and the Arabian gulf to the east. In 1995 the population was 1,575,570 of which 41.5% were Kuwaitis distributed in five major regions. By 2002, the population had grown to 2,275,000 of which 884,550 (38.9%) were identi-
Kuwait dental hygiene curriculum (students require 68 credits to graduate)

The population of Kuwait in 2000 was 2,243,800. With 717 dentists in the Ministry of Health service (225 of whom were Kuwaiti citizens),10 and 145 dentists in private practice, the total number of dentists in the country was 862.

This gave an overall dentist-to-population ratio of 1:2,602.10

There is a shortage of dental hygienists in Kuwait with only 74 practising clinical dental hygienists (57 Kuwaiti and 17 non-Kuwaiti). The ratio of dental hygienist to dentist for the Ministry of Health service dentists is 1:9.6. When one considers both government and private practice dentists (862), the ratio is 1:11.6.9

In 1988, the Ministry of Health requested and authorized the education and training of dental hygienists in view of the lack of national dental hygienists and the need to improve the delivery of oral health services to the population. This decision was taken in view of the shortage of dental hygienists, the need to develop local resources, and the lack of availability of suitable foreign graduates. At the time, there were only five dental hygienists, none of whom were Kuwaiti. The College of Health Sciences, Public Authority for Applied Education and Training (PAAET), Kuwait, had been established in 1982. It started the program for Kuwaiti dental hygienists in 1989.11 There were initially 12 dental hygiene students; the program currently graduates approximately 8 students per year.

Only one dental hygiene diploma program is offered in Kuwait via the College of Health Sciences (PAAET) in Kuwait City. The program, patterned after that utilized in the United States and with the advice and input of local Kuwaiti practitioners and well-known international consultants,12,13 is available to Kuwaiti nationals and to a limited number of scholarship students who are not Kuwaiti citizens (5%) from Gulf Cooperation Council (GCC) countries.

Entry requirements are graduation from high school with a 2.5 GPA out of a possible GPA of 4, the successful completion of science subjects, and declaration that the candidate is medically healthy and fit to undertake the program.

The curriculum (see Table 1) is based on a credit system and extends over a 26-month period,14 composed of two semesters of 14 weeks per year and a summer session of community experience. The average requirement is 17 credit hours per semester. In order to graduate, a student must have passed all required subjects and have a GPA of over 1.5 out of a possible 4, the minimum requirement for all subjects taught in the College for Health Sciences (PAAET). Obtaining a higher GPA confers additional categories of distinction.

There is no periodic formal accreditation process currently in place for the dental hygiene program at PAAET. Over the period 1990–2001, 79 dental hygienists have earned diplomas in dental hygiene, 3 dental hygienists have baccalaureate degrees from U.S. universities, and 3 have earned masters degrees from U.S. universities. No Kuwaiti dental hygienist currently holds a doctoral degree.

The education of Kuwaiti dental hygienists is government sponsored and they are guaranteed employment in the government sector following graduation. To practise, a dental hygienist must graduate from a dental hygiene diploma program approved by the Ministry of Health.

Dental hygienists are regulated and licensed to practise by the Ministry of Health’s Office of Dental Administration. This body is staffed by dentists and is responsible for the regulation and practice of oral health professions. Decisions regarding the dental hygiene profession are made without input from dental hygiene. In addition to these powers, the Office also can determine the program for dental hygiene education at the College of Health Sciences or terminate the program if it is considered unnecessary by society.

Licensure candidates from the United States are required to pass a national dental hygiene examination to evaluate their knowledge and scientific basis for practice prior to receiving a licence. Foreign-trained dental hygienists are also required to sit a Kuwait exam and meet the criteria of the Ministry of Health prior to employment.

Upon graduation, dental hygienists, under a dentist’s general supervision, can work within clinics of the Ministry of Health (primarily in the public clinics, specifically in government medical centres providing primary health care and general dental clinical practice); the Kuwait Oil Company; and the armed services or the military hospital. There are currently no Kuwaiti dental hygienists working in private practice. However, there are foreign graduates, some of who are dentists, who are working as dental hygienists in private dental clinics. Foreign-educated dental hygienists are permitted to practise in Kuwait provided they meet the standards and conditions of the Ministry of Health.15

They, like Kuwaiti-trained dental hygienists, are not permitted to work in private practice.

Dental hygienists carry out the dentist’s instructions and treatment plans under general supervision, depending on the program in which they are working. An example of a job description for dental hygienists in Kuwait is shown in Figure 1.16
The graduate should be able to do the following:

MATTERI AL S AND M ETHODS

A questionnaire identifying the major areas of dental hygiene training in the regular curriculum, with emphasis on 15 clinical functions, was developed, pre-tested, and distributed to 66 dental hygienists currently practising in the private and public health sectors. Informed consent was obtained from the Ministry of Health and the participants, and a follow-up visit was made to all respondents. Replies were analyzed for dental hygiene procedures performed by years since graduation, current practice setting, and nationality (Kuwaiti and non-Kuwaiti). Statistical analysis was performed applying chi-square and non-parametric asymmetric two-tailed tests.

RESULTS

A 100% response rate was received for the questionnaire from the 66 dental hygienists. Eighty per cent of the respondents were Kuwaiti with national diplomas. The Kuwaiti dental hygienists, educated in a government-financed program, worked in the public sector while the non-Kuwaitis worked mainly in private practices. The majority of the dental hygienists (69.24%) received a 26-month training course. Ninety-eight per cent of all graduates were trained in and are applying radiographs, but 62% were not using this skill in practice.

There were no significant differences in the education and clinical functions performed between dental hygienists who had graduated fewer than five years ago (44.6%) and those who had graduated more than five years ago (55.38%). However, a two-tailed non-parametric test did identify a significant difference between these two groups (p = 0.05) when dental hygienists with more than five years’ experience indicated that they were asked to perform functions for which they had not been trained.

With regard to specific functions, the following figures emerged:

- 98% had been trained to apply sealants but 23% were not applying them in practice
- 97% of respondents stated they were trained to take and expose radiographs, but 62% were not using this skill in practice

* The 15 clinical functions are fluoride application, extra- and intra-oral examination, occlusion, CPITN, use of the explorer, scaling, root planing, radiographs, motor polishing, air polishing, oral hygiene index, oral hygiene education, deplaqing, anti-microbial, and sealants.

Figure 1. Job description for a dental hygienist, Kuwait, 2002. From the Ministry of Public Health, Kuwait

- 94% were trained to apply antimicrobial agents but 38% were not applying them
- 71% would like to seek further education
- 35% also perform assistant duties
- 60% did not use high-speed evacuation
- 62% did not work with an assistant
- 80% perform oral hygiene for orthodontic patients
- 83% had been trained in CPR
- 1.55% worked standing up

Applying a chi-square Fisher’s Exact two-tailed test to both Kuwaitis and non-Kuwaitis, significant differences (p ≤ 0.05) were found between training and application of skills in the following areas: root planing (p = 0.027), root debridement (p = 0.018), and use of antimicrobials (p = 0.015). With just Kuwaitis, the significant differences were root debridement (p = 0.025) and use of antimicrobials (p = 0.041). Fifty-two per cent stated they were able to use computers but the level of skill and applications were not assessed. Ninety-two per cent indicated that they were given respect from the clients and 75% indicated respect from dentists.
The most expressed needs by the respondents were for continuing education (52%), dental assistants (27%), and the establishment of a bachelor’s degree program (10%). The performance of additional clinical functions, such as administration of local anesthesia, simple restorations, and fissure sealants for adults was also mentioned by 27%. There was general consensus on the need for more extensive use of audiovisual materials and ready access to the Internet for students in order to obtain current information and to participate in distance learning. The need to establish an association for dental hygienists, with representation at oral health policy levels and with international access (to attend international dental meetings and conferences as well as represent Kuwaiti dental hygienists on international dental hygiene bodies) was also expressed.

**DISCUSSION**

Dental hygienists in several other countries currently perform not only in the role originally envisaged for them—preventive oral health workers and educators employed in dental practices—but also in practice settings such as long-term care facilities, facilities for persons with disabilities, community health centres. In some areas they provide other services such as suture removal, local anesthesia administration, and limited restorations. The dental hygienist has been considered a co-therapist with the dentist and an integral part of the oral health team. The American Association of Dental Schools (now the American Dental Education Association) and established national dental hygienist associations have reviewed and provided recommendations for development of the profession. The Canadian Dental Hygienists Association’s (CDHA) recommendations to the commission reviewing of health services in Canada in 1988 covered regulation and supervision, practice standards, quality assurance, improvements in education, and a larger role for dental hygienists. Some of the recommendations of the Canadian Dental Hygienists Association to the Standing Committee on Health were included in the committee’s recommendations to the House of Commons in June 2003. These recommendations would further expand the capabilities of the dental hygienist in dental practice.

Dental hygienists also now play a more active role in the maintenance and supervision of patients undergoing orthodontic treatment or tooth realignment in what can be referred to as a collaborative practice. In most countries, dental hygienists work under the supervision of a dentist, although since the 1980s, certain states in the United States and provinces in Canada have permitted unsupervised practice. Increased public awareness of oral health, and the need to satisfy the demand for oral health care, required new and alternative approaches to the provision of services. Needleman indicated an expanding role for dental hygienists in view of the greater recognition of the need for oral hygiene and the relationships between oral health and systemic diseases. Changes occurred in the patterns of dental practice with the introduction of new concepts, new techniques, and new approaches to health care and maintenance of the oral cavity. The education and participation of the dental hygienist have changed in accordance with the needs of the oral health team.

The dental hygienist/dentist ratio is 1:11 in Kuwait. Assuming that Kuwaiti citizens make up 45% of the population, the dental hygienist to Kuwaiti population ratio is 1:12,129. For the total population, the ratio is 1:30,322. Therefore, in order to make services responsive to the public need and to achieve dentist/dental hygienist and dental hygienist/population ratios that are comparable to those in the United States (estimated dental hygienist/dentist ratio of 1:1.3 in the year 2000), it is obviously necessary to increase the number of dental hygienists. In addition, the ability of dental hygienists to provide services could be enhanced by adding dental assistants to the work team.

Based on results of this survey of 15 clinical activities, it is evident that most dental hygienists in Kuwait are performing the functions for which they were educated, and virtually all are participating in health education, extra- and intra-oral examinations, prophylaxis, and application of fluorides for prevention. Although all were trained to apply sealants, these are included mainly in clinic programs for primary school children. Consequently, the dental hygienists who are not involved in those programs are not utilizing this skill. In the case of radiographs, the dental hygienists are trained to take and expose these. However, local regulations specify who can undertake this function in the government clinics where X-ray technicians may perform this function.

In this regard, Kuwaiti dental hygienists play a reduced role in oral health care delivery when they are compared with their counterparts in North America and Canada. The most notable elements are that their sole source of employment is with the government and that they work in dental centres with pre-selected patients. They do not work in independent or private offices; conduct intra-oral assessments or evaluation and recall examination; or have maintenance and follow-up responsibilities. Clinical functions are limited to tooth debridement in general dental centres, and placement of sealants in pedodontic centres. They do not take radiographs, participate in practice management, and have no specific dental hygienist association.

The finding that dental hygienists who had graduated more than five years previously were asked to perform tasks for which they were not trained indicates the changes occurring in the provision of oral health services and the need for planned continuing education. Further studies are required to identify those additional tasks for which the dental hygienists were not trained and to form proposals for government development of future oral health services.

Gibbons, for example, in a study of dental hygienists in the United Kingdom, identified the commitment of dental hygienists to continuing education and personal development. Seventy-five percent had attended a training course in the year prior to the survey; 70% had attended scientific meetings.

Additional subject areas should be considered for inclusion in the current dental hygiene curriculum: reinforcement of computer literacy, information technology, clinic management, provision of local anesthesia, chemotheraphy, pre-surgical patient preparation, post-surgical management and evaluation, as well as specific clinical needs required by the local programs and dental practice. Training should also contemplate and make provision for home visits to deliver...
oral hygiene and for treatment for persons with disabilities. Carrying out these functions under supervision would permit a more cost-effective use of facilities and manpower and provide access and improved oral health to a greater sector of the population.

As mentioned previously, there is no dental hygiene representative within the regulatory structure of the Office of Dental Administration. With the dental hygiene profession having completed a decade of training programs and its members numbering 100 and growing, it seems appropriate to consider forming an association to further dental hygienists' educational, employment, collegial, and international collaborative interests.

CONCLUSIONS

The changing approach to the provision of oral health services and the introduction of modern technology highlights the need for continuing education programs for dental hygienists and access to post-diploma education. Public programs and private practice should be made more aware of the skills acquired by dental hygienists during their education and should fully utilize these skills in subsequent practice. As well, there is a proven increase in efficiency when dental hygienists work with a dental assistant (four-handed dentistry) and consideration should be given to training in this area and the routine use of high-speed evacuation.

The role and value of dental hygienists should be promoted by the dental profession and consideration given to including additional subject areas in the dental hygiene curriculum. This can only improve the abilities and value of the dental hygienist within the oral health team. And in the future, course offerings in more specialized areas could be offered.

The population is living longer and has a heightened awareness of the need for oral health and a greater interest in the quality of life and general health. Human resources in the oral health field have to be utilized efficiently to improve the capacity to maintain the population's oral health. This can and should be achieved through modern approaches to oral health, communication, and the collaborative provision of health services and practice management.

ACKNOWLEDGEMENTS

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REFERENCES

Dental Unit Waterlines:
Potential for Contamination and Recommendations for Maintenance

by Brenda Denluck,* RDH

Figure 1. Biofilm formation in narrow-bore tubing. On adsorption of macromolecules from the aqueous phase and the formation of a conditioning film (A), bacteria may either associate reversibly with the surface (B) or adhere irreversibly (C). Subsequent division of adherent cells (D) and recruitment of planktonic cells from the bulk fluid phase results in biofilm formation (E). (Reproduced from Shearer.)

The public’s awareness of microbial contamination has increased over the years, due in part to education and coverage in the popular media. Barbeau explained that the public’s fear of microscopic germs has been engendered by companies that have been steadily introducing antimicrobial compounds into various aspects of daily living, including antimicrobial toys, clothing, laundry detergents, and hand soaps. Outbreaks of waterborne infections have also brought about widespread concern regarding the quality of municipal water, and Pankhurst and Johnson commented that the notable increase in sales of bottled water is evidence of the public’s concern.

Along with the public’s unease about municipal water quality, there has been an increasing interest and concern about the biofilms that are known to occur in dental unit waterlines, as demonstrated by the numerous studies and reports that have been published in recent years.

The purpose of this paper is to review the literature on microbial contamination of dental unit waterlines, to consider methods of infection control to minimize the exposure, and to identify the obligations of dental hygienists to their clients, as set out in the Standards of Practice and the Code of Ethics published by the College of Dental Hygienists of Ontario and the College of Dental Hygienists of British Columbia.


WATERLINES AND CONTAMINATION

Water is deemed to be potable in Canada when there are fewer than 500 colony-forming units per mL (CFU/mL). Dental unit waterlines have registered counts as high as 200,000 CFU/mL; counts higher than 500 units/mL have been attributed to the development of biofilm in the waterlines. Biofilm is a matrix of microorganisms adhering to the surface of the waterline tubing. Pankhurst and Johnson explain that this adhesion occurs because of the physics of laminar flow. They note that water passes at its maximum flow rate through the centre of the tubing but at its minimal flow rate along the periphery of the tubing. This allows microorganisms to be deposited.

The design of dental units with narrow tubing results in a high ratio of tubing surface to water volume. This, combined with intermittent use patterns, leads to water stagnation and provides the ideal conditions for bacterial proliferation (see Figure 1). Even when new tubing is connected to a water supply, a biofilm will form within eight hours and reach its microbial matrix climax in six days.

Exposure to contaminated dental water is a concern not only for clients but for dental personnel as well. Exposure can occur by “hematogenous spread during surgical procedures,
local mucosal...contact, ingestion and inhalation. It should be noted that “exposure does not always lead to transmission” and that humans are continuously exposed to microbial flora in “air, soil, water and food.” Another factor to consider is that just because there is a possible danger, it does not necessarily mean that there is an unacceptable risk. It is suggested, however, that there is a potential degree of risk for those “immunocompromised or immunosuppressed due to drug therapy, alcohol abuse or systemic disease” because they are susceptible to infections in general. There is a minimal risk for healthy clients. When evaluating research and recommendation reports, consideration needs to be given to the fact that the risk of infection is derived from the virulence and the dose of the microbe and the host’s resistance.

Dental unit waterlines host many organisms, some of which are pathogenic. The two pathogens Legionella and Mycobacterium spp. that cause wound infections have been found in heavy concentrations, along with numerous other bacteria, fungi, and protozoa. There are, however, few reported infections that have been linked to dental unit waterlines. Two cases were reported in 1987 in the British Dental Journal, stating that “two...medically compromised patients had been infected with Pseudomonas aeruginosa originating from dental unit water supplies.” Other cases of infection and the development of oral abscesses in “two patients with solid tumours” have also been confirmed from exposure to Pseudomonas aeruginosa in the dental office. Pankhurst and Johnson note that 68% of dental unit waterline samples had detectable Legionella spp. and that 8% had Legionella pneumophila. They also note that “comparable prevalence rates were observed in potable water samples.” However, the CFU/mL levels were significantly different with 19% of the dental unit waterline samples over 10,000 CFU/mL but none of the potable samples.

In 1994, a dentist died with the suspected cause being inhalation of pneumonic legionellosis, likely from water sprayed from a handpiece. This, however, this was not demonstrated conclusively. There have also been reports of an eye infection from Acanthamoeba spp. resulting from splatter, a brain abscess, and gastrointestinal disorders.

Dental personnel are continually exposed to aerosols. There is a potential for disease transmission when solid or liquid airborne particles are expelled from the oral cavity. When these expelled droplets evaporate, “the residual droplet nuclei form and remain airborne in the operatory...subject to inhalation.” Evidence of “altered nasal flora” suggests that waterborne microorganisms are being inhaled from these aerosols. One study revealed that the “prevalence of antibodies to L. pneumophila...among dental personnel” was 34% compared with 5% for a “control population.” However, there have not been any reported cases of Legionella pneumonia. A study from 1974 stated that the nasal flora of a number of dentists had an increased prevalence of waterborne Pseudomonas that was likely inhaled from contaminated water from high-speed handpieces. It has been suggested that a “lack of documented disease [Legionella pneumonia] among...dental care personnel” may indicate that there is insufficient exposure, adequate host resistance, subclinical infections, or a failure to link diseases to dental unit water.

To further calculate the degree of risk involved, one must consider the problems of measurement. As already mentioned, everyone is exposed to microbial flora in a variety of ways, thus making it difficult to isolate effects actually caused by dental unit waterlines. Also, it must be taken into consideration that the sole measurement of CFU/mL is not a meaningful indicator in scientific calculations because if the temperature of the water changes by only one degree, the number of CFU/mL will change significantly.

Although there is no evidence of a widespread public health problem and inadequate scientific evidence demonstrating serious health effects related to exposure from dental unit waterlines, the “goal of infection control is to minimise the risk from exposure to potential pathogens.”

The American Dental Association's Statement on Dental Unit Waterlines states that the currently available dental unit water systems are incapable of “delivering water of an optimal microbiologic quality.” The ADA's Council on Scientific Affairs recommended a target of fewer than 200 CFU/mL. The Council suggests using a combination of methods to achieve this recommendation.

**WATERLINE MAINTENANCE**

The Canadian Dental Association Board of Governors approved guidelines on dental unit waterline maintenance in 1997, which can be readily implemented by dental personnel. The main recommendation for waterline maintenance is flushing for 5–8 minutes at the beginning of the day. Wilkins has also suggested that flushing should be done for “at least 5 to 6 minutes at the beginning of each day” and for 30 seconds between clients. Interestingly, in the United States where water is deemed potable when there are fewer than 200 CFU/mL, “the effectiveness of flushing has been challenged” since “the layer in immediate contact with the biofilm” remains stationary “during flushing.” A recent study evaluated time-dependent waterline flushing and concluded that there is a statistically significant reduction in the number of CFU/mL after 2-, 3-, and 4-minute flushing compared with baseline samples and between each time interval. However, after four minutes of continuous flushing, the level of CFU/mL still exceeded the ADA recommendation and upon examination of the tubing by scanning electron microscopy, a residual biofilm remained. Another study reported that “flushing for 20 minutes...reduce(d) the bacterial count to zero;” however, within 30 minutes, the bacteria count returned to the “pre-flush range.” The Organization for Safety and Asepsis Procedures (OSAP) “cautions that flushing alone should only be used “as an interim measure until more effective methods” can be implemented.

There are other possible approaches to reduce the risk of contamination. These include anti-retraction valves, filtration, independent water systems, autoclavable systems, chemical disinfectants, and water testing. Each approach has both advantages and disadvantages that will be discussed separately.

Anti-retraction valves limit the “re-aspiration of fluid from the oral cavity that occurs when negative pressure is generated on stopping equipment” and are most effective “when fitted immediately distal to the handpiece.” However, they...
can become clogged “due to biofilm deposition ...[and] require regular maintenance and programmed replacement.” The potential for microbial cross-contamination led to the creation of the American National Standard Institute–American Dental Association Specification No. 47 in 1984, which specified that “water should not retract more than 2.032 cm back into the handpiece,” setting a standard for anti-retraction valve placement. To avoid reverse flow from suction tips, the College of Hygienists of British Columbia recommends that clients not close their lips and form a seal around the tip unless the tube is safety designed to this problem.

Filtration systems remove bacteria from treatment water by means of 0.2-micrometer membrane filters. A variety of filter types are available and are most effective when fitted immediately distal to the handpiece. “Some filters offer a built-in anti-retraction valve, iodine-eluting resin to inhibit downstream biofilm formation and filter materials designed to remove bacterial endotoxin.” The frequency for replacing filters varies depending on the type of filter used. One study “demonstrated that high levels of recontamination of DUW occur within 24 hours” due to “trapping and growth of bacteria on the filters. Therefore disposable filters are recommended” and they should be changed daily. It is recommended that filters be used in conjunction with another method to control biofilm formation. Another study evaluated the effectiveness of several disinfectants in combination with filters and concluded that “glutaraldehyde T4 was able to reduce the bacterial contamination” to less than 200 CFU/mL after a two-week maintenance program with the disinfectant being injected by a pump. However, to maintain water quality with the use of glutaraldehyde T4, “periodic biofilm removal” was necessary.

Independent water systems bypass the main connection to the municipal water, utilizing reservoir bottles that provide pressurized sterile or boiled water. These systems require routine disinfection followed by flushing with sterile water, flushing between clients, and draining and “purging with air or ethanol...to prevent biofilm proliferation due to desiccation.” Other independent water systems using distilled water require daily treatment with an antimicrobial agent such as Listerine Antiseptic, Bio 2000, Rembrant, Dentosept, or 0.5% sodium fluoride to reduce microbial contamination to the acceptable level. However, the biofilm is not completely eliminated by this means and other methods would have to be employed. A recent product review by Panagakos et al. indicates that Zerosil is an extremely effective, economical, and easy to use cleaning product for the elimination of viable organisms and biofilms in any reservoir bottle delivery system. However, it is still recommended to flush waterlines for “two to three minutes at the beginning of each day and for 20 to 30 seconds between each patient” along with the use of anti-retraction valves. The use of a “1:50 concentration of LA [Listerine Antiseptic] and sterile distilled water...with new tubing” was shown to be effective at maintaining microbial levels at less than 200 CFU/mL for prolonged periods. It was been suggested, “since antimicrobial LA is safe for patient use, it may be one of the most viable options.”

Fully autoclavable systems for dental units are independent water systems that deliver sterile water when properly maintained. They have “water reservoirs, ...dental unit waterline tubing and fittings to be sterilised between patients” to prevent biofilm formation. Other systems have disposable tubing. These systems are effective when the instructions are strictly followed. However, they are “expensive to purchase and operate maintain and often are less convenient” to operate compared with other alternatives.

Chemical disinfectants can reduce bacterial counts to an acceptable level, but they do not produce sterile water. Some common disinfectants used include sodium hypochlorite, ozone, hydrogen peroxide, chlorhexidine gluconate, ethanol, povidone iodine, Cavicide, gluteraldehyde, Listerine Antiseptic, Peridex, Sterilex Ultra, Sanosil and hydroperoxide ion phase catalyst (HPI-PTC). They can be introduced either intermittently, on a weekly basis, or continuously, on a daily basis, depending on the product. Of these products, the latter three hydrogen peroxide–based disinfectants seem to be the most popular in recent studies in the effort to control microbial levels and biofilm elimination. One must, however, closely evaluate the available products, as most just reduce the microbial count and only a few eliminate the biofilm. One study demonstrated that both Sterilex Ultra and bleach eliminated 90% of biofilm after one treatment, while Cavicide, Listerine Antiseptic, and Peridex resulted in “negligible elimination.” Another study between Sterilex Ultra and Sanosil showed that both reduced biofilm formation with weekly use; however, repeated usage of Sterilex Ultra was “associated with clogging of DUWs in some dental chair units after repeated usage.” A 5% solution of HPI-PTC successfully cleared biofilm after an initial three-day treatment and then maintained the recommended microbial levels with weekly use. Caution should be exercised with chemical products, however, as Barbeau notes: “the manufacturer of the dental unit should be consulted before any chemicals are introduced into the water system.” The bacterial colonies in the biofilm will develop a resistance to biocides with extended exposure, therefore reducing their value.

Water testing after the initiation of a treatment program can determine whether water quality is acceptable, whether the program is worthwhile, and can help identify problems. Barbeau comments that “pretesting dental unit water is virtually useless, as it is unlikely that water from any untreated dental unit will be free of microorganisms.” “Routine testing for specific organisms such as Pseudomonas and Legionella is not recommended” and “should only be performed to investigate a suspected waterborne illness as directed by local health authorities.”

Currently, there is “no...single method or device (that) will completely eliminate...dental unit waterline (contamination) or prevent the risk of cross infection.” It is therefore advisable to employ a combination of a disinfectant integrated with periodic biofilm removal for water quality maintenance. Also, organizations such as the College of Dental Hygienists of British Columbia recommend that clients not be provided drinking water from the air/water syringe. If choosing a chemical agent, one must ensure that the manufacturer supplies the Material Safety Data Sheet as well as any “other pertinent information...required by OSHA.” This is
to make certain that the chemicals are safe and that if some of the agent remains, it will leave “only safe levels of residues in the dental treatment water.” Furthermore, these residues should be compatible with dental restorative materials.9

**DENTAL HYGIENISTS’ PROFESSIONAL OBLIGATIONS**

As set out in the Standards of Practice of the College of Dental Hygienists of Ontario,9 dental hygienists have many obligations to their clients related to the issue of dental unit waterline contamination. Dental hygienists have the responsibility to “maintain and apply current knowledge and skills” within their practice setting. In order to achieve this, hygienists must “gather, record and analyse the scientific data” available on dental unit waterline contamination and the proposed recommendations.19 To do this, hygienists must understand the concept of evidence-based decision-making and be able to effectively interpret the validity and reliability of report findings.

By completing a critical appraisal of the literature, hygienists are able to “choos[e] and use[e] any new product or technique that is supported by sound and scientific principles and that has demonstrated safety and effectiveness when used according to manufacturer’s directions,” thereby “ensuring the practice environment meets all legal requirements for workplace health and safety.”19

The Ontario Code of Ethics states that dental hygienists shall “commit to the highest level of professional efficacy through the maintenance and application of current, relevant knowledge and skill.” Therefore, dental hygienists must be knowledgeable regarding microbial contamination and biofilm formation in waterlines, and have an obligation to demonstrate this knowledge by incorporating the established results of scientifically sound methods that are recommended to prevent or control the microbial contamination of the waterlines within their practice.20

The quality of water dispensed from dental unit waterlines is important since clients and dental personnel are routinely exposed to the water and aerosols that are generated from the dental unit. As the ADA Council on Scientific Affairs warns, the “dental profession must continue its awareness of the presence of high levels of opportunistic microorganisms in dental unit water. Despite the lack of evidence of adverse health effects related to these microorganisms, they have the potential to overload the defense systems of immunocompromised patients and occupationally exposed dental staff members.”5

**CONCLUSION**

Once one of the scientifically recognized methods or techniques for dental unit water maintenance has been chosen, it must be practised and monitored routinely to protect the health and safety of all clients. Equipment devices and solutions must have “clearly written precautions and instructions for installation, use, and maintenance” to improve “the probability of clinical success and reduce the potential” for equipment damage or personal injury.9

In this paper, various methods and techniques for waterline maintenance have been briefly discussed. Individual hygienists have to determine which method or methods are the most reliable, economical, and suitable for their dental practice. By reviewing the literature, implementing and monitoring a method or technique, hygienists will be fulfilling their obligations to the profession and the public as set out by the Ontario Standards of Practice and the Code of Ethics published by the College of Dental Hygienists of Ontario and the College of Dental Hygienists of British Columbia.

**REFERENCES**

“LA VOIX COLLECTIVE” (suite de la page 55)

appellent pour nous communiquer leurs commentaires et leurs opinions, soit de façon spontanée, soit avec des commentaires plus formels sur des sujets particuliers, comme les exposés de principe.

• Au cours des prochains mois, on vous demandera de faire vos commentaires sur une étude qui examine le lien entre la santé bucco-dentaire et la santé générale, sur une autre traitant de l’abandon de l’usage du tabac et sur des révisions apportées aux règlements de l’ACHD.

• De courts sondages seront bientôt dans la section réservée aux membres du site Web, où vous pouvez faire connaître vos opinions sur divers sujets, clairement et sans délai.

Pour parler avec la voix de l’intelligence, nous développons des énoncés de position et des publications solидement soutenues par la recherche. Celle-ci permet également à l’ACHD de faire des présentations publiques et de prendre part à des efforts de coalition.

Cette « voix collective » s’avère-t-elle un but idyllique ou marquons-nous des progrès lorsquels nous mettons cette mission en action ? examinons maintenant quelques initiatives nationales récentes où la voix de l’hygiène dentaire s’est fait entendre avec force :

Activités de coalition

- La coalition pour la santé publique au 21e siècle. Comme membre de cette coalition, l’ACHD travaille avec d’autres membres à influencer les politiques gouvernementales pour s’assurer que le système de santé publique soit adéquat. Un tel système s’occupe de protection et de promotion de la santé, de prévention des maladies et des blessures et fournira l’information nécessaire permettant de maintenir et d’améliorer la santé de la population canadienne. En groupe, nous avons rencontré Carolyn Bennett, maintenant secrétaire d’État à la Santé publique ; nous avons fait des commentaires, à la demande de monsieur Pierre Pettigrew, ministre de la Santé, au comité consultatif du nouveau Bureau de la santé publique ; et nous avons fait un sondage auprès du public concernant ses vues sur la santé publique.

- L’Alliance pour la prévention des maladies chroniques du Canada (Chronic Disease Prevention Alliance of Canada - CDPAC). La CDPAC a pour but de définir un système national intégré pour la prévention des maladies chroniques, de concert avec des intervenants clés, au niveau national et provincial/territorial. Cette alliance a obtenu une subvention substantielle pour promouvoir la prévention dans les soins de santé primaires ; et elle prépare la première conférence annuelle de prévention de la maladie chronique au niveau national.

- La Coalition des professions de la santé pour une pratique préventive. (Coalition of Health Professions for Preventive Practice). Cette coalition, un forum interdisciplinaire d’organismes nationaux de professionnels de la santé et Santé Canada, est un « groupe de réflexion » visant à améliorer la promotion de la santé et les services de prévention de la maladie chez les professionnels de la santé.


- Association canadienne de santé dentaire publique (CASDP). Membre de cette association.

- Au nom d’une coalition souple de six organismes, nous avons fait parvenir une lettre au comité permanent des Finances en lui demandant de presser le ministre des Finances d’amender la Loi de l’impôt sur le revenu afin d’élargir les critères de qualification des crédits d’impôt pour études.

Réponses à des questions de fond

- Questions et réponses sur le module d’éducation portant sur le détartrage à l’intention des assistantes dentaires ;

- Questions en réponses sur le cadre de politiques pour l’éducation en hygiène dentaire ;

- Questions et réponses sur l’offre, la demande et le besoin d’hygiénistes dentaires ;

- Réponse aux « Messages clés d’hygiène dentaire » de l’Association dentaire canadienne ;

- Lettre au ministre fédéral de la Santé, aux premiers ministres et aux ministres provinciaux de la Santé, établissant certains critères pour un Conseil national de la santé ;

- Lettre aux premiers ministres leur demandant de mettre en œuvre certaines des recommandations Romanow ;

- Lettre au ministre de la santé du Nouveau-Brunswick protestant contre le changement proposé de la Société dentaire du N.-B. pour élargir la portée de pratique des assistantes dentaires en y ajoutant le détartrage.

Documents de breffage à l’intention du gouvernement

- Comité permanent sur la Santé. L’ACHD a fait une présentation verbale sur la santé bucco-dentaire des Premières nations et des Inuits et a agit comme témoin expert. Le comité a appuyé les nouveaux modèles proposés pour la prestation des soins de santé, qui visent à faire un meilleur usage des services de prévention en hygiène dentaire.

- Comité des Finances. L’ACHD a fait huit recommandations pour les dépenses fédérales, en matière de santé buccale, et trois recommandations pour des changements en éducation de l’hygiène dentaire, y compris des déductions d’impôts pour les dépenses d’éducation permanente.

Énoncés de principe

- /Access Angst/: Ce document relatif à l’accès aux services de santé buccale examine plusieurs groupes différents de sous-population, dont le faible revenu, les personnes vivant en milieu rural, les Autochtones, le multiculturel ainsi que les handicapés physiques et mentaux. Il a également examiné les programmes publics et les problèmes systémiques.
THE COLLECTIVE VOICE (continued from page 55)

overall health and another dealing with smoking cessation, and on revisions to CDHA’s bylaws.

Short surveys will soon be on the members’ side of the web site where your views on various subjects can be made known clearly and with no delay.

To speak with the voice of intelligence, we are developing position statements and publications that are strongly supported by research. This research also enables CDHA to make public presentations and take part in coalition efforts.

Is this “collective voice” an idyllic goal or are we making strides in putting this mission into action? Let’s look at some recent national initiatives where the dental hygiene voice is being heard strongly:

Coalition activities

- **Coalition for Public Health in the 21st Century.** As a member of this coalition, CDHA works with other members to influence government policy to ensure an adequate public health system. Such a system will protect and promote health, prevent disease and injury, and provide the necessary information so the health of Canadians can be maintained and improved. As a group, we met with Carolyn Bennett, now the Secretary of State for Public Health; provided input, as requested by Pierre Pettigrew, MOH, to the advisory board for the new Public Health Agency; and survey the public about their views on public health.

- **Chronic Disease Prevention Alliance of Canada (CDPAC).** CDPAC aims at defining a national integrated system for chronic disease prevention together with key national and provincial/territorial stakeholders. This alliance obtained a large grant to promote prevention within primary health care and is planning the first annual nationwide chronic disease prevention conference.

- **Coalition of Health Professions for Preventive Practice.** This coalition, an interdisciplinary forum of national health professional organizations and Health Canada, is a “think tank” to improve health promotion and disease prevention services of health professionals.

- **National Literacy and Health Program Planning Committee, Canadian Public Health Association.** This committee promotes awareness among health professionals of the links between literacy and health and is currently planning the second Canadian Conference on Literacy and Health (Ottawa, October 17–19, 2004).

- **Canadian Association of Public Health Dentistry (CAPHD).** Member of this association.

- On behalf of a loose coalition of six organizations, we sent a letter to the Standing Committee on Finance, urging it to recommend that the Minister of Finance amend the Income Tax Act to broaden the qualifying criteria for the Education Tax Credit.

Responses to key issues

- **Q & A’s on the scaling education module for dental assistants;**
- **Q & A’s on the Policy Framework for Dental Hygiene Education;**
- **Q & A’s on the supply of, and demand and need for dental hygienists;**
- **Response to the Canadian Dental Association’s “Dental hygiene key messages”;**
- **Letter to the Federal Minister of Health, First Ministers, and Provincial Ministers of Health, establishing some criteria for a National Health Council;**
Participants reviewed an extensive CDHA made an oral presentation on First nations and Inuit Oral Health and acted as an expert witness. The Committee supported the proposed new models for oral health care delivery to make better use of dental hygiene preventive services.

Government briefs

- **Standing Committee on Health.** CDHA made an oral presentation on First nations and Inuit Oral Health and acted as an expert witness. The Committee supported the proposed new models for oral health care delivery to make better use of dental hygiene preventive services.

- **Finance Committee.** CDHA made eight recommendations for federal spending on oral health, and three recommendations for changes in dental hygiene education, including tax deductions for continuing education expenses.

Position Statements

- **Access Angst.** This paper on access to oral health services examines several different subpopulation groups, including low-income, rural, Aboriginal, multicultural, and physically/mentally disabled. It also looks at public programs and system issues.

- **Research Agenda.** Participants reviewed an extensive range of resources, documented a broad range of oral health research topics within a framework of research recognized in Canada, and identified recommendations for dental hygiene research.

- **Fluoride Dialogue.** This paper summarizes the research that assisted the CDHA Board of Directors in developing fluoride position statements, presenting and assessing the evidence for and against the use of fluoride.

**Policy Framework for Dental Hygiene Education in Canada 2005.** This document outlines the boundaries, parameters, and essential elements of dental hygiene education in Canada. It reflects the transition of dental hygiene from a health occupation to a health profession.

**Advocacy**

- CDHA is sponsoring and participating in the symposium “Access and Care: Towards a National Oral Health Strategy” in Toronto in May 2004. This initiative, organized by the Toronto Oral Health Coalition, George Brown College, and University of Toronto is the first ever symposium on oral health policy.

- CDHA has provided input into the themes of the Federal, Provincial, Territorial Dental Directors National Oral Health Strategy.

- The National e-Claims Strategy project is coordinated by the Canadian Institute of Health Information. CDHA is an active participant in the Oral Health Special Interest Group ensuring the needs of dental hygienists will be met in the future with electronic claim submissions for dental hygiene services to third-party payers.

- The Oral Health Care Sector Study is a major human resources study funded by Human Resources Development Canada examining supply and demand factors for dental hygienists, dentists, dental assistants, dental technologists, and denturists. CDHA is playing an active role in this study, which is anticipated to take three years to complete.

We are working on your behalf. Do your part to participate, share your views, and ensure our collective voice remains an informed and intelligent one. 

**Advertisers’ Index**

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We have used the information collected at this interactive session to prepare the new regulations of the ACHD. And we are right on this point in that it will be up to you, our members, to take part in the process! The rules of the game will be published on our website, www.cdha.ca, for you to review before the Annual General Meeting in 2005. The CDHA will then vote on the rules and take them into consideration.

After receiving all your comments and making the necessary changes, the Council will prepare the final version to be sent to our members at the end of the year. The members will then vote on the final version of the rules.

Please take a few minutes to review the draft and share your views to ensure our collective voice remains an informed and intelligent one.

On peut communiquer avec Patty Wickstrom à l’adresse <president@cdha.ca>.
There is no universally accepted definition of quality of life. Rather, there are perceptual constructs that can be applied or interpreted depending on the framework used. For the purposes of this paper, the operational definition of quality of life is “the measure of life by an individual within the context of informed understanding of what their life could be.” When discussing oral health as it relates to quality of life, it must be clearly stated that oral health is a significant factor in overall health. Health is recognized as a measure of quality of life regardless of the framework or perceptual construct utilized. A recognition of health as a state of being that allows a person to function at optimum capacity is a more comprehensive view of health as opposed to the mere absence of disease. Thus, when looking at oral health within this context, the same dimension applies—oral health is an optimum state and not merely the absence of disease. How does gender impact on this type of study? Is there a masculine/feminine perspective related to oral health and quality of life? If we recognize different perceptions, can we then use that knowledge to assist in our delivery of client care in our dental hygiene practices?

Oral health measures are positively correlated with measures of general health. However, oral health has yet to become a general indicator of overall health, as measured through health evaluations. Self-reported issues, such as periodontal breakdowns, and oral symptoms that impair the ability to function or that contribute to a systemic disease process would appear to contribute to lack of overall health.

A healthy mouth is the premise for overall health, but perceptions of oral health have not been explored in relation to gender differences. The concept of prevention of dental disease is over 50 years old, but the terminology and philosophy of the concept has not necessarily grown to encompass gender-specific practices. The average dental hygiene practitioner applies theories of prevention based on the condition in the mouth. But there may be more to this application than the mere assessment of oral conditions; it is also important for the dental hygiene practitioner to consider the male/female perception of needs as part of the case-based approach when delivering services.

**ABSTRACT**

The relationship between oral health and quality of life has been explored recently in order to ascertain the relevance of one to the other. When looking at seniors’ oral health, the question of quality of life becomes more significant due to the special oral health issues seniors face. What has not been explored is the relationship that gender may have to perceptions of quality of life and oral health. This Prince Edward Island study surveyed 275 seniors living in independent housing facilities. The survey instrument was the Subjective Oral Health Status Indicators survey, developed by Dr. David Locker of the University of Toronto. This survey tool has been tested for validity and reliability and has been in use for approximately 10 years. The cross-sectional design of the survey randomly sampled seniors from every geographic region of P.E.I. Survey results showed that four of the eight topics in the survey had a significant difference in gender responses. Males represented 18.2% of the respondents, females 76.4%. While this does not reflect the male-to-female ratio in the general population, it does reflect the male-to-female ratio within independent housing for seniors in P.E.I. Using a t-test, the gender relationship was identified within four topic areas: ability to chew, other oral symptoms, social impact, and activities of daily living. Correlational analysis identified relationships between all the topics with one or both of the demographic variables—age and number of teeth.

**Keywords:** Oral health, quality of life, gender, oral cancer, seniors, older adult, elderly, oral symptoms, daily activities, self-reported oral health outcomes

**INTRODUCTION**

The relationship of oral health to quality of life has increasingly been the subject of discussion. However, little information is available about the perception of this relationship according to gender. On Prince Edward Island, researchers studying seniors to determine their worry or concern about oral health and quality of life found perceptual differences between the sexes in specific areas of oral health and quality of life attitudes. The seniors studied were living in non-institutionalized public housing.

* Doctoral student at the University of Calgary and Learning Manager with the Holland College Dental Assisting Program in Prince Edward Island.

** Vice President, Academic Development, University of Prince Edward Island.
The oral cavity can be a mirror image of other areas of the body; many systemic illnesses are manifested in the soft tissue or oral mucosa of the mouth.6 There are increasing oral health concerns due to the fact that more people are living longer and therefore more teeth will require maintenance for a longer period of time. This will be accompanied by a corresponding increase in health concerns and therefore quality-of-life concerns for seniors.7 With the expected increase in the incidence of diabetes, the longer lifespan of persons with diabetes, and the associated periodontal conditions, more periodontal therapies may be required to maintain oral health and quality of life.

About 95% of all oral cancers occur in patients over age 40 with the incidence increasing with age.8 Statistics Canada reports the probability of oral cancer in seniors increasing with each five-year cohort, beginning at age 65. The incidence of oral cancer for males is double that of females in any age cohort over the age of 65.9 With an increased number of elderly in our population, we can expect an increase in oral disease in the future.10

Levels of oral cancer have remained roughly the same over the past decade. However, given the dental industries’ ability to give an early diagnosis, one would have hoped for a greater decline in incidence than has been experienced. Matear expresses a concern about a probable increase in lip cancer.10 How this will translate into gender differences has yet to be seen.

With this knowledge about increases in lip cancer, and our information around gender specificity in probability rates, the differences in male and female perspectives on oral health and quality of life needs exploring. Within this study, gender perceptions of oral health and the quality of life are compared with interesting findings on the differences in perception.

METHOD

This study was a survey designed to determine oral health indicators. The Subjective Oral Health Indicators11 measured the questions asked around oral health and perceptions of quality of life. (See Appendix for survey questions.) With the addition of a demographic sheet to determine age, number of teeth, and gender, the dependent variables could be compared with the independent variables using the statistical analysis program SPSS. The survey was administered through the Prince Edward Island Residential Housing Authority.

Subjects were selected in a cross-sectional cluster sample representing geographic distribution across the province. Prince Edward Island seniors function on average at a Grade 8 literacy level. The survey instrument chosen is user friendly and suitable for this reading level. It covered topics such as the ability to chew and to speak, oral and facial pain symptoms, other oral symptoms, the ability to enjoy eating, social relationships, activities of daily living, and worry/concern. Responses to these topics were analyzed to determine seniors’ perception of oral health and quality of life.

Seniors on P.E.I. represent 12.8% of the Island’s population.12 To achieve a sufficient number of responses, the study targeted 40% of the 1,000 seniors living in public housing supplied by the Prince Edward Island Residential Housing Authority. Overall, 547 surveys were delivered to seniors in various housing units across the province. There were 275 surveys returned, representing a 52.1% response rate. The response rate was slightly higher in one geographic region at 55% although this region showed no significant difference in demographic makeup. Given the population surveyed, the 52.1% rate was considered acceptable.

Analysis of the data included Pearson’s correlation that determined the extent of the relationship between the independent and dependent variables, and a t-test that compared the responses from the two groups—males and females. Demographic variables provided by the respondents included geographic location, age, gender, and number of teeth present.

FINDINGS

Of the 275 respondents, 76.4% were female and 18.2% male, with 5.4% not responding to this question. Males were underrepresented in this study when compared with the male-to-female ratio of seniors on P.E.I. However, this ratio does echo the ratio of males to females within the residential population of the P.E.I. Housing Authority. The mean age of the respondents was 74.3 years (SD 10.356) with ages ranging from 54 to 95 years old. Of the persons responding, 51% were edentulous; this compares closely with statistics from other regions including the United States. The mean number of teeth reported was 6.44 (SD8.53); the most frequently reported number was zero. A small number of the participants (2.4%) reported that they had “all their teeth.”

In four of the eight topics within the survey, the t-test to compare gender responses indicated a significant difference in the patterns of answers. The four topics that had significant differences were (1) the ability to chew, with a probability significance of 0.05; (2) other oral symptoms (p<0.021); (3) social impact (p<0.05); and (4) activities of daily living (p<0.01). Concerning the ability to speak, the t-test did not identify any significant difference between genders. However, there were some interesting ratios in the percentage of responses.

When reporting the ability to chew, males were more than twice as likely to indicate chewing dysfunction than females. Specific food items were more notable than others. Figure 1 shows the responses to inquiries about the difficulty chewing carrots, boiled vegetables, salad, steaks/chops, apples, or...
hamburgers. In all categories of foods, males identified more chewing difficulty than did females.

When reporting other oral symptoms, women were more likely to identify specific problems in their mouths. Although no single symptom can give a diagnosis of oral health, it would appear women had more problems when it came to mouth ulcers, cold sores, sore gums, and bleeding gums, to name a few. In many cases, the identification of problems by women was double or triple the number of identifications by males. With just two exceptions, females were always higher in their response than males. One of these exceptions was bad breath, where men more than doubled the number of women reporting concern over having experienced bad breath in the past four weeks. The other exception was dry mouth with 43% of females and 45% of males identifying dry mouth as a concern during the past four weeks. Figure 2 shows the item-by-item comparison of responses.

<table>
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<tr>
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<td>Unpleasant taste</td>
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<tr>
<td>Dry mouth</td>
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<tr>
<td>Bad breath</td>
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<td></td>
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<tr>
<td>Bleeding gums</td>
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<tr>
<td>Sore gums</td>
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<tr>
<td>Cold sores</td>
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<tr>
<td>Mouth ulcers</td>
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Figure 2. Differences in reporting oral symptoms

In terms of social impact, the significant difference between genders related to interaction in social situations. Men tended to be more concerned about embarrassment caused by the appearance of their teeth or mouth, while females showed more concern about conversation with others. Participants were also asked if they avoided eating with other people, laughing, or smiling. The females were more likely to be concerned with these issues than were males.

When it came to activities of daily living, again males were more likely to report concern about certain items such as staying home more than usual or avoiding leisure activities. Women were more likely to be concerned about their ability to complete household chores. While there was no significance in the difference in responses, the topic of ability to speak showed some interesting patterns in the male/female responses. The percentage of responses by gender is presented in Figure 3.

Figure 3. Differences in ability to speak

DISCUSSION

Men were more likely to respond to those issues that affected them personally, such as foods they could enjoy, meat, steak etc. Communication, pronunciation of words, and speaking clearly also appeared to be of concern to them. Women were more likely to report issues that involved pain or discomfort. Does this mean women will seek help earlier to ensure the discomfort or pain is addressed? There are many reasons why males may have a higher incidence of oral cancer—more exposure to cigarette smoke or alcohol, etc. However, oral cancer in senior males may be more advanced because of a reduced likelihood of males reporting symptoms such as bleeding gums, sore gums, or mouth ulcers. One indicator of a lower value placed on preventive practices and self-reporting health issues is lower educational attainment and this factor does apply to this population. Another indicator is being male. When working with males, the dental hygiene practitioner may have to make specific inquiries to ascertain what the client has been experiencing at home. Females may be more forthcoming with this information. More probing questions may be required to elicit the same information from senior male clients. It should be noted here males were underrepresented according to the male-to-female ratios on P.E.I. for persons over the age 50. The findings may be a reflection of the underrepresentation.

When discussing difficulties in chewing, the dental hygiene practitioner may wish to ask about specific foods when talking to men. Foods such as steak, chops, and hamburger may get a response more quickly than inquiring about the difficulty of eating raw vegetables. Concerns centring around food and the ability to eat will give some insight into the needs of the client in terms of oral health.

The specific symptom of dry mouth appeared to get an equal response from both genders. Dry mouth is a natural process of aging with possible additional complications due to systemic illness or medication. Dry mouth is a significant threat to oral health for seniors. Based on the results of this study, it appears to be a problem identified to the same degree by females and males.

CONCLUSIONS

Based on the findings of this study, more research is needed on the issue of gender, oral health, and quality of life. Much needs to be known about the “why” of perception differences by gender. Do the perceptions reported here reflect the senior population as a whole? Both qualitative and epidemiological studies could confirm or deny the differences identified in this study. By applying clinical measurements to this population, a better picture of perceived needs as opposed to clinically diagnosed needs would be created.
More awareness is necessary about the issue of self-reporting and males. Are men receiving the treatment they require, based on the symptoms they are experiencing? Do they acknowledge their symptoms to the practitioner in the office? Until a clearer picture of this is available, a dental hygiene practitioner should be alert to the possibility of males underreporting oral symptoms. Many of these symptoms may be indicative of more serious oral disease. Early diagnosis and intervention has long been the key to assist people in having healthier mouths.

Based on the results of this study, the researchers cannot draw firm conclusions about the degrees of difference in gender issues, oral health, and quality of life. However, dental hygienists can offer their clients a more comprehensive service by being aware of gender issues and differences. Quality of life for men and women would be enhanced if delivery of oral services takes into account the different perceptions of male and female seniors.

REFERENCES


"DENTAL HYGIENISTS’ PREFERENCES" (continued from page 64)


"TRAINING AND UTILIZATION OF DENTAL HYGIENISTS IN KUWAIT: RESULTS OF A SURVEY" (continued from page 73)


13. Thomas RD. Over hill, over vale, we will hit the dusty trail. RDH. 1993;13(3):18.


Guinness World Records, a cameo appearance by the tooth fairy, fundraising to promote oral health among the less fortunate, and a gigantic mouth with dozens of gleaming white molars—these are just a few of the clever and creative ways that Canada’s dental hygienists celebrated National Dental Hygienists Week (NDHW), October 12–18, 2003.

Every year in connection with this special week, CDHA and Oral-B Laboratories together sponsor the Oral-B Health Promotion Awards, designed to encourage hygienists to promote oral health in their communities. Cash prizes of $1,000 are awarded to individual contest winners with $2,000 going to each school and clinic winner. Half of each prize goes to the winner’s local dental hygiene chapter.

Read on and you’ll notice a common thread—an across-the-board dedication to community, professional excellence, and advocacy of the wellness benefits of proper oral care and dental hygiene.

WINNERS

Individual Category: Harriet Rosenbaum, Winnipeg, Manitoba

Harriet knew just where to place her message promoting NDHW—the local branch of Winnipeg Public Library because it caters to such a vast clientele. Harriet wanted to profile dental hygiene and give much thought to how people—especially children—could interact with display items to make the information engaging and fun.

She first developed a dental hygiene quiz and distributed copies throughout the library. Then she cut red construction paper into the shape of a large mouth and taped it to a wall in the kids’ section. Next she cut white paper into giant “molars” and gave one to every child who completed the quiz. The kids answered the quiz on their special tooth and then pasted it on the big red mouth. The result? A rather spectacular mouth, with dozens of gleaming white teeth.

To entice adults to complete the quiz, Harriet set up a dental hygiene raffle for two special baskets she had prepared herself. Each contained various dental hygiene home-care items, including an electric toothbrush.

But Harriet didn’t stop there. At the entrance to the library, she developed an eye-catching display case containing a series of fact sheets about dental hygienists and the importance of oral health care.

Clinic Teams Category: Sheila Petrollini, Regina, and Veronica Hermiston, Wynyard, Saskatchewan

What do the following have in common?
- 2,500 metres of minted, shed-proof dental floss
- 1,500 toothbrushes
- 1,254 cups of mouthwash
- 1,500 bottles of hand sanitizer
- 1,146 very enthusiastic students
- 50 equally enthusiastic dental hygiene students from a local college
- 16 highly dedicated dental hygienists

These are among the winning ingredients necessary to set the Guinness World Record for simultaneous dental flossing—using one continuous piece of floss! That’s what the students of Regina’s Campbell Collegiate did during NDHW 2003.

Who were the masterminds behind this eyebrow-raising plot? Why, Veronica Hermiston and Sheila Petrollini, of course. Consulting the Guinness Book of Records, they discovered that the record to beat for simultaneous flossing was 327 people. So they canvassed their community and found an ample supply of participants among the students at Campbell Collegiate. Sixteen dental hygienist volunteers also took part in this activity, coming from Regina and from far across the province.
With volunteers and participants in place, there was still the none-too-trivial matter of obtaining the necessary dental hygiene equipment! But where exactly do you find 2,500 metres of minted, shed-proof dental floss? Well, as it turns out, from a plant in Newbridge, Ireland.

Thanks to a generous donation by Oral-B, this made-to-order item (along with Oral-B toothbrushes) was purchased, prepared, and shipped to Veronica and Sheila. In addition, Crest donated four cases of Scope mouthwash, Crosstex International provided 1,500 bottles of hand-sanitizer solution, Ash Temple supplied 1,500 cups, and Sinclair Dental donated an ample supply of nitrile gloves to ensure proper care of participants. The finishing touch? The 2,500-metre spool of floss was packaged in a handmade satin box, about the size of a mid-sized television set.

Yes, they set a Guinness World Record, but did the participants do a good job of flossing? Absolutely. To ensure that all flossers were meticulous, the event’s 16 dental hygienists and 50 dental hygiene students from the Saskatchewan Institute of Applied Science and Technology monitored the activities.

No word yet on what these two have in store to top this achievement in 2004. We can hardly wait…

Dental Hygiene School Category: Cambrian College Dental Hygiene Program, Sudbury, Ontario

Dental hygienists across Canada and elsewhere have long advocated the importance of oral health and preventive care as part of overall wellness. To mark NDHW 2003, dental hygiene students at Cambrian College decided to turn this belief into action.

Dental hygiene and dental assistant students organized a “Walk for a Smile” fundraising event so kits with oral care and dental hygiene products could be distributed to less-advantaged citizens in the community. Braving the cold, rainy weather of a late-October afternoon in Northern Ontario, over 110 participants walked a five-kilometre route, collecting more than $2,300 in pledges.

Thanks to these contributions, 500 comfort kits were purchased. Inspired and encouraged by the students’ efforts, the Sudbury and District Health Unit contributed 500 toothbrushes to the fundraiser.

HONOURABLE MENTIONS

Tooth fairy and migrating geese: The Kingsville Dental Centre in Kingsville, Ontario, promoted oral hygiene awareness by entering a float in the community’s annual Migration Festival that marks the return of the southbound migrating Canada geese. The float’s tooth fairy—in a fashionable late-fall white crinoline with wings and wand—was the star, but office staff also distributed Oral-B toothbrushes, stickers, and colouring books to over 700 children who watched the parade.

Smoke-free advocacy: To help celebrate NDHW 2003, the Thunder Bay Dental Hygienists Society launched an aggressive public advocacy campaign to tackle what remains one of the most serious public health risks in Canada—cigarettes and second-hand smoke.

Soup-up Your Smile: Students at the University of Manitoba School of Dental Hygiene hosted their second annual “Soup-up Your Smile” campaign. This program reaches out to two inner-city locations in Winnipeg, Manitoba, providing an array of services, including free oral health screening.

Brochure for new moms: As part of the University of Manitoba School of Dental Hygiene’s outreach program, a short brochure was prepared, explaining the do’s and don’t of prenatal and infant care concerning oral care and overall wellness.

Personal mission: When Candace Leveille of Saskatoon, Saskatchewan, decided to take a personal trip to Romania and the Ukraine, she saw it as an opportunity to “spread the good news about dental care” to another part of the world. In advance of her trip, Candace started collecting toothbrushes. “A large portion were provided courtesy of Oral-B,” she notes. She handed out these toothbrushes as gifts to children she met during her travels.

"WE NEED YOUR HELP!" (continued from page 31)

on January 31, 2004. Participants included the presidents of the provincial associations, CDHA’s president-elect and executive director, and representatives from the Federation of Dental Hygiene Regulatory Authorities, the National Dental Hygiene Certification Board, Dental Hygiene Educators Canada, and the Canadian Armed Forces. This gave us a good cross-section of interested parties who brought their thoughts to the table. I would like to thank all of the participants who joined me in Calgary to provide feedback and guidance to CDHA in plotting its future.

The information gathered during this interactive workshop was then used to draft new CDHA Bylaws. And this is where you, our members, come in! The draft bylaws will be posted on the CDHA web site, www.cdha.ca, so you can review and comment on them. Due to high postal costs, mailing a hard copy of the draft bylaws to each member of CDHA was not considered feasible. However, if you would like to have a hard copy, just call or e-mail the CDHA office and we will send you one. This is an opportunity to share your opinions on the draft bylaws with us. We need members’ input to ensure that the bylaws meet the members’ needs, that members can work with these bylaws, and that the document is complete.

After we receive all your comments and make any necessary changes, the board will prepare the final draft for submission to the members in St. John’s, Newfoundland and Labrador, in June 2004 (in conjunction with the annual conference). The membership will then vote whether or not to approve the new bylaws.

Please take a bit of time and plan to look through the draft document on the web site (Members Only section) when the document is posted—you will be notified by CDHA of its posting. Comment and ensure that your voice and opinions are heard and acted on!

Patty Wickstrom can be reached at <president@cdha.ca>.
CDHA and Probe take no responsibility for ads or their compliance with any federal or provincial/territorial legislation.

NORTHWEST TERRITORIES
Fort Smith Dental Clinic is looking for a full-time dental hygienist to join our team. Offering an attractive compensation package including base salary, commissions, bonuses, and continuing education benefits, this position is well suited to a candidate with 1–2 years’ experience. Please contact Mr. Hill at: tel. 1-877-424-1029; fax 780-483-6098; e-mail <hillag@shaw.ca>.

YELLOWKNIFE Land of the midnight sun and the diamond capital of Canada! Two full-time hygiene positions available. Ultra modern clinic, interday, soft tissue management program, intra-oral cameras in private hygiene operatorships, emphasis on quality peri treatment planning and care. Excellent income and working hours! Great small town with all the amenities (Wal-Mart, pool, rinks, shopping malls) and great outdoor recreation programs. Call Krista Sansom at 867-873-2775 or fax your résumé to 867-920-2775.

BRITISH COLUMBIA

Endery In the North Okanagan, RDH required immediately to assume 2 day/wk in general practice. Current RDH is relocating Jan. 1/04 and is commuting to keep up 1 day/wk until a replacement is found. The current RDH is available to meet with candidates and discuss patient load. Hygiene can be expanded with patient demand. Great area to live and work in and a great team in place. Wage negotiable. Contact Dr. Shamell Muir: tel. 250-383-6675; e-mail <drsmuir@sunwave.net>.

Kelowna Caring gentle hygienists required for busy general practice. Tuesdays, Thursdays, Fridays, Saturdays negotiable, 20–26 hours per week. Fax 250-765-9618 or call Dr. Christophe at 250-764-1319 or Dr. Scharzw at 250-491-1996.

Maple Ridge Hygienists! Unique employment opportunity. Call Barb at 604-467-5944, Kim at 604-492-0797, or fax us at 604-467-6231.

Alberta
Brooks Dental hygiene position available in the booming small city of Brooks in Southern Alberta, population 12,000, close to Calgary, Lethbridge, and Medicine Hat. Good recreational resources in town and in immediate area. Progressive, modern dental office. Well-equipped operatorships, including computers, and digital photo and intraoral cameras. Comprehensive care is stressed. Assisted hygiene is an option. Generous compensation. Moving allowance may be considered. Fax résumé to 403-360-5690 or e-mail information to <twasyli@telusplanet.net>.

Calgary Busy SE clinic looking for an enthusiastic and dedicated dental hygienist to join our team. Friendly staff with great team approach, a fun place to work. Choose your own hours; excellent salary and benefits. Full-time or part-time available. Fax résumé in confidence to 403-568-9172.

Edmonton Applications are invited for a full-time, three-year, rolling term contract position as clinical assistant/associate professor (depending on qualifications). Experienced dental hygienists with a master’s degree or equivalent are invited to apply as well as interested candidates who are working toward a master’s degree. Eligibility for registration to practise dental hygiene in Alberta is required. Position will be available July 1, 2004. Applicants should forward their résumé by April 30, 2004 to Dr. Sharon Compton, Director, Dental Hygiene Program, Faculty of Medicine and Dentistry, University of Alberta, Room 2032, Dentistry/Pharmacy Center, Edmonton, AB T6G 2N8. E-mail, <scompton@ualberta.ca>. The University of Alberta hires on the basis of merit. We are committed to the principle of equity in employment. We welcome diversity and encourage applications from all qualified women and men, including persons with disabilities, members of visible minorities, and Aboriginal persons. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. If suitable Canadian citizens and permanent residents cannot be found, other individuals will be considered.

Medicine Hat We are a progressive, family-oriented practice with a team offering services in all areas of dentistry including implants, orthodontics, periodontics, and esthetic dentistry. Due to a pending retirement, we are seeking a personable, compassionate, progressive, hygienist with excellent communication skills for a P/T position beginning March 2004. Please forward your résumé including your career goals and accomplishments, personal interests, and references to Mrs. Valerie Leitch, River Centre Dental Clinic, 378-1 Street SE, Medicine Hat, AB T1A 0A6. Tel: 403-526-5991; fax: 403-529-9043.

New Brunswick
Moncton Permanent full-time dental hygiene position available in Moncton, NB. Excellent hours, salary negotiable, bonus system in place, plus other benefits. Excellent team to work with in a progressive dental clinic. Available February 16, 2004. For further information, or to apply, telephone 506-857-2187 or 506-856-9500 daytime, or 506-855-8755 evenings or weekends. Ask for Stella Walker, Office Manager.

Nova Scotia
Digby Annapolis Valley. Full-time dental hygienist required in busy, modern dental clinic to fill maternity leave commencing mid-March 2004. The temporary year but may be extended to suit applicant. Will also consider candidates on a part-time basis or desiring a shorter term. Accommodations may be arranged as part of the employment package. Please call Dr. Grant Creighton for details at 902-245-5666 or fax résumé to 902-245-4428.

Newfoundland
Corner Brook Full-time dental hygienist required for a well-established family practice in Corner Brook, NL. No weekends. Flexible summer hours. Excellent outdoor activities year round. Please call 709-639-8451, or fax résumé to 709-634-4623.

International
Australia Seeking a friendly, motivated individual to join our exceptional team commencing March 2004. We are a boutique cosmetic and general dental practice, with an existing hygiene program. A $55/hr plus benefits (incl. monthly bonuses), 4–5 days/week. Modern dental equipment and premises. Practice centrally located in Canberra, Australian Capital Territory. Please contact Andrew Lawson – Practice Manager: telephone +61 2 6281-4668 (BH); fax +61 2 6282 1620; e-mail <practice@dentallarity.com.au>; web site <www.dentallarity.com.au>. Grand Cayman Looking for a RDH to join our family practice on the beautiful island of Grand Cayman. Applicants must be self-motivated, independent, friendly, a team player, and able to work with little supervision. Experience with children, perio, Windows-based programs, and digital x-rays required. We are offering a full-time position with a minimum one-year contract. If interested in joining our team, please fax résumé to 345-549-9583 or mail to: PO Box 10116 APD, Grand Cayman, Cayman Islands, BWI.

Saudi Arabia Currently have positions for dental hygienists at an American-managed hospital in Saudi Arabia. One- or two-year, single-status contracts available. Benefits: tax-free income; furnished accommodations; medical and emergency dental coverage; airfare; generous vacation. Requirements: associate/bachelor’s degree in dental hygiene, current licence, minimum three years’ experience. For more information, please contact Elaine Ng at 1-800-387-4616 or 416-977-6941, or e-mail us at <eng@hziegler.com>.

Agenies
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PeriConcepts PLLC International dental hygiene positions. We offer several positions for dental hygienists interested in working abroad. Dental practices are thoroughly screened with most profiles listed on our web site at <www.periconcepts.com>.. Become an active client by sending us the following: professional résumé, letter of recommendation, and a recent photo. Contact Heidi Gladstetter, RDH, PeriConcepts PLLC, The International Dental Placement Service, 6903 Faulktergy S.W., Seattle, Washington 98136 U.S.A. Tel: 1-800.206.923.2221; fax: 1-800.206.923.2225; e-mail: <periheidi@yahoo.com>.

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