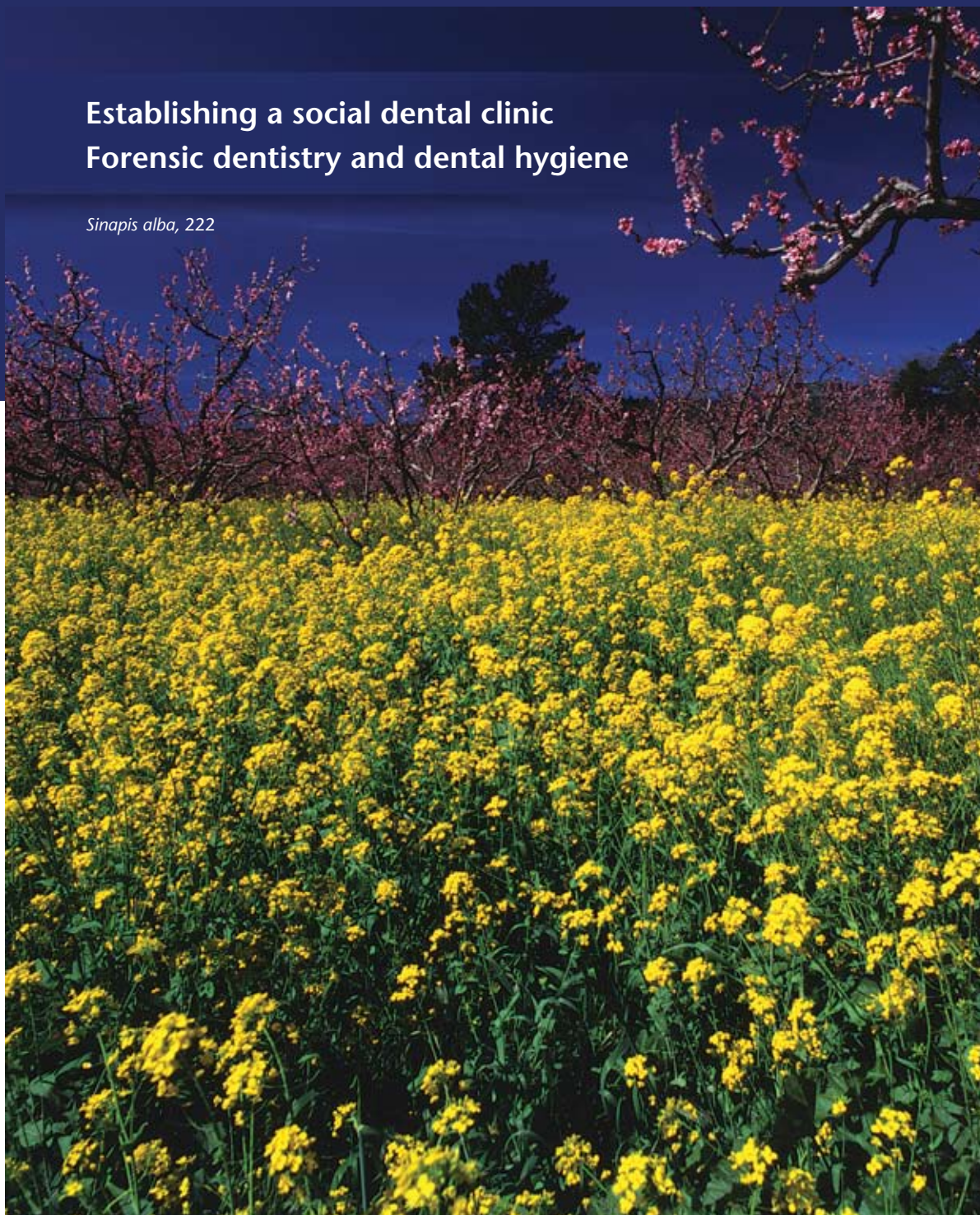


# CJDH JCHD

JULY–AUGUST 2008, VOL. 42, NO. 4

## Establishing a social dental clinic Forensic dentistry and dental hygiene

*Sinapis alba*, 222





## CDHA – A year of distinction

(May 1, 2007 to April 30, 2008)

Last month, the CDHA welcomed members and corporate partners to *Navigating the Imagination*, the Association's inaugural leadership development event in Banff. As I prepared for this event, I keenly read and reflected on the topics of individual and organizational leadership.

Leadership is not just reserved for an elite group of a few charismatic individuals. It is for all of us, a way to bring forth the best from ourselves and others. CDHA, as our national, professional leader, continues to propel our profession forward and this year was no exception. I'm pleased to share some of this year's highlights that have resulted in dental hygienists flourishing as leaders.

CDHA responded to significant legislative changes in Alberta, Manitoba, Ontario and Nova Scotia by providing support and education to fellow dental hygienists embracing new opportunities. We created a new Independent Practice Advisor position, published a national list of service codes, developed an online course on self-initiation and a five-course certificate program on independent practice, and held several workshops. CDHA focused on improved quality of dental hygiene services by developing an oral-systemic media poster, four information pamphlets and two fact sheets to distribute to clients.

It is important for leaders to originate and develop. CDHA exemplified this quality in the area of knowledge development and translation. We published new *Infection Control Guidelines*, hosted the International Symposium on Dental Hygiene, became partners with the Canadian Cochrane Network and Centre, found recognition as a private educational institution, and entered our 42<sup>nd</sup> year of publishing the *Canadian Journal of Dental Hygiene*.

With an eye on the horizon and a visionary approach, CDHA continues to act as your voice to the federal government, a critical way to bring about change. We actively lobbied on your behalf by requesting that oral health care be a government responsibility, and presented a business case to First Nations and Inuit Health Branch for direct reimbursement of dental hygiene services.

Leaders "do the right things, inspire, and challenge the status quo"<sup>1</sup> and CDHA accomplished this by collaborating with numerous national health organizations to improve the oral health and general health of Canadians. Your Association partnered with the Canadian Public Health Association to develop a national strategy to improve health literacy, led a project to develop a fact sheet on oral health with the Canadian Coalition for Public Health in the 21<sup>st</sup> Century, and partnered with a consortium of dental hygiene organizations to draft a *Dental hygiene competencies*



Carol-Ann Yakiwchuk,  
RDH, DIPDH

## L'ACHD – Une année de distinction

(1<sup>er</sup> mai 2007 – 30 avril 2008)

Le mois dernier, l'ACHD accueillait ses membres et des sociétés partenaires sur les Voies de l'imagination, toute première séance de développement du leadership que tenait l'Association à Banff. En préparant cette rencontre, j'ai lu et réfléchi attentivement sur le leadership individuel et organisationnel.

Le leadership n'est pas l'apanage d'une élite, de quelques personnes charismatiques. C'est le bien de tous et toutes, une façon d'éveiller ce qu'il y a de mieux en nous et chez les autres. L'ACHD, notre leader national et professionnel, continue de projeter notre profession vers l'avant et l'année écoulée ne fut pas une exception. Il me fait donc plaisir d'en partager avec vous certains points forts qui ont fait fleurir le leadership chez les hygiénistes dentaires.

L'ACHD a répondu aux importantes modifications législatives de l'Alberta, du Manitoba, de l'Ontario et de la Nouvelle-Écosse en offrant soutien et formation aux collègues hygiénistes dentaires qui saisissaient de nouvelles opportunités. Nous avons créé un nouveau poste, celui de conseillère en pratique autonome, publié une liste nationale de codes de service, mis au point un cours d'initiation personnelle et un programme de formation et d'agrément en pratique autonome et tenu plusieurs ateliers. L'ACHD a mis l'accent sur l'amélioration de la qualité des services d'hygiène dentaire en créant une affiche médiatique sur la santé buccale et générale, quatre feuillets et deux fiches d'information pour distribution à la clientèle.

Il importe que les leaders créent et développent. L'ACHD en est un exemple sur le plan du développement et de l'application. Nous avons publié les Principes de lutte contre l'infection, accueilli le Symposium international de l'hygiène dentaire, joint un partenariat avec le Réseau-centre canadien Cochrane, été reconnues en tant qu'institution de formation privée et amorcé notre 42<sup>e</sup> année de publication du Journal canadien de l'hygiène dentaire.

Le regard pointant vers l'horizon dans une approche visionnaire, l'ACHD continue d'être votre porte-parole auprès du gouvernement fédéral, moyen critique de provoquer le changement. Nous avons fait activement pression en votre nom en réclamant que les soins bucco-dentaires deviennent une responsabilité gouvernementale et présenté à la Direction générale de la santé des Premières Nations et des Inuits une demande motivée de remboursement des frais des services d'hygiène dentaire.

Les leaders « font ce qu'il faut, inspirent et contestent le statu quo ».<sup>1</sup> C'est ce qu'a accompli l'ACHD en collaborant avec diverses organisations nationales de la santé pour améliorer la santé bucco-dentaire et générale de la population canadienne. Votre Association a travaillé en partenariat avec l'Association canadienne de la santé publique pour élaborer une stratégie nationale visant à améliorer l'alphabetisation en matière de santé.

...continued on page 184

The CDHA welcomes your feedback: [president@cdha.ca](mailto:president@cdha.ca)

...suite page 184

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## Reflections on leadership

*Whoever is content with the world, and who profits from its lack of justice, does not want to change it.*

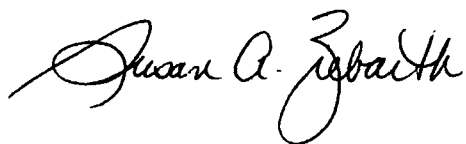
Friedrich Dürrenmatt (1921–1990), Swiss dramatist, novelist, essayist. Translated by Gerhard P. Knapp (1995).

I am writing this message as I contemplate the wonderful experience of working with a group of dental hygienist leaders - both experienced and emerging - in the majestic setting of Banff. The participants of *Navigating the Imagination* event reflected on themselves as leaders, as members, and as owners of the CDHA. Through that exploration the concept of contentment emerged. It was intriguing to witness the expression of leadership in those who have not been content over the course of their careers experiencing, and in many cases creating, the changes they felt were necessary in their profession.

The holistic image of a leader was explored, and one observation that was of particular interest to me was that the emerging leaders approach to the profession differed from the ways of the experienced ones. Understanding the many perspectives of future leaders sometimes requires a conscious effort as people do bring differing views to the fore. It was noted that being passive and content does not bring about change.

A common concept originating through the work of the participants was the importance of ownership of the profession. What does being an owner of the CDHA mean? The participants described ownership as something that does not provide tangible benefits and yet instills a sense of obligation in the dental hygienist to care for the profession and its progression. Such characteristics reflect those embodied in leadership.

In addition, the participants recognized the dedication, vision, and catalytic role demonstrated by leaders in moving the profession forward. Having fun, taking initiative, and bringing your voice to the table were all seen to be important. As we head into another membership year, why not take a few minutes and pause — to reflect upon the concept of ownership of your profession and the experiences you have had in being a catalyst for change in your workplace, with your clients, or within the profession. Are you content? Have you taken initiative? Have you found your voice? Have you had fun? 🍷



The CDHA welcomes your feedback: [info@cdha.ca](mailto:info@cdha.ca)



Susan Ziebarth,  
BSC, MHA, CHE

## Réflexion sur le leadership

*Quiconque est content du monde, et profite de son manque de justice, ne souhaite pas le changer.*

Friedrich Dürrenmatt (1921-1990), dramaturge, romancier et essayiste suisse (notre traduction).

En rédigeant le présent message, je revis la merveilleuse expérience de travail avec un groupe de leaders en hygiène dentaire – expérimentées ou émergentes – dans le décor majestueux de Banff. Les participantes, qui ont exploré ensemble les Voies de

l'imagination, ont réfléchi sur elles-mêmes en tant que leaders, membres et propriétaires de l'ACHD. De cette recherche est ressortie la notion de contentement. Ce fut fascinant de voir le sens du leadership de nos collègues qui, n'étant pas entièrement satisfaites de leur carrière, ont expérimenté, et même pour plusieurs créé, de nouvelles avenues.

On a approfondi le portrait global du leadership et j'ai trouvé particulièrement intéressant le fait que les leaders émergentes ont de la profession une perception différente de celle des collègues expérimentées. La compréhension des nombreuses perspectives des futures leaders demande parfois un effort conscient face à la divergence des points de vue mis de l'avant. On a noté que la passivité et le contentement ne sont pas sources de changement.

Par leur travail, les participantes en sont venues à voir collectivement l'importance d'être propriétaires de leur profession. Que signifie être propriétaires de l'ACHD? Les participantes ont décrit la propriété comme étant quelque chose qui, sans procurer des bénéfices tangibles, inculque chez l'hygiéniste dentaire un sentiment d'obligation de s'occuper de sa profession et de son progrès. Ces caractères se retrouvent dans le sens du leadership.

Par ailleurs, les participantes ont reconnu le dévouement, la vision et le rôle de catalyseur que démontrent les leaders en faisant avancer leur profession. Avoir de l'agrément, prendre des initiatives, avoir une voix autour de la table sont tous des actes jugés importants. À l'approche du renouvellement annuel des adhésions, pourquoi ne pas prendre quelques minutes de pause pour... réfléchir sur le sens de la propriété de votre profession et les expériences qui ont servi de catalyseurs pour faire évoluer votre milieu de travail, avec la clientèle ou au sein de la profession. Êtes-vous contentes? Avez-vous pris des initiatives? Avez-vous trouvé votre voix? Avez-vous eu de l'agrément? 🍷

L'ACHD accueille vos commentaires : [info@cdha.ca](mailto:info@cdha.ca)

## CDHA – A year of distinction

document.

“The ultimate test of practical leadership is the realization of intended, real change that meets people’s enduring needs”, remarked James MacGregor Burns, an authority on leadership studies.

As you can see, this past year has truly been one of distinction loaded with many intended, valuable accomplishments made on your behalf to meet our profession’s enduring needs. May these changes inspire and liberate the leaders in all of us.

### REFERENCE

1. Zaleznik, A. Managers and Leaders: Is there a difference? *Harvard Business Review*. 1977;May-June:67-78.

## L’ACHD – Une année de distinction

Elle a dirigé un projet de rédaction d’une fiche d’information sur la santé bucco-dentaire au 21<sup>e</sup> siècle en collaboration avec la Coalition canadienne de la santé publique et travaillé en partenariat avec un consortium d’organisations d’hygiène dentaire pour ébaucher un document sur Les compétences en hygiène dentaire.

« Le test ultime de la concrétisation du leadership, c’est l’accomplissement de changements voulus et réels qui satisfont les besoins persistants des gens » a fait remarquer James MacGregor Burns, une autorité en matière d’étude du leadership.

Comme vous le voyez, l’année qui vient de s’écouler en a vraiment été une de distinction, chargée de nombreux et précieux accomplissements prévus et réalisés en votre nom pour satisfaire les besoins persistants de notre profession. Plusieurs de ces changements inspirent et libèrent le leadership en nous toutes.

### RÉFÉRENCE

1. Zaleznik, A. Managers and Leaders: Is there a difference? *Harvard Business Review*. 1977;May-June:67-78 (notre traduction).

## 2008 DENTAL HYGIENE PROGRAMS RECOGNITION AWARD

### PRIX DE RECONNAISSANCE 2008 POUR LES PROGRAMMES EN HYGIÈNE DENTAIRE

#### Dental Hygiene Programs Recognition Award

The Canadian Dental Hygienists Association is pleased to announce the 2008 Dental Hygiene Programs Recognition Award. This program is designed to recognize dental hygiene programs, whose full-time and part-time faculty members are dental hygienists, achieve 100% membership in the CDHA. A certificate of recognition will be awarded to honour these programs for demonstrating such outstanding commitment to their national association and acting as professional role models for their students. The deadline for submissions is **28 November 2008**. Entry details are available on the CDHA members’ web site in the “*Networking and Recognition*” section.

#### Prix de reconnaissance pour les programmes en hygiène dentaire

L’Association canadienne des hygiénistes dentaires est heureuse d’annoncer la création du Prix de reconnaissance pour les programmes en hygiène dentaire. Ce programme est conçu pour les programmes en hygiène dentaire dont 100 % des hygiénistes dentaires, qui font partie du corps professoral en hygiène dentaire à temps plein et à temps partiel, sont membres de l’ACHD. Un certificat de reconnaissance sera remis pour honorer les programmes dont les membres font preuve d’un engagement exceptionnel envers leur association nationale et jouent un rôle de modèles professionnels pour leurs étudiants et étudiantes. La date butoir pour les inscriptions est le **28 novembre 2008**. Les détails concernant les procédures d’inscription sont affichés sur le site Web réservé aux membres de l’ACHA, à la section “*Networking and Recognition*”.



THE CANADIAN DENTAL  
HYGIENISTS ASSOCIATION  
L’ASSOCIATION CANADIENNE  
DES HYGIÉNISTES DENTAIRE



# Establishing a social dental clinic: Addressing unmet dental needs

Sharon L. Melanson, DIPDH, RDH

## ABSTRACT

Individuals who do not have the financial resources to pay for treatment at a dental office have few avenues for relief of their dental pain, and their suffering is going unnoticed by the majority of Canadians. Since lack of access to treatment for dental pain is inadequately addressed by the health care system, other means to meet this need must be developed. Many communities are addressing this inequity by establishing social dental clinics where dental treatment is provided to underprivileged clients at reduced or no fee. These social dental clinics are able to improve the lives of many individuals as they help to fill an unmet health care need. Dental hygienists can play a leading role in raising the issue of lack of access to dental treatment, and can work in partnerships to address this issue. The effective collaboration of dental professionals, health and social agencies, and local government in Kelowna, British Columbia, resulted in the development of a relief of pain social dental clinic that has been operating successfully since 2004. This clinic currently operates with volunteer dental professionals providing relief of pain through extractions. The paper describes the process that was followed to plan for and implement this clinic, and may provide a model that can be followed by other communities.

## RÉSUMÉ

Les personnes qui n'ont pas les moyens de se payer des soins au cabinet dentaire ont peu de choix pour se soulager de la douleur et, au Canada, la majorité des gens ne remarquent pas leur souffrance. Comme le système de soins de santé manque d'accès aux soins anti-douleurs, il nous faut créer d'autres façons de répondre à ce besoin. Plusieurs collectivités le font en mettant sur pied des cliniques sociales offrant des soins dentaires à prix réduit ou sans frais aux personnes défavorisées. Ces cliniques peuvent accroître la longévité de plusieurs personnes, car elles aident à combler des besoins de soins non satisfaits. Les hygiénistes dentaires peuvent jouer un rôle de premier plan en soulevant le problème du manque d'accès aux soins dentaires et en développant des partenariats pour le résoudre. L'étroite collaboration entre les professionnels dentaires, les organismes de santé et sociaux et l'administration locale de Kelowna (C.-B.) a permis de créer une clinique dentaire sociale pour lutter contre la douleur, qui fonctionne avec succès depuis 2004. On y trouve des professionnels dentaires qui pratiquent des extractions pour soulager de la douleur. Le présent article, qui décrit la planification et l'implantation de la clinique, peut présenter un modèle pour d'autres collectivités.

**Key words:** dental clinics, homeless persons, poverty

## INTRODUCTION

*Nursing staff at a maternity ward were appalled by the sight of the expectant mother's teeth, but more appalled at the suffering she was enduring with multiple toothaches. The woman told the nursing staff, "When the teeth break off, I use pliers and pull them out myself."*

This is only one of many stories the author encountered through her work as a Community Dental Hygienist for the Interior Health Authority in Kelowna, British Columbia. Similar calls were commonplace: a woman who was contemplating pulling her husband's teeth herself as they had no money for treatment — he was diabetic and was told his "rotting" teeth were making his condition worse; a man who repeatedly ended up in the emergency ward receiving intravenous antibiotics four times per day to fight the infection resulting from his untreated abscessed teeth; a woman whom a Public Health Nurse felt was abusing alcohol to obtain relief from her toothaches, which in turn was affecting her ability to properly care for her children. It was for these people and all the others whose stories were not heard, that the necessity for a 'relief of pain' dental clinic became a consuming goal.

The purpose of this paper is to provide an overview of the process of establishing a social dental clinic using the example of Kelowna, British Columbia. The intent is to provide other dental hygienists with some knowledge and skills to tackle this same undertaking in their own community. The background section draws from existing

literature and is intended to raise awareness of the current lack of access to dental care for the underprivileged and the need to take action to address this issue. Three different models of social dental clinics are reviewed to explain the range of options available. The initial steps in the process of establishing a social dental clinic, namely, conducting a needs assessment and establishing community contacts, are described to provide insight for dental hygienists who are interested in starting the process.

The first issue to tackle is terminology, as a variety of terms are used in the literature. Authors use such words as "underprivileged", "disadvantaged", "working poor", "low income", "welfare recipients", "homeless", often without providing a definition. For example, there are several definitions of homelessness. Homelessness includes a broad range of circumstances other than just lacking a roof over one's head; there are single homeless people who are not sleeping in the street, but are living with friends or family in temporary accommodation (often termed "couch surfing"). A simple, yet encompassing definition was used by the City of Kelowna when performing their homeless census<sup>1</sup>, "Those who do not have a permanent residence to

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Submitted 2 Sept. 2007; Revised 18 Jan. 2008; Accepted 31 Jan. 2008

This is a peer-reviewed article.

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which they can return whenever they so choose." When discussing articles the specific terminology used by the authors will be applied.

The target group for the Kelowna social dental clinic was any youth or adult who was in dental pain and could not afford treatment in a private dental clinic. In this paper this group is collectively referred to as the underprivileged and includes both the homeless and working poor and welfare recipients; that is, anyone who cannot afford treatment in a private dental office (based on pre-established financial criteria). Publicly funded and government sponsored dental insurance are interchangeable terms. In British Columbia, people who have a government sponsored dental plan are considered to have publicly funded dental insurance. The dental clinics providing treatment to the underprivileged can take the form of reduced or no fee, and are collectively referred to as social dental clinics.

### Case of Kelowna

As the fastest growing city in British Columbia, Kelowna is experiencing increased poverty and homelessness. Needs assessments done by various groups had identified lack of access to dental services one of the top priorities amongst the homeless.<sup>1,2</sup> At the same time the dental community was being mobilized by a local dentist to try to find a way to provide emergency dental services to those in need. As a community dental hygienist working for a health authority, the author was being inundated with calls from people desperate for relief of dental pain. With all stakeholders identifying the same issue, a momentum for change had begun. Fortunately, several well written reports<sup>3-5</sup> that outline many of the steps taken by various groups in establishing social dental clinics were available for guidance. What started as a discussion around a table by concerned professionals, led to a three-year process, and culminated in a successful fixed social dental clinic. In June 2004, the Kelowna Gospel Mission (KGM) dental clinic opened its doors, providing free relief of pain or infection for adults and youth living in poverty, and continues to run successfully to this day. Currently, the clinic provides an extraction service with a limited denture program for clients made toothless by the clinic. Special clinics offering restorative and oral prophylaxis are available on a limited basis for clients in special recovery programs operated by the host agency, the Kelowna Gospel Mission. This is the story of the KGM dental clinic.

### Canadian Health Care Context

"In spite of Canada's commitment to equity in health, the oral health sector in Canada is characterized by marked inequities and inequalities."<sup>6</sup> Further, Leake<sup>7</sup> has pointed out that in Canada, there is no agency that is required to report on inequities in oral health. Dental care is left largely to private markets and stands outside of Canada's universal publicly funded health care system and therefore is not subject to the principles of the other health services: universality, comprehensiveness, public administration, portability and accessibility.<sup>8</sup> There does not appear to be any change to the situation on the horizon. Despite many excellent submissions (Canadian Dental Hygienists Association,<sup>9</sup> Canadian Association of Public Health

Dentistry,<sup>10</sup> Federal/Provincial/Territorial Dental Directors<sup>11</sup>) to the Romanow report<sup>12</sup> outlining the need for oral services to be included, oral health was excluded from the final report. Since change is not coming from the formal health care system, access to oral care services will remain a two-tiered system; people with higher socio-economic status in higher paying jobs with private insurance plan coverage receiving the majority of dental care, while the homeless, the working poor, and other underprivileged groups finding themselves with little access to obtain relief from their dental problems.

## ORAL HEALTH

### Homelessness and oral health

What is known about the oral needs of the homeless? The very nature of homelessness means existing without a means of identification, and currently Canada does not have any accurate national statistics on the number of homeless.<sup>13</sup> This is a difficult group to research and only a few studies have attempted to assess the oral needs of homeless populations in Canada. Without an estimate on the number of homeless, it is impossible to know the number of people in Canada who are experiencing the dental needs reflected in the few available studies. In 1994, a survey was conducted with street-involved youth (under 25) in Toronto, which found the dental needs of street youth were far greater than those of the general youth population.<sup>14</sup> King and Gibson<sup>15</sup> reviewed American literature and found only five studies that focused on the oral health status of the homeless over a twenty-year span. Each of the studies in the review found high rates of untreated caries compared to the general population.<sup>15</sup>

Just as the reasons for becoming homeless are complex, so are the reasons for poor oral health. The chaotic lifestyle of the homeless puts them at high risk for oral diseases. The difficulty of obtaining a proper diet often results in a higher consumption of convenience foods with high sugar content. This diet is combined with poor access to water and oral hygiene aids such as toothbrushes and toothpaste.<sup>16</sup> In addition, there is the lack of access to regular preventive dental care. Drug addiction, alcoholism and psychiatric diseases are prevalent among the homeless and each contributes to poor oral health.<sup>17</sup> Surveys have demonstrated repeatedly that substance abuse is the single most common disorder of the homeless.<sup>18</sup> Substance abuse has a profound effect on oral health, and most recently "meth mouth" (a condition of extensive decay seen in the users of methamphetamine) is on the rise.<sup>19</sup> "Periodontal disease is also commonly seen amongst drug users probably caused by their poor oral hygiene, xerostomia and the immuno-suppressive effect of opioids."<sup>20</sup> Alcohol abuse, particularly when combined with tobacco use greatly increases the risk of oral cancer<sup>21</sup>, and mental health disorders impair a person's ability to maintain overall health including oral health.

The frequency of illness is significantly higher among homeless people as they suffer more commonly from psychiatric disease, mental and physical disabilities, drug and alcohol problems, and increased incidence of infectious diseases.<sup>22</sup> In addition, lack of adequate hygiene, poor nutrition, and exposure to violence and the elements all

contribute to an existence that takes a toll on health<sup>18</sup>. A life on the street means health is not always the immediate priority: "If you're homeless and penniless, the big problems don't really matter. It's the day to day problems. Where's the next meal or where you're sleeping."<sup>23</sup>

### Effects of oral health on overall health

For all sectors of the population the relationship between oral health and general health is coming under increasing study. Associations have been found between oral diseases and diabetes, heart disease and stroke, respiratory disorders, adverse pregnancy outcomes and other conditions.<sup>6,24-26</sup> The mouth acts as a portal to systemic risk factors, and infections in the mouth can have consequences for the rest of the body.

A relationship also exists between oral health and quality of life, and unfortunately, debilitating dental pain is a common occurrence. A Canadian literature review conducted by Locker and Matear<sup>6</sup>, reported on two Canadian studies that found that the most common pain affecting daily life was a "toothache", and that over a four-week period, 6%-9% of adults experienced moderate to severe oral or facial pain. This pain affected the daily activities of 1-in-7.

### Relation of income to oral health

The impact of socio-economic status on oral health is that people struggling to make ends meet do not have money to spend on dental treatment. When the cost of a dental visit is the same as a month's worth of groceries, people living on a low income are forced to choose between oral health and daily necessities.<sup>3</sup> Poor oral health is concentrated within low income and other disadvantaged groups such as new immigrants and those without dental insurance coverage.<sup>6</sup> A study in Quebec found people with a low family income have close to three times as many decayed surfaces as people with a high family income.<sup>27</sup> A study in the USA conducted in Harlem, New York, found that from a list of more than fifty health complaints, problems with the teeth or gums were the most frequently cited health concern of adults.<sup>28</sup> The study found that the percentage of Harlem adults suffering from dental problems was greater than the percentage suffering from hypertension, asthma, or diabetes. Those who reported tooth or gum problems had the lowest household incomes. The literature shows a strong relationship between income and oral health, yet little is being done on a national scale to address the inequity.

Utilization of dental services is also associated with income. In Canada, the National Population Health Survey (NPHS) of 1996-97 found only 53 per cent of Canadians were covered by private or public dental health insurance plans.<sup>29</sup> Insurance coverage is a powerful determinant of both dental visits and the volume of care received at those visits. Canadians with dental insurance coverage are 2.7 times more likely to report a dental visit in the previous year than the non-insured. The NPHS found 78 per cent of Canadians in the highest income group had a dental visit in the last year, while only 41 per cent of those in the lowest income group did so. Researchers in Canada have found that those in poorer health, and those who are more

dependent are more likely to pay a visit to a physician; and that healthy, young, highly educated, high-income people are more likely to go to the dentist.<sup>30</sup> Health economist Dr. Birch reviewed data gathered in 2001-02<sup>31</sup> and reported that in Canada, "about four times as many Canadians did not seek dental care due to cost than those who did not seek medical care for that reason." The study goes on to report that "forty-two percent of low income individuals with dental needs did not visit the dentist because of the cost."

Private dental insurance is for the most part a privilege of the privileged. Those with full time employment in higher paying jobs are the Canadians most likely to have private dental insurance as a benefit from their employer. Publicly funded dental care varies by province, but most provide limited programs for welfare clients and children in low income households. In contrast to the international trend, the percentage of public funds in Canada allocated to dental care is declining. In 1990 the public contribution to dental care expenditures was 9.6 per cent, but by 2000 it had fallen to just over 5 per cent.<sup>31</sup> These cuts are happening at a time when increasing evidence is linking poor oral health to negative effects on general health.

When individuals suffering from debilitating dental pain do not have the money to access private fee-for-service dental treatment, they are left with trying to deal with the symptoms. This often results in self-medication. In a study of behaviours related to dental care among persons receiving public assistance in Montreal, many participants sought alternative relief from their dental pain through over-the-counter analgesics.<sup>32</sup> Other individuals try to find relief by attending the one area that will not turn them away; the emergency room (ER) of the local hospital. Emergency rooms and "walk-in" medical clinics are staffed by physicians without the knowledge, skills, or tools to provide dental treatment. The care is palliative and the patients are referred to the dentist for treatment.<sup>33</sup> Unfortunately, for many homeless individuals, while they may leave the ER with a prescription in hand, they often do not have the financial resources to even fill their prescription. They are forced into a revolving door of prescriptions for treatment of the pain or infection, but not the cause. This puts a financial burden on the medical system with no satisfactory resolution. A study conducted in the USA to examine the frequency of dental disorders presenting to an emergency department found that patients with dental-related complaints represent a significant portion of emergency department visits. The dental patients attended due to lack of dental care accessibility for the poor, uninsured, and the federally assisted. Another study conducted at a hospital ER in the USA reported that 41 per cent of patients who had received emergency services for dental problems had first sought treatment from medical practitioners before they visited the hospital ER.<sup>35</sup> The magnitude of this problem in Canada is unknown.

### BARRIERS TO ACCESSING DENTAL CARE

There are many barriers to accessing dental care for different populations; the focus of this paper, however, is on financial barriers to care, found to be the "leading barrier to dental services for marginalized communities."<sup>36</sup> This

includes both lack of funds to pay for treatment and refusal by dentists to treat clients on publicly funded programs.

There is a common misconception among the general public, and even within the dental profession, that government sponsored dental plans will provide for the dental needs of the financially underprivileged. Bedos et al.<sup>37</sup> conducted one of the few published reports on dental treatment-seeking behaviors of welfare recipients. The report followed the dental care pathway undertaken by individuals when seeking dental care. It included an assumption that treatment would be provided since each individual in the study received social assistance that "entitled them to free basic dental care." The reality was that of the 16 participants in the study, several encountered financial barriers and could not obtain treatment. Two had not yet met the one-year waiting period to obtain dental benefits; one was in severe pain but was still "refused care by several dentists." Another two were advised that they needed endodontic treatment they could not afford and which is not an insured expense. For one client the endodontic treatment was halted when the client was unable to pay for that service and the tooth was extracted. Extraction is not the preferred treatment, but it is the insured treatment.

While the publicly funded insurance system does provide for some, the gaps leave many without access to care. In British Columbia, low income individuals who are recipients of the Ministry of Employment and Income Assistance have varying levels of dental coverage. Currently persons with disabilities and persons with persistent multiple barriers have a maximum coverage limit of \$1000 over two calendar years.<sup>38</sup> All other income assistance clients are only eligible for emergency dental services to relieve pain. The Ministry's fee schedule for these dental services is, on average, 76 per cent of the British Columbia Dental Association's (BCDA) 2006 fee guide.<sup>38</sup> Since the dentist is only reimbursed at 76 per cent of an old fee guide, the client is usually held responsible for the remaining portion of the fee. That 24 per cent is often beyond the ability of clients to pay, and in many cases it is the financial gap that is preventing clients on government sponsored dental plans from obtaining dental treatment, even emergency treatment for relief of pain. A trend was found in the Canadian literature of clients, on government assistance, reporting dentists refusing to accept them as clients if they could not afford to pay the balance amount of the fee.<sup>3,31,36,37</sup> In such cases, publicly funded dental insurance programs are not resulting in access to dental care. In 2002 British Columbia made significant changes to the welfare system which included benefit reductions and tightened eligibility requirements. These cuts have resulted in fewer people receiving welfare, therefore fewer receiving the limited dental benefits.<sup>39</sup> Many homeless individuals cannot or do not access the welfare system, and the numbers are increasing.<sup>40-42</sup>

In addition to the plight of the homeless, the group referred to as "working poor" does not have access to either a private or a government sponsored dental plan. The estimated monthly food costs for a 25-49 year old adult based on a study in 2005 by the Dietitians of Canada is \$197.79.<sup>43</sup> According to the BCDA 2006 fee guide, the

cost of a recall oral health examination and dental hygiene therapy may exceed \$132.00. As a new client the cost may exceed \$200.00.<sup>44</sup> Clearly obtaining even the basics of dental care is out of the reach of many Canadians given that the costs of food and shelter leave little room for the high cost of dental services.

Both the scientific literature and government and agency reports identify that there is lack of access to dental care for the financially underprivileged and "further studies demonstrating oral health inequalities are redundant"<sup>45</sup> and unnecessary. Efforts need to be focused on addressing the situation, not on further recording it. One approach to addressing the problem is to establish social dental clinics.

### Models of social dental clinics

Limited access to dental care places a burden upon the underprivileged, which has spurred others in society to work towards finding solutions. The need must be met by professional dental services, and one approach to providing such treatment services takes the form of developing reduced or no fee programs. There are three main approaches to these programs:

1. referral to existing private dental offices,
2. dental services provided by a mobile clinic, and
3. fixed dental clinics.<sup>46</sup>

Each may provide either reduced or no fee treatment, and each has advantages and disadvantages (see Table 1).

One component important in each of the three types of clinics described is the predetermination of financial need. It is critical for the future of the clinic that only those underprivileged clients for whom the clinic was initially established are able to receive treatment. This is critical for ongoing funding, and for acceptance by private dentists of the clinic in their community, and is particularly important when volunteers are donating their time to provide treatment. There is always the possibility of a perception among local dentists that a subsidized program will create competition for their clientele. The clientele served by the social dental clinic are quickly recognized as not the same clientele that access the private dental office. As long as clear financial criteria are developed and adhered to, the clinics will be only providing treatment to those who cannot afford the current private fee-for-service system.

The financial criteria developed for the clinic will determine who gets treated and who does not. Simply stating that the clinic serves the underprivileged does not provide enough clarification, particularly for social agency staff that may be referring clients. Strict financial limits may provide clarification, but at the risk of excluding some of the target clients. Also, it can be degrading for clients to continually justify their need for help. Conversely if the criteria are too loose, the clinic may find it is providing treatment to clients who are simply taking advantage of low-cost or free treatment. Also important to determine is how the criteria will be enforced. Once the target group has been clearly defined, then researching the financial criteria used by similar clinics is suggested as a good starting point. Social workers who deal with underprivileged clients trying to access government programs have expertise in the area of financial criteria and their input on establishing, obtaining and enforcing financial criteria is recommended.

Program Description	Advantages	Disadvantages
<b>1. Referral to existing dental offices</b>		
<ul style="list-style-type: none"> <li>• Clients pre-assessed to determine treatment needs and financial criteria (often on the site of a social agency such as Salvation Army).</li> <li>• Assessment by a paid or a volunteer position.</li> <li>• Assessment could involve oral hygiene instruction and provision of oral care products.</li> <li>• Treatment provided in private dental offices.</li> <li>• Appointments and treatment (including any potential costs if this is a reduced-fee program) coordinated directly between dental office and client.</li> <li>• A variation to this program is colleges or university clinics, where services are provided by students.</li> <li>• Non-profit organizations may pay some of the fees associated with treatment (e.g. lab bills). Reduces overheads and results in more dental offices participating, and accepting clients.</li> </ul>	<ul style="list-style-type: none"> <li>• Low cost to initiate program through use of existing dental offices.</li> <li>• Pre-assessment confirms financial criteria are met.</li> <li>• Dental office is free to choose day and time of appointment.</li> <li>• Dental office is free to choose the number of clients they will treat.</li> <li>• Social agencies may help clients with transportation to their appointments.</li> <li>• Treatment provided across many offices to ensure even distribution of free or low cost treatment.</li> <li>• Both dentists and dental hygienists may volunteer their services.</li> </ul>	<ul style="list-style-type: none"> <li>• Reliance on a dental professional to pre-screen and match clients to dental offices.</li> <li>• Successful only when most of the dental offices in a community are participating.</li> <li>• When appointments are missed by clients, dental offices sometimes withdraw from the program.</li> <li>• Dental school participation is limited by geographical location.</li> <li>• High recovery fees in schools may exclude the underprivileged even when available.</li> <li>• Constant reliance on a champion to keep program running smoothly.</li> </ul>
<b>2. Dental services provided by mobile clinics</b>		
<ul style="list-style-type: none"> <li>• Specialized vehicle (owned or rented) accesses the area needing care.</li> <li>• Clients' financial criteria are verified to determine reduced or no-fee treatment.</li> <li>• Compensation to the service providers for treatment is dependent on the community's ability to obtain funding.</li> <li>• Staffed by dental personnel from each community: <ul style="list-style-type: none"> <li>• Paid staff travel with the vehicle, providing treatment in each community. Compensation for treatment would depend on the community's ability to obtain funding.</li> <li>• Vehicle rented by a community for a window of time, and staffed by volunteer dental personnel.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Particularly suited for areas where population is too small to sustain a fixed clinic.</li> <li>• Suited for geographically isolated communities where transportation costs to obtain services is high.</li> <li>• Handy in situations where mobility or transportation is the issue (e.g. long term care facilities), and potential income from this source could offset expenses.</li> </ul>	<ul style="list-style-type: none"> <li>• Reliance on a coordinator in each community (track clients, determine financial criteria, book appointments).</li> <li>• Services that require many appointments may not be fulfilled as vehicle may move to another community before treatment is completed.</li> <li>• Community must have willing volunteers to staff the mobile clinic, or funds to pay paid staff.</li> <li>• Canadian winters create difficulties for operating a clinic out of a vehicle.</li> </ul>
<b>3. Fixed dental clinics</b>		
<ul style="list-style-type: none"> <li>• Treatment site is dedicated to providing dental services to underprivileged clients at reduced or no-fee based on predetermined financial criteria.</li> <li>• Clinic may choose to provide services to clients who pay to increase income and offset expenses.</li> <li>• Usually located in larger cities close to the population they serve.</li> <li>• Clients become familiar with the location and hours of service.</li> <li>• Staffed by paid workers or volunteers or a combination.</li> <li>• Volunteer base comprises students of dentistry, dental hygiene, or certified dental assisting programs.</li> <li>• If dental clinic can be integrated with other health and social services, clients are able to obtain more services in one location. Financial benefit to clinic through sharing facilities such as reception.</li> <li>• Clinic coordinator requires a time commitment and consistency that is beyond what can be expected of a volunteer, and benefits from being a paid position.</li> </ul>	<ul style="list-style-type: none"> <li>• Potential to provide full range of dental treatment services to a large number of clients.</li> <li>• Rapport with clients as they continue to use clinic.</li> <li>• Services over an extended time allow neglected mouths to be brought to a healthy state.</li> <li>• Clinics relying on volunteers may operate without charging a fee due to reduced overhead costs.</li> <li>• Paid staff results in stability.</li> </ul>	<ul style="list-style-type: none"> <li>• High start-up costs from purchasing and maintaining dental equipment.</li> <li>• Large population to utilize the clinic to justify the expense of equipment and use of space.</li> <li>• Stationary site handicaps clients who may be in a nearby community but cannot overcome transportation barriers.</li> <li>• Staff salaries drain resources, and may result in pressure to have more paying clients resulting in the clinic losing its focus on the clientele it was originally designed to serve.</li> <li>• Volunteer services are limited to availability and willingness to continue.</li> <li>• Usually a paid clinic coordinator is required to keep the clinic operating smoothly.</li> </ul>

Table 1: Models of social dental clinics

## Approach to project

This paper outlines the activities that were fundamental to the work involved in establishing the KGM dental clinic. Community assessment is necessary to determine readiness to take on such a project. Some communities may have infrastructure in place that makes the addition of a dental clinic the next obvious step, whereas others may be starting the process at a beginning level. Establishing a social dental clinic requires three important considerations:

### *1. Needs assessment: defining the population*

There are many studies that provide evidence of the need for access to dental treatment by marginalized populations.<sup>6,14,15,27,28,30,31,36,37</sup> However, scarce resources coupled with high demand have led to funding agencies requiring local evidence to support the need for services.<sup>47</sup> It may not be enough to use national or even provincial data; local data may be required.

The value of a needs assessment depends upon the questions asked and the participants that respond. A local needs assessment is a valuable tool when properly conducted; a program based on the need identified by the target population will be more successful than a program built on a need that has been assumed by others. While a needs assessment should be done and is probably necessary to obtain funding, there is a good chance that local data may already exist in some form. Social and health agencies within each community strive to meet the needs of their clients and an unmet need such as lack of access to dental care may already be documented.

Health agencies provide opportunities for obtaining information. While hospitals generally do not collect data on the usage rates of the ER for dental cases that specifically result from the financial inability to obtain dental treatment, ER physicians are well aware of the numbers of clients coming to their department in search of relief from dental pain and infection. Personal discussion with the ER department head at the Kelowna General Hospital revealed that the department was seeing approximately three cases daily of people in dental pain, who did not have the financial resources to pay for treatment in a dental office.<sup>48</sup> Many communities also have a form of "street nurse" service who are often familiar with the dental needs of the underprivileged population they serve.

Social agencies are a tremendous source of information. Larger cities may have committees dedicated to the issue of homelessness, and these committees may have the local needs assessment data required. City councils that have a social planning committee can also provide useful data. In Kelowna several reports were available and precluded the need to gather more needs assessment data. The Kelowna Steering Committee on Homelessness had prepared a comprehensive community plan that listed priority projects. Since access to dental services was an identified priority, the committee was an obvious advocate and partner for the dental clinic proposal.<sup>49</sup> This committee was the avenue through which funding was obtained for the KGM dental clinic.

### *2. Role of other agencies: creating partnerships*

It was when the dental community partnered with the

local social agencies that the KGM Dental Clinic moved from a vision to a reality. Some social dental clinics in British Columbia, have received funding from the provincial health sector, while several, including KGM dental clinic, have received funding primarily through social agencies. The KGM dental clinic received funding from the National Homelessness Initiative, a federal funding agency that is now called the Homelessness Partnership Strategy (HPS).<sup>50</sup> The Homelessness Partnership Initiative (HPI) is a program of the HPS and provides funds to selected communities that have been identified as having a significant problem with homelessness. Additional funding to the KGM dental clinic has been provided by the British Columbia Ministry of Employment and Income Assistance.

The social determinants of health affect oral health and the staff of local social agencies are already well aware of the impact on their clients of lack of access to dental treatment. These partners will require little convincing of the need for dental treatment for the underprivileged. Effects on their clients range from the obvious of trying to cope with pain and infection, to decreased nutritional status, to lost days from work (which can result in job loss), to the inability to obtain and retain employment (people with rotting teeth have few job prospects). The clients who are hidden from the dental community due to lack of access are well known to the social agencies.

What services currently exist in the community to serve the underprivileged? This is the starting point to connecting with health and social agencies. In larger cities with medical centres that provide outreach medical services, the addition of a dental clinic is a logical fit. In smaller communities there are services that provide shelter and meals. One of these services may be ready and willing to work on the task of providing access to dental treatment. Funding agencies usually require a non-profit agency through which to channel the funds, therefore the existence of such an agency is a prerequisite. An agency that is a charitable organization is able to issue tax receipts for donations. For many dental professionals and private supply companies a tax receipt for equipment or materials they have donated is a significant benefit. It is through making connections that networks will be developed that bring the dental community and health and social agencies together towards a common goal.

The KGM is the host agency that owns and operates the KGM dental clinic. The KGM is a non-profit agency caring for the hungry, hurting and homeless.<sup>51</sup> The dental clinic steering committee consists of representatives from health service agencies, social service agencies, local government, and from the dental community including dentists, dental hygienists, and certified dental assistants. Health and social service agency staff have been invaluable with such tasks as developing financial criteria, and getting word out on the street of the availability of the clinic. Everyone at a common table creates a two-way street; social agency staff inform the dental professionals of the needs of their clients, and the dental professionals are able to refer back to the social agencies clients who have come in for dental treatment and are in need of the services provided by the various social agencies.

The social problems that create the need for a social

dental clinic are complex and cannot be tackled effectively without the collaboration of professionals from several disciplines. Interdisciplinary collaboration is a process that “facilitates the achievement of goals that cannot be reached when individual professionals act on their own.”<sup>52</sup> A social dental clinic requires professionals not only from the dental community, but also from other health and social agencies.

### 3. Role of the dental community: identify the champions

Establishing a dental clinic may begin as an undertaking by any citizen concerned and dedicated enough to take action, but the oral needs of the clients are best served by dental professionals. Dental professionals will need to be involved at an early stage to determine the clinical needs of the clinic.

Clients accessing social dental clinics require treatment provided by dentists, and it is a common feature of these dental clinics that there is a dentist championing the cause amongst peers. Regardless of the type of clinic being established, the services provided at the clinic are entering the domain of the local dentists. Many dentists already dedicate a percentage of their work time providing free treatment to the underprivileged, and are usually pleased when an organized system to serve these clients is established.

The experience of the KGM dental clinic is that the dentists in the community wanted an organized way to volunteer their services and to make donations of equipment and supplies. The ‘win-win’ scenario requires good communication and involvement by a local ‘dental champion’ working with the local dental society. The support of the local dentists is imperative when the clinic is depending on volunteer dentists to provide treatment.

An evaluation report conducted in 2006 identified the importance of the strength of the volunteer base: “the strength of this volunteer energy is attributed to having a dentist playing a leading role in the clinic and in the reaching out to fellow dentists.”<sup>54</sup> However, the involvement of other dental professionals is also critical. Both a dental hygienist and a certified dental assistant sit on the board of the KGM dental clinic steering committee, and are themselves active volunteers at the clinic. They bring ideas and concerns from their respective professions to the table to be discussed, set up the volunteer schedules, and act as liaison between the clinic and their colleagues. Each profession needs a champion who brings the passion of their professional to the mix that is required to provide dental treatment to clients.

### CONCLUSION

There is little research done on the cost to the medical system resulting from the lack of access to dental care. What is the result of not providing treatment? The answer likely involves not only financial costs to the medical system, but societal costs; both to the community and to the individual and their family.

The KGM dental clinic provides a needed service to a population that is experiencing barriers to dental care. The clinic has, and will continue, to undergo changes as it tries

to meet the needs of the underprivileged while running as a volunteer service. The work does not end when the doors to the clinic open: there is ongoing need for evaluation, the need to promote the clinic’s services to ensure ongoing support over time, the need for discussion and collaboration with all stakeholders. It is also important to keep in mind that no program can continue to operate with any type of stability without ongoing funding of differing degrees. Many lessons were learned along this three-year journey and social dental clinics are the product of much work and collaborative planning.

Why we need social dental clinics to provide a health service to a segment of our population is a bigger question than the scope of this paper. The access to dental care issue is complex involving:

1. the government and the role it plays in providing benefits,
2. society and the role it plays in voicing what is acceptable and unacceptable both in terms of denial of treatment by dental professionals and limitations of dental treatment imposed by government, and finally,
3. the people who have chosen to be dental professionals and how they view their obligation to their professional ethics to “provide care to all members of society.”<sup>53</sup>

A social dental clinic is at best a Band-Aid solution; dealing with the downstream results of an upstream problem. Each person who receives treatment at any social dental clinic is thankful for the service and is healthier because of the service. So, during the wait for a more definitive solution to the lack of access to dental care, we can work at a community level and see results in those who access the clinic. Every project that is worthwhile takes commitment and passion. Every social dental clinic has behind it dedicated people who had the determination to see the project to completion.

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## Frequently asked questions

CDHA staff

Dental hygienists are navigating new territory as private practitioners and this columnist, in her new role as Independent Practice Advisor, has chosen to address the top five of the most frequently asked questions to launch this column.

CDHA is keenly aware that insurance coverage and claims issues are of immediate concern. We are working with the CDAnet to establish our own CDHAnet. This project will take several more months. In the interim, please continue to submit all dental hygiene claims through the postal system. We will announce new carriers on an ongoing basis, via e-mail broadcasts and on the CDHA web site.

### 1. What is a Unique Identification Number?

The Unique Identification Number is designed specifically for dental hygienists who wish to submit dental hygiene claims to the insurance carriers. CDHA verifies your dental hygiene licence, and issues you a unique 9-digit number based on your CDHA membership number and your province of work. This number must appear on all of your communication with the insurance companies. This is a CDHA member benefit and is available to non-members for a fee.

### 2. Why can't I just submit dental hygiene claims through the CDAnet?

CDAnet is for dentists to submit their claims, using their unique ID and CDA codes. The insurance companies cannot recognize dental hygiene fee codes or unique dental hygiene identification numbers electronically at this time. We do anticipate using CDAnet standards and protocols to transmit electronically in the future. Presently the denturists do just that. Their electronic system is known as DACnet.

### 3. What dental software should I purchase?

You can purchase any of the current systems that are available as long as they are CDAnet certified. That means that they comply with the CDA electronic standards for issues such as confidentiality and privacy. There are currently over twenty five CDAnet certified software vendors. The CDHA is working with several to develop a product specifically geared to the needs of dental hygienists that will be cost efficient. At the same time we will license the

software vendors to input our CDHA service codes and the dental hygiene claim form into their systems.

### 4. I have the list of dental insurers who accept dental hygiene claims, but I am still having some of my claims denied.

Here are examples of 3 types of denied claims.


- a. Carriers such as Great West Life, who accept our claims, work with specific groups with narrowly defined benefits. The insurance carrier must verify with these specialty groups to ascertain whether they wish to accept claims from dental hygienists. In some cases they opt out of covering our services. It is best to check with the plan sponsor before providing your treatment.
- b. Dental hygienists are competing, so to speak, with scaling units provided by dentist offices. For instance if a subscriber has 8 units of scaling per year and the insurance company has already paid him/her for the 8 units, then any additional units whether they come from a dental or dental hygiene practice will be denied.
- c. Dental hygienists provide service that is not covered by the insurance plan. An example of such a service is tobacco cessation counselling. Most, if not all plans, will deny this claim.

### 5. I anticipate purchasing mobile dental hygiene equipment because the start-up costs are less than those for a fixed office. What extra challenges will I face practising in a long-term care facility?

A mobile dental hygiene practice is definitely more cost efficient to set up, but there are other issues which influence your ability to practise efficiently. It will take time and effort to set up the required processes and contracts with the facility. In addition there is additional paperwork involved in obtaining permissions and accurate medical histories. Often the clients will require a pre-assessment in order for you to ascertain their level of compliance, and to determine what treatment can be provided. The number of clients who can be seen in a day are restricted by the mobility of the patients, the set up and take down time, your driving time, and the internal schedules that you must respect when you work in these facilities. ☹️

The Independent Practice Advisor welcomes your feedback:  
aew@cdha.ca






# Guidelines for authors

*Canadian Journal of Dental Hygiene*

What does it take to submit a paper to this journal?  
Read the journal's *Guidelines for authors* or  
*Instructions aux auteurs* available online at  
<http://www.cdha.ca/content/resources/journal.asp>



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# CDHA Dental Hygiene Recognition Program

The CDHA is pleased to announce the 2008 Dental Hygiene Recognition Program. This program, made possible through the contributions of CDHA Corporate Partners, is designed to recognize distinctive accomplishments of CDHA members, including both practising and student dental hygienists. Entry details are available on the CDHA members' web site, in the "Networking and Recognition" section.








	PRIZE CATEGORIES
	<p><b>Crest Oral-B/CDHA Dental Hygiene Baccalaureate Student Prize</b></p> <ul style="list-style-type: none"> <li>• One \$1,500 prize to be awarded to a dental hygiene student for contributing to the advancement of the profession in the context of educational and volunteer activities, and to be used towards education expenses.</li> </ul>
	<p><b>Crest Oral-B/CDHA Dental Hygiene Diploma Student Prize</b></p> <ul style="list-style-type: none"> <li>• One \$1,000 prize to be awarded to a dental hygiene student for contributing to the advancement of the profession in the context of educational and volunteer activities, and to be used towards education expenses.</li> </ul>
	<p><b>Crest Oral-B/CDHA Health Promotion Prizes</b></p> <ul style="list-style-type: none"> <li>• These three prizes are awarded for the creative promotion of dental hygiene, including community impact, education, and innovative partnerships and include:             <ol style="list-style-type: none"> <li>1. Individual prize of \$1,000</li> <li>2. Clinic Team prize of \$2,000</li> <li>3. Dental Hygiene Schools prize of \$2,000</li> </ol>             * Half of each health promotion prize will be shared with the local dental hygiene society.           </li> </ul>
	<p><b>Dentsply/CDHA Leadership Prize</b></p> <ul style="list-style-type: none"> <li>• One \$2,500 prize to be awarded in recognition of a significant contribution to the local, academic or professional dental hygiene community through involvement and leadership.</li> </ul>
	<p><b>Sunstar/G.U.M./CDHA Achievement Prize</b></p> <ul style="list-style-type: none"> <li>• One \$2,000 prize to be awarded to a student enrolled in the final year of a dental hygiene program who has overcome a major personal challenge during his/her dental hygiene education.</li> </ul>
	<p><b>Sunstar/G.U.M./CDHA Global Health Initiative Prize</b></p> <ul style="list-style-type: none"> <li>• One \$3,000 prize in recognition of a registered dental hygienist who has committed to volunteering as part of an initiative to provide oral health related services to persons in a disadvantaged community or country.</li> </ul>
	<p><b>TD Meloche Monnex/CDHA Visionary Prize</b></p> <ul style="list-style-type: none"> <li>• One \$2,000 prize awarded to a student in a masters or doctoral program in dental hygiene in recognition of a vision for advancing the dental hygiene profession.</li> </ul>

**Get involved and you could win!**

Application deadline is **November 28, 2008**. The CDHA will make a public announcement of the prize winners in April 2009, during National Oral Health Month.

# Programme de reconnaissance en hygiène dentaire de l'ACHD

L'ACHD est heureuse de présenter le programme de reconnaissance en hygiène dentaire pour l'année 2008. Ce programme, rendu possible grâce aux dons des entreprises partenaires de l'ACHD, est conçu pour reconnaître les réalisations distinctives des hygiénistes dentaires et des étudiantes et étudiants en hygiène dentaire membres de l'ACHD. Les détails concernant les procédures d'inscription sont affichés sur le site Web réservé aux membres de l'ACHA, à la section "Networking and Recognition". La date butoir pour soumettre les demandes d'inscription aux différents prix est le **28 novembre 2008**.

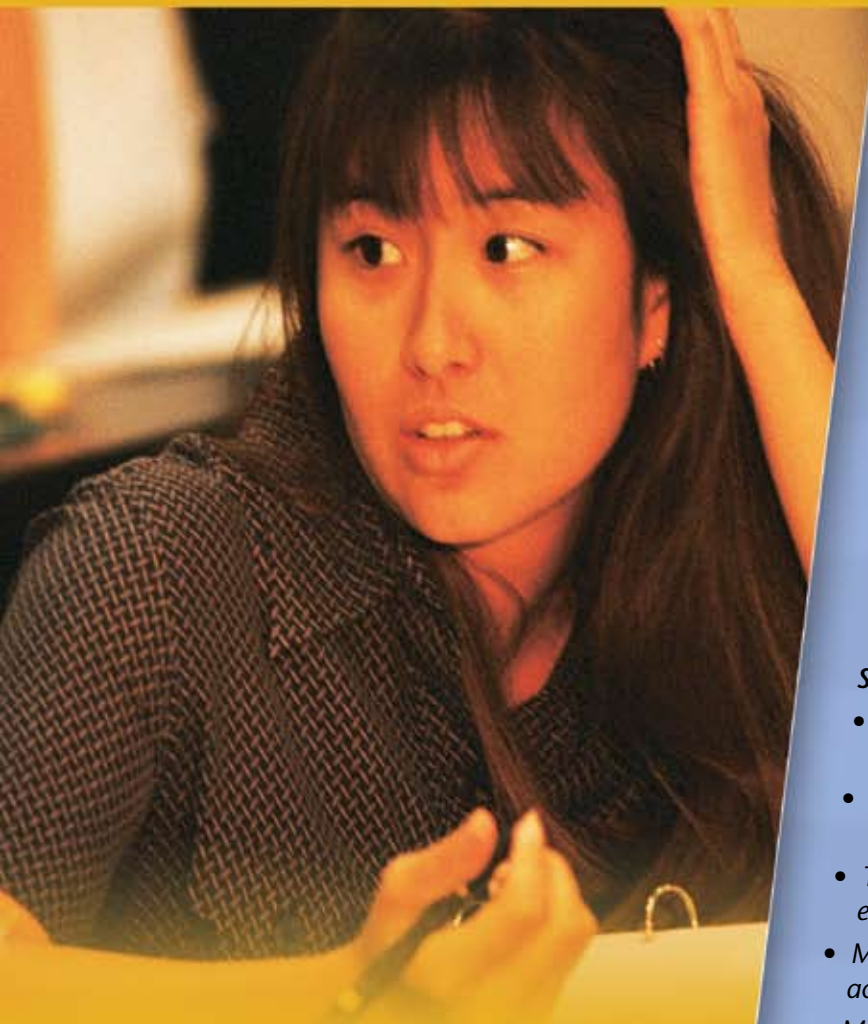
	CATÉGORIES DE PRIX
	<p><b>Prix de Crest Oral-B/ACHD destiné aux étudiantes et étudiants bacheliers en hygiène dentaire</b></p> <ul style="list-style-type: none"> <li>Un prix de 1 500 \$ offert à une étudiante ou un étudiant en hygiène dentaire au niveau du baccalauréat pour sa contribution à l'avancement de la profession dans le cadre d'activités éducatives et d'activités de bénévolat.</li> </ul>
	<p><b>Prix de Crest Oral-B/ACHD destiné aux étudiantes et étudiants diplômés en hygiène dentaire</b></p> <ul style="list-style-type: none"> <li>Un prix de 1 000 \$ offert à un étudiant ou une étudiante, inscrit(e) dans un programme en hygiène dentaire menant à un diplôme, pour sa contribution à l'avancement de la profession dans le cadre d'activités éducatives et d'activités de bénévolat.</li> </ul>
	<p><b>Prix Promotion de la santé de Crest Oral-B/ACHD</b></p> <ul style="list-style-type: none"> <li>Les trois prix suivants sont offerts pour la promotion créative de la profession de l'hygiène dentaire. Les inscriptions seront jugées selon les critères suivants : créativité, planification, recrutement de bénévoles, éléments éducatifs, impressions et impact sur la collectivité, ainsi que sur la dimension innovatrice des partenariats :             <ol style="list-style-type: none"> <li>Prix individuel de 1 000 \$</li> <li>Prix d'équipe clinique de 2 000 \$</li> <li>Prix d'école d'hygiène dentaire de 2 000 \$</li> </ol> <p>* La moitié de chaque prix accordé pour la promotion de la santé sera partagée avec le chapitre local de l'association d'hygiène dentaire des gagnantes et gagnants.</p> </li> </ul>
	<p><b>Prix Leadership Dentsply/ACHD</b></p> <ul style="list-style-type: none"> <li>Un prix de 2 500 \$ offert à un étudiant ou une étudiante, inscrit(e) dans un programme en hygiène dentaire, en reconnaissance d'une contribution significative à la communauté locale académique ou professionnelle de l'hygiène dentaire par son engagement et son leadership.</li> </ul>
	<p><b>Prix Réalisation de Sunstar/G.U.M./ACHD</b></p> <ul style="list-style-type: none"> <li>Un prix de 2 000 \$ offert à un étudiant ou une étudiante, inscrit(e) en dernière année d'un programme en hygiène dentaire, qui a surmonté un défi personnel important durant sa formation en hygiène dentaire.</li> </ul>
	<p><b>Prix Programme de santé mondiale de Sunstar/G.U.M./ACHD</b></p> <ul style="list-style-type: none"> <li>Un prix de 3 000 \$ offert à un ou une hygiéniste dentaire autorisé(e) qui s'est engagé(e) comme bénévole dans un programme visant à offrir des services liés à la santé buccodentaire à des personnes faisant partie d'une communauté ou d'un pays défavorisé.</li> </ul>
	<p><b>Prix Visionnaire de TD Meloche Monnex/ACHD</b></p> <ul style="list-style-type: none"> <li>Un prix de 2 000 \$ offert à un étudiant ou une étudiante, actuellement inscrit(e) dans un programme de maîtrise ou de doctorat lié à l'hygiène dentaire, en reconnaissance de sa vision de l'avenir pour l'avancement de la profession de l'hygiène dentaire.</li> </ul>

Canadian Dental Hygienists Association



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So, what are your plans this summer? Are you taking some time off to hit the beach, maybe do a little cycling or sit by the campfire while roasting marshmallows at the cottage? How about a cross-country tour with the family to visit relatives? Well, here at the offices of the Canadian Dental Hygienists Association (CDHA), we have different plans. *Much* different plans. And they all revolve around *you*.

Without a doubt, the early summer months are among the most exciting times of the year around here. That's when we put down some of our other work and head full steam into preparing our fall membership drive. So yes, summer is a great time to be at the office!

We take great pride in our member benefits and greater pleasure in serving our members. And this year is among the most exciting ever! What follows is just a peek at the membership benefits you will be hearing about this fall. Read on and be amazed...

**The insurance coverage you need** – Every dental hygienist needs liability insurance to practice. With up to \$3 million in coverage, you will not find a better plan anywhere. And you will not find a better price as it is included in your Active Membership. That's right. No extra charge!

**Networking opportunities** – Whether you're getting together with colleagues at special events that are tailored to the needs of our members or being honoured with an award, grant or prize, you'll be treated like one of the family.

**Stay on top of your profession** – Attend workshops and get access to exceptional Continuing Education courses, receive members-only publications such as the *Canadian Journal of Dental Hygiene* (a \$135 value that, again, is included in your Active Membership) and take advantage of the CDHA Resource Centre. It's all there for you to enjoy as a member of the CDHA.

A new online course will be available to CDHA members between 1 December 2008 and 15 September 2009, at no cost. Stay tuned for details.

It's not too late to register for *Treatment vs. Prevention: New Insights on Common Oral Conditions* available to current members. Visit our Continuing Education web page at [http://www.cdha.ca/members/content/continuing\\_education/treatment\\_vs\\_prevention.asp](http://www.cdha.ca/members/content/continuing_education/treatment_vs_prevention.asp)

As a member you also have access to the Career Centre which includes resources such as the Dental Hygiene Labour Survey, career tools, our Employment Opportunities database and information on self employment.

**Influence the direction of your profession** – Your support enables the CDHA to advocate on your behalf. We are the only national association of dental hygienists. With us, you have a voice on issues such as self regulation, client care, employment conditions and scope of practice. We are protecting your interests!

**Enjoy our member-discount programs** – Discover the special discounts available through our participating partners. Did you know you can get a MasterCard that supports the dental hygiene profession every time you

use it? And that's just the start. How about preferred rates on everything from cellular telephones, hotels and dental-hygiene instruments to car rentals, uniforms and fitness programs? Experience wholesale buying club discounts without the membership fee through MyAXS. In fact, as a CDHA member you can enjoy a Good Life membership at half the regular cost!

Is there more? You bet! How about saving money on your mortgage through the CDHA Group Mortgage Discount program? Looking to invest? Earn excellent returns through the CDHA Group RRSP Program. Or how about discounted train tickets from Via Rail? It's all designed to help CDHA members save a bundle!

**CDHA Boutique** – The CDHA Boutique is an online shopping experience developed specifically for CDHA members. Participating retailers offer CDHA members quality, career-related and personal lifestyle products at discounted rates. In addition, some vendors are offering unique products designed exclusively for CDHA members. (Visit the Boutique often so you don't miss out on special offers and new products. CDHA is constantly adding new retailers and products.)

**Product Directory** – Looking for information about a new dental hygiene product? Do you want to compare products or find out more information about a particular product? This is the place to do it! The Product Directory contains accurate and up-to-date information that will help you do a better job and assist you in making decisions when ordering supplies. As any one of our thousands of members across the country will tell you there are lots of benefits to being an Active Member of Canada's only national dental hygienists association.

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As always, this coverage is included as part of your Active Membership. PLUS... You still have an option to increase your per-claim liability coverage with just a small increase in cost.



# Forensic dentistry and dental hygiene: How can the dental hygienist contribute?

Donna A. Ferguson<sup>\*</sup>, DIPDH, BDSC(DH), RDH; David J. Sweet<sup>†</sup>, DMD, PHD, DABFO; Bonnie J. Craig<sup>‡</sup>, DIPDH, MED, RDH

## ABSTRACT

**Introduction:** The objective of this literature review was to determine and summarize existing roles for dental hygienists in forensic odontology. **Method:** The method used was to search and review the limited number of studies published on involvement of dental hygiene in forensic dentistry. The first stage of review was searching PubMed, Ovid, nursing journals, dental hygiene journals, the Internet and university library resources as well as information from one dental hygienist author's direct involvement in forensic dentistry. The second stage of the search used all the papers from the initial search as well as bibliographies and references for additional articles and information. **Result:** The results of this literature review revealed that dental hygienists are involved in areas such as personal identification by means of the dental records, disaster victim identification, professional negligence and dental standards of care issues and recognition and analysis of the injuries associated with family violence. **Conclusion:** The literature review also revealed that dental hygiene involvement in forensic dentistry is limited for diploma graduates but there are ways to become more involved with additional education and training.

## RÉSUMÉ

**Contexte :** Cette revue de la littérature a pour objet de déterminer et résumer les tâches actuelles de l'hygiéniste dentaire en odontologie médico-légale. **Méthode :** La revue comporte la recherche et l'examen d'un certain nombre d'études publiées sur la participation des hygiénistes dentaires en dentisterie médico-légale. Dans un premier temps, des recherches ont été menées dans PubMed, Ovid, les journaux traitant de soins infirmiers, les journaux d'hygiène dentaire, les ressources bibliographiques universitaires et Internet, et l'information d'une auteure hygiéniste dentaire sur sa propre participation en dentisterie médico-légale. Dans un deuxième temps, on a mis en forme les données de la recherche initiale ainsi que les bibliographies et références menant à d'autres articles et renseignements. **Résultats :** Le tout a révélé que les hygiénistes dentaires œuvraient dans des secteurs comme l'identification des personnes par les dossiers dentaires, l'identification des victimes de désastres, l'examen des cas de négligence professionnelle en regard des normes de soins dentaires ainsi que l'identification et l'analyse des blessures associées à la violence familiale. **Conclusion :** L'examen de la littérature a aussi révélé que la participation de l'hygiéniste dentaire en dentisterie médico-légale se limite aux détenteurs d'un certificat d'études spécialisées et qu'il y a moyen d'étendre leur participation par un enseignement et une formation additionnels.

**Key words:** forensic science, dental hygiene, forensic odontology, dental hygienist, domestic violence, mass casualty

## INTRODUCTION

Forensic odontology is often considered to be the area of overlap between the dental and legal professions. Occasionally, the forensic odontologist deals with legal issues on behalf of the dental profession. But, most often, the odontologist answers questions posed by the justice system and provides answers to legal authorities and expert opinions in courts of law. Significantly, much of the odontologist's work is on behalf of grieving family members that have lost a loved one and need to have closure to come to terms with their grief. This important role is considered by many to be the area of forensic odontology's highest reward; an area of particular interest to many caring and compassionate dental hygienists.

Modern forensic odontology encompasses five main areas: 1) personal identification by means of dental records, 2) disaster victim identification in mass casualty incidents, 3) human bite mark analysis, 4) recognition and analysis of the injuries associated with family violence, and 5) professional negligence and dental standards of care issues.<sup>1</sup> Following is a summary of these main areas and where the dental hygienist can be involved.

### 1. Personal identification by means of dental records

All persons possess an identity during their lifetime and the dignity of confirming and maintaining this identity after death is a strong, compelling societal need. Foren-

sic odontology assists society to accomplish this through comparison of antemortem (before death) and postmortem (after death) data to identify the corpse. There are also legal requirements for confirmation of a deceased person's identity, including religious issues, matters surrounding the estate, remarriage of a surviving partner, and insurance or financial affairs. Of particular legal importance is a case in which a person is the victim of violent crime. Identification of the victim's body becomes circumstantial evidence during the police investigation into cause of death, and is later used in the prosecution of the person responsible for the death.<sup>2,3</sup>

Methods to identify the deceased must be reliable and accurate. The comparison of antemortem to postmortem dental records is a widely accepted and dependable method of forensic identification. Unique traits and characteristics recorded in a person's dentition through anatomical variation or restorative treatment provide data that are used by the forensic odontologist to confirm identity (see Figure 1).

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Figure 1: Forensic comparison of a postmortem bitewing (top) to an antemortem bitewing (bottom) to identify the victim. Reproduced with the permission of Dr. D.J. Sweet.

This type of casework is the most common activity of the forensic odontologist. The dental hygienist can assist in this activity in two ways. First, ensure that both the dental hygienist and all dental treatment team's patients' records are detailed and accurate. Second, assist a practising forensic odontologist to examine and recover data from the dead body.

Dental identification is one approach to human identification. Other approaches include visual identification, which is known to be unreliable due to a high rate of false-positives; comparison of medical records and data, such as serial numbers on prosthetic joints and breast implants; fingerprints if antemortem data are available; and DNA analysis.<sup>2,4,5</sup> The contours and extensions of dental fillings, crowns, to name a few, produce unique identifying traits when they are depicted as two-dimensional shadows on radiographs. These are used in forensic comparisons. The decrease in caries rate and the subsequent decline in the use of amalgam restorations over the past few decades has resulted in loss of these important identifiers in some cases.<sup>4,6-8</sup> These situations create a challenge for the forensic odontologist.<sup>7,9</sup> Still, radiographs show many other anatomical features, such as root shape, surrounding bone trabeculae, root canal filling materials, retentive pins and posts, pulp size and shape, and periodontal and periapical inflammatory disease that can be of significant value in identification cases.<sup>3,4,8-10</sup>

Teeth are the hardest substance in the body and this

fact, combined with their location relatively protected behind the soft tissues of the cheeks, lips and jawbones are the reasons why they are so useful in identification. Even in the fire that burns so hot because of aviation fuel after a plane crash, a victim's teeth can remain intact when other body parts are destroyed due to this protection by bone and swelling of the tongue during the intense heat. Dental work such as crowns, fixed bridges and removable dentures can also survive intense physical and chemical forces and aid in identification. To aid in identification the patient's name should always be inserted into the acrylic of dentures and appliances at the time of fabrication.<sup>2-4,6,9,11-13</sup>

The postmortem dental examination is akin to a new patient clinical examination in a dentist's office, including visual examination with mirror and explorer, and recording the data on an odontogram. A full-mouth series of intraoral radiographs (panoramic radiographs are not possible since the body is prone) and a full-mouth series of intraoral colour photographs in addition to orientation photographs of the body, head and face are produced. The angulation and exposure times for postmortem radiographs must duplicate these factors for the living patient to produce comparable antemortem and postmortem views<sup>4</sup> For example, postmortem bitewings are exposed at an angle of 10° (see Figure 1). Periodontal probing is not required since data based on soft tissues are not reliable in these cases. Dental impressions are usually not required, except for victims of sexual violence and homicide in which the victim might have bitten their assailant during the attack. Such impressions can be used to compare the victim's teeth to any suspects when they are arrested if the bite mark is still visible.<sup>14</sup>

## 2. Disaster victim identification in mass casualty incidents

Forensic dental response teams provide invaluable assistance in cases of mass disasters in which large numbers of deceased victims must be identified. Similar to personal identification above, but on a larger scale that includes additional complications, disaster victim identification (DVI) involves transcription of antemortem dental records, postmortem examination and recording, and reconciliation of these records to identify each victim to give back their name. This particular area of forensic odontology is the one that is the most valuable for the dental hygienist to be involved.

Natural or man-made disasters leave behind many casualties that include not only the deceased victims but also the next of kin that are left to grieve the loss of a loved one. The actual circumstances of the catastrophe often make victim identifications more difficult.<sup>15</sup> Preparation and training in anticipation of a disaster response is vital as this ensures success in identifying as many victims as possible.<sup>3,7,11</sup> In Canada, Public Safety and Emergency Preparedness Canada (PSEPC) is the national operations centre in Ottawa that coordinates the government's response to emergencies at home. The Department of Foreign Affairs and International Trade (DFAIT) deals with disasters that occur outside Canadian borders. Each agency has a working relationship with the emergency management organizations of each province that work with the first and

second responders (for example, Canadian Armed Forces personnel) to ensure they have what is needed.<sup>16,17</sup> Immediately after or sometimes concurrent with an emergency response that assists injured and displaced people, authorities turn their attention to recovery and identification of deceased victims. Identification of the deceased is not a federal jurisdiction; the Chief Coroner or Chief Medical Examiner handles it in each province.

The forensic dental response team should formulate itself in a way that allows for adequate training and accumulation of the needed resources and equipment. Dental hygienists can select areas of the response team that interest them and dedicate themselves to training in that specific area. For example, if a dental hygienist is not interested in working with the recovered bodies at autopsy, then the person can volunteer in the section that deals with antemortem records. In fact, dealing appropriately with antemortem records is the single most challenging area in any DVI response since it involves accurately and precisely preparing the records for potential comparisons.

#### *i. Antemortem Records Team*

Standardization of the DVI forms and terminology is required to ensure accuracy in the comparisons. Antemortem records vary widely in their completeness and the amount of included detail so the team faces a daunting task to summarize all of the incoming data.<sup>11,18</sup> It is the fastidious attention to detail that is common in dental hygienists' character that sets them apart from other responders. Focusing on the need for precise transcription of data into the computer database, dental hygienists excel at producing the best opportunities to match missing persons' records with those recovered on site from the found bodies.

Several sophisticated computer applications are now available for use in collating and comparing large amounts of dental data. These applications are effective at sorting large numbers of antemortem records to reduce the number of potential matching postmortem records to only a few. This allows the forensic odontologist to complete the manual comparison of the actual charts and radiographs to determine if a match exists.<sup>5,6,12,17,19</sup>

Examples of current DVI computer applications include the following:

a) The US-based WinID3 (*Windows Identification*) program, which allows both the Universal/National System used in the USA and Federation Dentaire Internationale (FDI) tooth numbering.

b) DAVID-Web (*Disaster And Victim IDentification*) from Australia that accepts data entered from either PC or Macintosh computers from distant locations over the Internet.

c) The INTERPOL-sponsored program called DVI System International from PlassData in Denmark. The latter was being beta-tested during INTERPOL's tsunami response in Thailand. It has now developed into one of the world's best DVI databases since it can also handle data from DNA, most medical records and physical descriptors, such as scars, birthmarks and tattoos.

As part of the dental response team, the dental hygienist can assist police, coroners, and medical examiners to find suitable antemortem records and other dental evidence,

such as dental casts, fixed and removable dentures, orthodontic appliances, or photographs showing the victim's teeth.<sup>11,18</sup>

#### *ii. Postmortem Records Team*

Dental hygienists can assist the forensic odontologist at autopsy in all aspects of the postmortem dental examination, including charting of dental traits and treatments, exposing and collating radiographs, and photographing oral tissues during documentation. A double-check approach is used during examination to ensure accuracy. Typically, three team members are involved: two dentists and a dental hygienist. One dentist examines the teeth and calls out the findings so that the dental hygienist can record the data in the postmortem chart. The second dentist observes each of the others work checking to be sure the examination and charting are completed correctly. The members then repeat the examination after reorganizing their roles.<sup>11,18,20</sup> In some cases, it is necessary to surgically resect the victim's jaws to aid in production of proper records and radiographs. The dental hygienist can assist with this procedure during surgery and examination, and subsequently by ensuring proper labelling and storage of the disarticulated jaws.<sup>18</sup> Along with other members of the response team, the dental hygienist also assumes the responsibility for monitoring other team members for emotional and psychological fatigue during morgue operations.<sup>18</sup>

#### *iii. Reconciliation Team*

The data acquired by the antemortem and postmortem records teams must be entered into the computer databases and then searched for best possible matches. The dental hygienist can assist with these procedures by ensuring that the data are correctly entered, collating the potential matches, and then collecting the actual records from secure storage to arrange for forensic comparison by the identification odontologist and coroner.

Finally, the dental hygienist can ensure that the team is prepared for the next forensic response by helping restock and maintain the equipment and response kit, and acquiring the necessary equipment, supplies, instruments and materials.<sup>18</sup> Follow-up evaluation for future preparedness is important, so assisting the team leaders with this difficult task is an essential role for the hygienist. This process is not unlike the dental hygiene model of care that includes: assessment, planning, implementation and evaluation. As it is in dental hygiene care, this model is also necessary for successful mass disaster management.

Dental hygienists form a very important part of DVI teams. It is possible for them to participate fully in any of the three dental team sections mentioned. They can also assume an administrative role in helping manage the support personnel and volunteers such as with timetabling work and maintaining records of daily accomplishments.<sup>11,18</sup> Other examples of participation by dental hygienists in previous DVI responses include updating and maintaining a master list of identifications,<sup>11</sup> working with antemortem records employing charting and record-keeping skills along with their knowledge of anatomy, and tooth nomenclature (e.g. FDI in Canada, Universal/National System in



Figure 2: Example of a prototypical bite mark. Reproduced with the permission of Dr. D.J. Sweet.

the USA) to transcribe and translate records into the DVI computer database, and their knowledge of radiography and radiology to interpret submitted records.<sup>18</sup>

Advanced training in Canada is not readily available, unfortunately. But such training can be accomplished by requesting and attending forensic DVI continuing education courses offered at dental schools.<sup>18</sup> In British Columbia, annual DVI training is offered by the British Columbia Forensic Odontology Response Team.<sup>21</sup>

### 3. Human bite mark analysis

Bite mark evidence recovery and analysis is the most complex and demanding role that the forensic dentist plays in the criminal justice system. Complex issues when bite marks are found on human skin, such as in cases of sexual homicide, sex assault and rape and in domestic violence cases of abuse, require a high level of training and expertise. Unfortunately, there are no areas of this aspect of the discipline that the dental hygienist can be involved in, primarily because of the urgency of the cases that require an almost immediate deployment of the odontologist. Also, there is a legal requirement that warrants, court orders, and legal consent for the seizure of evidence from suspects only include specific personnel possessing specialized training and skills.<sup>14,22</sup>

Typically, police personnel, usually forensic identification officers, collect bite mark evidence from the bitten victims of crime. This includes recording the injuries using high resolution forensic photographs, making casts of the bite site and swabbing the skin's surface for salivary DNA. Interestingly, bite marks, sucking and/or kissing can leave saliva behind as the suspect's mouth comes in contact with the victim's skin. This saliva can be a source of DNA evidence, which can be analyzed in conjunction with the physical comparison of the shapes and sizes of the teeth to the marks found on the victim's skin.

The photographs of the bite mark that are recovered by the police are submitted to specialty-trained forensic odontologists for examination and interpretation (see Figure 2). The forensic significance (quality) of the injuries depicted in the evidence is determined if there are sufficient details visible from the teeth marks to allow comparison to any suspect's teeth (see Figure 3). In sex crimes, bite marks on women are characteristically seen on the nipples, breasts, thighs, neck and legs.<sup>23</sup> For male victims, bite marks are seen more on the arms, shoulders, back and hands. Bite marks to the hands, arms and shoulders on male suspects may be caused by the teeth of a victim who has bitten in self-defence.<sup>2,24</sup> If the marks from teeth record a large amount of detail and the evidence is well documented, there is a strong likelihood that the odontologist's conclusions will play a role in the identification of the perpetrators of these crimes.

When police arrest a suspect, a warrant to seize dental evidence from them can be obtained to conduct a dental examination, take impressions of the teeth, and obtain an interocclusal record and photographs of the teeth. Subsequently, a time intensive process of forensic physical comparison of the suspect's teeth to the bite mark is completed.

### 4. Recognition and analysis of the injuries associated with family violence

Domestic violence happens in every walk of life. It is not restricted by a certain social class, ethnicity, education level or religious affiliation.<sup>25,26</sup> Violence towards children, spouses (especially women) and the elderly is a serious health issue and is escalating in our society with a far reaching impact on our social and welfare systems.<sup>25-30</sup>

Forensic odontology is important to domestic violence issues for two reasons. First, patterned injuries, such as bite marks, are associated with physical and sexual abuse. Teeth are used as weapons of violence and bite marks can be indicative of sexual assault or physical abuse.<sup>23,24</sup> Second, forensic odontologists assist dental professionals in practice to appreciate the importance of recognizing and reporting to authorities the signs and symptoms of abuse that are discovered in their patients. As practising clinicians, dental hygienists can play a pivotal role in the latter since dentists and dental hygienists can be the first to see and recognize the signs of abuse. As much as 50 per cent of the signs of physical abuse injuries occur on the head, neck and face.<sup>23,24</sup> Family violence issues are usually categorized as follows:

#### i. Child Abuse

Every person in the dental office should be aware of signs of possible maltreatment of their patients, such as children being inappropriately dressed for the weather, signs of malnourishment, bruises in various stages of healing, burns, slap marks, lacerated lips, broken teeth, scars, oral signs of sexually transmitted diseases and how the child reacts to others. It is also important to be familiar with and be able to recognize a bite mark pattern (Figure 3). Bite marks in child abuse cases can be found anywhere on the child's body, often on the cheeks.<sup>2,24</sup> Female children are often bitten on any location on the body and



Figure 3: Examples of the evidentiary value and forensic significance of human bites from weakest (3a) to moderate (3b) to strongest (3c). Reproduced with the permission of Dr. D.J. Sweet.

male children are more often bitten on the genitalia.<sup>24</sup>

If physical or sexual abuse of a child is suspected, the child and the caregiver should be questioned separately with open ended questions. An office staff member should be present as a witness to see if the injury accounts are the same and reasonable for the type of injury present.<sup>26</sup>

Documentation of injuries and evidence collection are the same for both a child and an adult. These include photographs of bites, bruises and lacerations. Photographs should be taken with an intra-oral camera to record orientation and close-up details. The photographs should be taken with and without a reference scale, such as a ruler that is present in the image so it is possible to take subsequent measurements.<sup>14,22,23</sup>

With respect to child abuse and neglect, dental professionals, including dental hygienists, are mandated by law to report their suspicions. The police, local social welfare agencies for children, calling a children's help line (Zenith 1234 or 1-800-668-6868) or logging on to [www.kidshelpphone.ca](http://www.kidshelpphone.ca) are appropriate ways to report any suspicions. There is no uniform law for the dental professional to report spousal or elderly abuse but reporting these incidents to similar agencies may help stop the cycle of abuse.<sup>23,25,26,31</sup>

#### ii. Spousal Abuse

The interview and examination of a potential victim of spousal abuse should be held in private if possible. For a woman patient, a female staff member should be present. All statements regarding the abuse should be recorded in the patient's own words. Complete an accurate written description of all injury patterns and, if possible, written informed consent for taking notes and photographs should be documented in the chart.

Unfortunately, in spousal abuse cases it can take up to three years on average for the woman to leave the dangerous situation after she has confided that she is being abused. Statistically, this is likely the time when the violence will escalate to murder or the woman will commit suicide.<sup>29</sup> Still, in spite of such an alarming statistic, some dental professionals are hesitant to report these injuries. This can be for a variety of reasons, such as fear of consequences for both the patient and the dental professional, economic reprisal, a lack of confidence in one's education and awareness to recognize abuse, the assumption that it is not their problem, or fear of making the situation worse.

Reporting abuse in good faith and without malice gives the dental professional legal immunity from criminal liability, but if there is still doubt, a second opinion from the patient's physician should be obtained.<sup>26,29</sup> It is interesting that members of the dental professional can be held legally responsible by the victim if it can be determined that there was just cause to report the abuse and it was not acted upon.<sup>28</sup>

#### iii. Elder Abuse

For the elderly, knowledge of the aging process and associated health problems are important because not all bruising or skin lesions are from abuse; some can be from medications, systemic or skin conditions or of a fungal, bacterial or viral nature.<sup>25</sup>

Education is important for dental professionals to help

recognize the signs of abuse and give them the confidence to make reports of their suspicions.<sup>29</sup> The dental health professional is five times more likely to report domestic abuse situations if they have had training in this area from undergraduate or postgraduate programs. Unfortunately, even with training, under reporting is still an issue.<sup>28,30</sup>

## 5. Professional negligence and dental standards of care

### *Importance of accurate records to forensic odontology*

With respect to ensuring that the best possible identification conclusions can result from any comparisons of dental records that are undertaken, it is important to have access to the most accurately and precisely recorded dental data available. Dental offices that maintain a high standard of patient record keeping, and collect detailed dental data are the best sources of antemortem dental data.

The degree of individuality and uniqueness of the human dentition is vast and because of this teeth are important sources of information for forensic identification purposes.<sup>3,5,6,32</sup> The combinations of changes that can occur to teeth over an individual's lifetime, including childhood accidents, habits, wear, provide excellent opportunities for forensic odontologists. Even differences in the sequence of eruption and variations in dental patterns can provide large amounts of comparison data. But these data are only useful if they are accurately recorded in the patient's file. It is not possible to recover forensic information about unrestored or restored crowns, missing or extracted or replaced teeth, or any other useful data unless there is a record of these traits. Plus, importantly, these records must be made available and released to authorities at the time of need.

An accurate, legible account of work completed for every patient at every visit is the best form of comparison data. In some circumstances, there are no antemortem radiographs available but detailed chart notes, tooth diagrams, study casts, photographs, etc. are still invaluable.<sup>6,12,17,32</sup> Significantly, there is a need in forensic cases to always use original records to be sure that the right-left markers on radiographs (dots, dimples) and colour notations in the diagnostic or treatment record are not lost through duplication.<sup>5,9,10,33-35</sup> The importance of the dental hygienist (or dentist) that treated a missing person supplying original data in such a legal context cannot be overstated. Conclusions reached by the forensic odontologist about who the victim is depends on the quality of evidence that is made available.<sup>2,5,10,12,33</sup>

Unfortunately, even if the original records are supplied, a lack of accurate recordkeeping by dental personnel has been documented as a problem in many cases, especially the lack of notes about existing restorations and unique features of the teeth.<sup>7,10,20</sup> A rotated tooth, peg-shaped lateral or chipped central incisor, or the size of diastemata can be very crucial. It is important to print legibly in pen, keep notations and laboratory slips, put the patient's name on all documents and store them neatly in the file. If charting is incorrect, outdated or otherwise incomplete, it can complicate the identification process.<sup>6</sup> Expose, develop and mount radiographs correctly and, if possible, keep them up to date. It is very important to insist that dental laboratories insert patients' names or social insurance numbers in any removable prosthetic appliances fabricated for them.<sup>3,7,10</sup>

## EDUCATIONAL AND EXPERIENTIAL PREPARATION

A diploma in dental hygiene prepares dental hygienists to be involved in some ways. However, with additional education and experience, dental hygienists who are interested can likely become more involved with a forensic team and offer greater contributions in areas such as evidence gathering and documentation, personal identification by means of the teeth and mass disaster responses. Being involved and having a willingness to contribute to forensic dentistry helps our communities, humankind and gives recognition to our profession.

Examples of sources of information, training and important resources for the dental hygienist follow:

### *i. Provincial DVI team training sessions*

In many areas of Canada today, dental professionals are organizing themselves to prepare to respond to natural or human-made disasters. Opportunities exist for dental hygienists to become members of these important response teams. The dental hygienist can work with other aspects of the team if he or she does not want to work in the postmortem situation with victims' bodies. For example, the dental hygienist can sort through antemortem dental records, enter data into the computer databases, organize other volunteers and assist with the large amount of administrative duties. The organizational skills of dental hygienists are seen as a distinct advantage in these team situations. It is suggested that those interested in volunteering should contact the provincial dental association to obtain contact information for dental disaster response teams in their location. For western Canada, information is available at [www.bcfort.org](http://www.bcfort.org).

### *ii. Continuing education courses*

Many dental hygiene study clubs and regional societies sponsor continuing education courses that are presented by forensic odontologists. These courses provide a good introduction to the scope and depth of the discipline. Information is available from the speakers about how to get involved in those regions of the country. Provincial and national conventions also often feature invited presentations on forensic odontology and DVI responses.

### *iii. Forensic casework*

There are only a handful of forensic odontologists in Canada that work regularly on routine casework, which is an indication of the small number of actual cases that occur on an ongoing basis. But opportunities might exist for motivated dental hygienists to contact these odontologists to inquire about the possibilities of training and working on cases. Provincial dental associations can usually provide the information about forensic practitioners in various regions of the country.

### *iv. American Society of Forensic Odontology*

This US-based organization has grown in recent years to include over 1100 members from 26 different countries, including dentists, dental hygienists, anthropologists, physicians and others interested in forensic dentistry. Annual continuing education meetings are held in various locations throughout the continental United States and a



newsletter is published three times annually for a nominal membership cost. Importantly, *The Manual of Forensic Odontology* - 4th edition, offers a comprehensive introduction to all aspects of forensic odontology ([www.newasfo.com/book\\_store.htm](http://www.newasfo.com/book_store.htm)).

#### v. Advanced dental hygiene education

The dental hygiene diploma prepares an individual to participate in forensic odontology in limited ways, but for more extensive participation it is necessary to take additional courses and gain experience. Additional courses include studies in forensic odontology, forensic anthropology, mass disaster preparation and law. Courses on ethics, dentistry and law, social and health psychology, computer databases, macro photography and human abuse could be helpful.<sup>36</sup>

A challenge facing most Canadian dental hygienists is how to obtain academic credit for their diploma-level dental hygiene education towards a bachelor's degree and not be faced with starting over at the beginning to earn credits for a degree. The University of British Columbia offers an opportunity through its degree completion options in the Dental Hygiene Degree Program. In addition to the program's required courses, there are opportunities for students to choose elective courses. In making these choices, dental hygienists can choose science based electives (such as molecular biology and biochemistry) that would help prepare them for roles in forensic odontology.

The University of Alberta offers dental hygienists degree completion opportunities as well and Dalhousie University will commence offering degree completion in September 2008. Therefore, once a dental hygienist possesses a bachelor's degree, it becomes possible to study at the master's and doctoral levels where an educational and research focus in forensic odontology or forensic science can be selected. Another alternative includes selecting a master's degree in Interdisciplinary Studies that combines various forensic topics in areas such as law, dentistry, pathology and anthropology, for example, all under the guidance of qualified supervisors.

#### vi. Other ways to be involved: volunteering

A dental hygienist can volunteer with the Canadian Red Cross or domestic and child abuse agencies. To start volunteering, find local dentists involved in forensic dentistry, visit applicable web sites (Table 1), or contact other dental hygienists working in the field.

### CONCLUSION

Forensic dentistry involves the assistance of family members and, in some cases, the justice system, to answer crucial questions that arise during times of loss. It is significant and noble work, and dental hygienists can become involved to a degree that suits each person's level of desire. In summary, dental hygienists can be involved in forensic dentistry in the following areas:

Table 1: Forensic organizations and web sites

BC Institute of Technology – Forensic Sciences	<a href="http://www.bcit.ca/cas/forensics/">http://www.bcit.ca/cas/forensics/</a>
BOLD Forensic Lab @ U.B.C.	<a href="http://www.boldlab.org/">www.boldlab.org/</a>
Canadian Red Cross	<a href="http://www.redcross.ca">www.redcross.ca</a>
Canadian Society of Forensic Science	<a href="http://www.csfs.ca">www.csfs.ca</a>
Canadian Women's Foundation	<a href="http://www.cdnwomen.org">www.cdnwomen.org</a>
Justice Institute of British Columbia	<a href="http://www.jibc.bc.ca">www.jibc.bc.ca</a>
American Academy of Forensic Sciences	<a href="http://www.aafs.org">www.aafs.org</a>
American Dental Hygienists' Association	<a href="http://www.adha.org">www.adha.org</a>
American Forensic Nurses	<a href="http://www.amrn.com/">www.amrn.com/</a>
American Journal of Forensic Medicine & Pathology	<a href="http://www.amjforensicmedicine.com/">www.amjforensicmedicine.com/</a>
American Society of Forensic Odontology	<a href="http://www.newasfo.com">www.newasfo.com</a>
Forensic Dentistry Online	<a href="http://www.forensicdentistryonline.com">www.forensicdentistryonline.com</a>
Forensic Science International Journal	<a href="http://www.elsevier.com/wps/find/journaldescription.cws_home/505512/">www.elsevier.com/wps/find/journaldescription.cws_home/505512/</a>
International Association of Forensic Nurses	<a href="http://www.forensicnurse.org">www.forensicnurse.org</a>
International Journal of Legal Medicine	<a href="http://www.springerlink.com/content/101167/">www.springerlink.com/content/101167/</a>
Journal of Forensic Sciences	<a href="http://journalsip.astm.org/JOURNALS/FORENSIC/">http://journalsip.astm.org/JOURNALS/FORENSIC/</a>
RDH Magazine	<a href="http://www.rdhmag.com/">www.rdhmag.com/</a>

*Personal identification, record keeping and dental standards of care*

- Keeping and maintaining the highest possible standard for dental record accuracy for each patient in the practice.
- Helping to determine the most important patient records to be released from the practice.
- Assisting the forensic odontologist to examine and recover data from a dead body.

*Disaster victim identification*

- Volunteering with a provincial disaster response team as a member of the antemortem, postmortem or reconciliation teams.

*Recognition and analysis of injuries associated with family violence*

- Studying and informing oneself of the signs and symptoms of abuse and neglect.
- Recognizing, documenting and reporting any suspicions that develop when treating patients.
- Maintaining a vigilant search for the signs and symptoms of domestic violence in professional and personal aspects of our daily routines and reporting suspicions.

The results of this literature review reveal that there are many ways and areas for dental hygienists to become involved, even through one's own clinical practice. But there are limitations to the specific roles because of the legal context of forensic casework. Still, the motivated dental hygienist can use their dental hygiene diploma as a foundation and build on it with more courses, training and experience in order to become more valuable and more involved with a forensic team. Find your area of specialty, what interests you the most, and search out ways to pursue that topic. If forensic odontology is what you are passionate about, then see it as a combination of *preparation meeting opportunity*. Research the possibilities, seek out opportunities, and prepare yourself with appropriate courses at all educational levels.

As human beings, we all have a right to dignity, worth and a unique identity in life and death no matter how one has lived that life be it for good or bad or how and why death comes. Maintaining this identity after death is a strong, compelling societal need. All those who volunteer in forensic casework share the common goal of giving that dignity, worth, and unique identity back to deceased victims. In the end, they bring the victims home to their families.

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# Guidelines for authors

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

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

## Criteria for submission

A manuscript submitted to the *CJDH* for consideration should be an original work of author(s), and should not have been submitted or published elsewhere in any written or electronic form. It should not be currently under review by another body. This does not include abstracts prepared and presented in conjunction with a scientific meeting and subsequently published in the proceedings.

Pre-submission inquires to:

Acquisitions Editor, *CJDH*

96 Centrepointe Drive, Ottawa, ON K2G 6B1

t: 613-224-5515; f: 613-224-7283; e: acquisitions@cdha.ca

## Categories of manuscripts accepted for submission:

1. Studies/Research paper—no longer than 6000 words, and a maximum of 150 references. Abstract within 300 words.
2. Literature review—no longer than 4000 words and as many references as required. Abstract within 250 words.
3. Position paper—no longer than 4000 words and a maximum of 100 references. Abstract within 250 words.
4. Case report—between 1000 and 1200 words, and a maximum of 25 references, and 3 authors. Abstract of 100 words.
5. Editorial—by invitation only, and may be between 1000 and 1500 words, using as many references as required. No Abstract needed.
6. Letter to editor is limited to 500 words, a maximum of 5 references, and 3 authors. No Abstract required.

**Submission checklist** - authors are advised to:

1. Send their submission electronically to the Managing Editor in MS Word either via email (journal@cdha.ca) or in a CD via mail (96 Centrepointe Drive, Ottawa, ON K2G 6B1).
2. Use such standardized fonts as Arial, New Times Roman, Verdana in 10-12 points.
3. Keep the file free of formatting (i.e. no tabs, indents, page breaks, and codes).
4. Double-space body text with margins of 1 inch.
5. Number pages consecutively, starting with title page.
6. Separate tables and figures as individual files and indicate their appropriate placement in the body text of the Word document.
7. Send a cover letter along with their manuscript, stating their position of duality of interest. Competing interests can be financial, professional, or personal.
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**Peer Review:** All papers undergo initial screening for suitability by the Scientific Editor. Suitable papers are then peer reviewed by two or more referees. Additional specialist advice may be sought if necessary, for example from a statistician.

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

**Appeal** for re-review may be addressed to the Scientific Editor by email (journal@cdha.ca) who will take it forward to the CDHA Research Advisory Committee. The committee members may decide to seek a further review or reject the submission. There are no opportunities for a second appeal.

## Manuscript components:

1. **Title page:** The title must provide a clear description of the content of the submission in 12 words. It should be followed by each author's name (first name, middle initial and last name) with respective degrees and any institutional affiliation(s). Corresponding author's name, address and email. All authors should have participated sufficiently in the work to be accountable for its contents.
2. **Abstract:** should not contain references or section headings. Typical formats are outlined below.
  - a. **Study and Research paper:** Background (including study question, problem being addressed and why); Methods (how the study was performed); Results (the primary statistical data); Discussion, and Conclusion (what the authors have derived from these results).
  - b. **Literature Review:** Objective (including subject or procedure reviewed); Method (strategy for review including databases selected); Results and Discussion (findings from and analysis of the literature), and Conclusion (what the authors have derived from the analysis).
  - c. **Position paper:** Same format as Literature Review.
  - d. **Case Report:** Introduction (to general condition or program); Description of case (case data) Discussion (of case grounded in literature), and Conclusion.
3. **Key Words:** Provide a maximum of 6 key words or short phrases from the text for indexing purposes. Terms from the Medical Subject Headings (MeSH) list of *Index Medicus* are preferred.
4. **Text**
  - a. **Studies and Research papers** consist of original work arising from the exploration of research questions. Presentation of the study will vary based on the type of research being presented. **Introduction:** a concise background and rationale for the study. It should include the purpose of the study and its relevance to practice and the profession. A brief review of key themes from current literature is included to provide the reader a context from which to understand the research question. **Methods:** a clear description of the methodology including materials (stating manufacturer's name and location; city/state/province/ country) if applicable. The study design must be clear and appropriate for the question addressed. **Ethics approval:** All studies using human or animal subjects should include an explicit statement identifying the review and ethics committee approval for each study if applicable, and in accordance with *Tri-Council Policy Statement for Ethical Conduct for Research 1998* (with amendments 2005) or the Declaration of Helsinki. Editors reserve the right to reject papers if there is doubt as to whether appropriate procedures have been used. **Results:** a logical sequence as befits the methods used.

Tabular data should include relevant test statistics based on the statistical tests used. **Discussion:** an interpretation of work in light of the previously published work in the area. It should highlight the contribution of the study to dental hygiene practice as well as its limitations. **Conclusions:** drawn from the body of original work within the context of the literature in the area being studied. Areas of future research to support the further development of knowledge in the area may be highlighted.

- b. **Literature Reviews** provide a synthesis of published work in a particular area. They may range from very structured formats such as systematic review to more loosely organized review of the literature. They should be organized in a logical manner. Tables, illustrations, and photographs are encouraged. **Objective:** a concise background and rationale for the inquiry. It should include the purpose of the inquiry and its relevance to practice and the profession. **Method:** a clear description of search strategies used including the databases accessed and the key words used in searches. Inclusion and exclusion criteria are also documented if applicable. **Results and Discussion:** findings from the literature reviewed, its comparison and contrast, and an account for possible differences within the findings. **Conclusion:** implications of the inquiry for practice and the profession. Conclusion must be supported by the literature analyzed.
  - c. **Position papers:** the organization supporting the position should be highlighted. Open structure with subheadings according to the relevance of the topic discussed.
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  - e. **Letters to the Editor:** discussion or balanced opinions on current issues in the dental hygiene profession or with a focus on articles in the previous editions of the journal in a 6-month period. The Managing Editor reserves the right to edit letters for clarity, but the letters will not undergo the peer review process.
5. **Acknowledgements:** Acknowledge any assistance or support given by individuals, organizations, institutions, or companies. Those identified here must have provided informed consent for you to cite their names as this may imply endorsement of the data and/or the conclusions.
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7. **Data or Tables** may be submitted in Excel or Word formats. These tables or data may also be included at the end of the Word document.
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9. **Supplementary information:** Any supplementary information supplied should be in its final format because it is not subedited and will appear online exactly as originally submitted. Please seek advice from the Editorial Office before sending files larger than 1 MB.

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

#### 10. Referencing Style and Citations

The reference style is based on Vancouver style, the preferred choice in medical journals. Vancouver style is so named as it is based on the work of a group, first meeting in Vancouver in 1978, which became the International Committee of Medical Journal Editors (ICMJE). References should be numbered consecutively in the order in which they are first mentioned in the text. Use the previously assigned number for subsequent references to a previously named citation (i.e., no "op cit" or "ibid"). Use superscript arabic numerals to identify the reference within the text (e.g.,<sup>1,2</sup> or <sup>3-6</sup>). The Reference section lists these in numerical order as they appear in the text.

The style was developed by the US National Library of Medicine (NLM) and adopted by the ICMJE as part of their 'uniform requirements for manuscripts submitted to biomedical journals'. [http://www.nlm.nih.gov/bsd/uniform\\_requirements.html](http://www.nlm.nih.gov/bsd/uniform_requirements.html)

#### Samples

##### Journal articles

###### Standard article

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

###### Volume with supplement

Orban B, Manella VB. A macroscopic and microscopic study of instruments designed for root planing. *J Periodontol.* 1956;27 Suppl 7:S6-12.

###### Conference proceedings – abstract

Austin C, Hamilton JC, Austin TL. Factors affecting the efficacy of

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*Organization as author*

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

**Books and other monographs**

*Personal authors*

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

*Editors as authors*

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

*No author*

What is your role in the profession [editorial]? *J Dent Topics*. 1999;43:16-7.

*Chapter in book*

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

*Conference paper*

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

*Scientific or technical report*

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

*Personal communication*

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

**Other publications**

*Newspaper article*

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

*Audiovisual*

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

**Unpublished material**

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

**Electronic material**

*Monograph on Internet*

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

*Journal on Internet*

Walsh MM. Improving health and saving lives. *Dimensions Dent Hyg* [serial on Internet] 2003 Nov/Dec [cited 2004 Jan 12]:[about 7 p.]. Available from: [www.dimensionsofdentalhygiene.com/nov\\_dec/saving\\_lives.htm](http://www.dimensionsofdentalhygiene.com/nov_dec/saving_lives.htm)

*Homepage/web site*

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

(Last updated: May 2008)







## Change is the only constant

CDHA staff

The CDHA document, *Dental Hygiene: Definition, Scope, and Practice Standards* identifies one of the key responsibilities of a dental hygienist as that of “assuming the role of change agent.”<sup>1</sup> Adopting a leadership role in managing change is further described as being a catalyst, solution giver, resource link, and process helper.

Canadian dental hygienists face dynamic and challenging times. Recent amendments in legislation in some provinces have resulted in the expansion and explosion of practice possibilities. This has underlined the professional need to develop these many opportunities to provide care for underserved populations. Our profession has entered an era of significant transformation and autonomy. Anyone involved in this period of innovation and evolution must of necessity become an agent of change.

Darby and Walsh<sup>2</sup> define change as the process of modifying or transforming an idea, event, individual, group or community. An effective change agent must be a visionary who is capable of promoting a different way of doing things by analyzing and integrating a number of challenging environmental factors. These are some of the important qualities of successful change agents:

- Creativity and a love of innovation
- The ability to inspire and work with others
- A sense of humour
- Common sense and the self confidence to use it
- A spirit of caring

One of the most complex responsibilities in managing change is that of identifying key stakeholders, helping them understand the benefits of the change, and persuading them to “buy in”.

For example, the dental hygiene entrepreneur who wishes to implement a mobile service providing care to the homebound must have knowledge of relevant legislative, housing, social and economic issues, and community health agencies and resources, as well as an understanding of the business components that support success. The benefits of a proposed change must also be communicated to other organizations and professionals in order to encourage collaboration. Dental hygienists should, therefore, be prepared to become both members and leaders of multidisciplinary health care teams. Being part of an interdisciplinary team, sharing common health goals, can take the dental hygiene practitioner far beyond the limitations of the traditional operatory.

*There is nothing more difficult to take in hand, more perilous*

*to conduct or more uncertain in its success, than to take the lead in the introduction of a new order of things* —Niccolo Machiavelli, 15<sup>th</sup> century political philosopher.

As some resistance is an inevitable reaction to change, due consideration of the reasons for this opposition and the development of planned interventions to overcome it are critical to the change agent’s role.<sup>3</sup> As dental hygienists know well, motivation is the key to implementing change. How often have we tried to establish an interest in improved oral health goals and practices with our clients? In order to produce a commitment to change it is necessary invoke both a rational and emotional response in others. Enthusiasm means that individuals will take risks and become fully committed to the new circumstances. Ultimately, we hope to influence attitudes and beliefs about what is possible.

Dental hygienists have few role models for implementing the emerging possibilities. It is therefore important for new entrepreneurs to look for mentors and develop expertise that will enhance their professional potential. In addition to the one-day workshops and online certificate program *Independent Practice for Dental Hygienists*, the CDHA plans to build a database of independent practice resources including a listing of members who have established their own practices. If you wish to be added to this list and are interested in communicating with other dental hygiene entrepreneurs contact Ann E. Wright, CDHA’s *Independent Practice Advisor*, at [aew@cdha.ca](mailto:aew@cdha.ca).

The College of Dental Hygienists of Ontario has prepared a site to link and publicize independent practice dental hygienists. [http://www.cdho.org/Find\\_Independent\\_Practices.htm](http://www.cdho.org/Find_Independent_Practices.htm)

Hopefully, other provinces will follow this lead as increasing numbers of dental hygienists take advantage of emerging practice options. The evolution of the dental hygiene profession continues, with many new opportunities to provide quality oral care to the public. The role of change agent is critical for the development of these practice alternatives and to increase access to preventive oral health services.

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## CDHA helps dental hygiene leaders “Navigate the Imagination”

CDHA staff

Leaders in the dental hygiene profession from across Canada met the last week of May in Banff, Alberta for the first ever CDHA “Navigate the Imagination” – Leadership Invitational. Participants attended workshops to help them identify their leadership values. They learned about ways to strengthen their skills and performance as leaders – in their own practice and within the broader professional community.

Delegates networked, shared ideas with colleagues also interested in leadership. And they took part in creative, “visioning” discussions about future directions for the dental hygiene profession. Best of all it was the fun and the synergy of being able to spend time together.

CDHA thanks all the presenters, delegates, and sponsors of “Navigate the Imagination” – Leadership Invitational for helping make this event a resounding success. 🌟

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Team Leadership. Banff, Alberta



## Appointments to serve you better

The CDHA welcomes into its ranks two fresh appointees to serve the widening scope and demands of the profession.

### Ann E. Wright, RDH, MBA, Independent Practice Advisor

Ann's involvement in dental hygiene began with formal training at the University of Toronto in 1971. She has followed several career paths in dental hygiene, in private clinical practice, as examiner for the College of Dental Hygienists of Ontario, and as clinical instructor in the dental hygiene program at Algonquin College, Ottawa. She has held positions as regional manager managing multiple dental offices, as a dental practice management consultant, and as professional practice appraiser and broker.

Ann completed an MBA at the University of Ottawa in 1995. The subject of her thesis anticipated an insistent need, *"Independent Practice for Dental Hygienists in Canada: Issues and Obstacles."* The sequel to this qualification was development of a comprehensive marketing plan to launch an independent practice. More recently, Ann worked with a team at CDHA as developer and participant in the workshop: *Tools for Independent Practice*. In addition, Ann was the content expert for the development of the five-course Independent Practice certificate program now available online through the CDHA web site. Ann is an ardent golfer and her challenge to two budding golfing colleagues at CDHA is, "Just keep pace with me."

Ann's professional dream has been to see dental hygienists open their own private practices in Canada. She welcomes all of your questions and issues so that she can address the common concerns collectively in the journal's new column *"Independent Practice"*. She can be reached by telephone 1-800-267-5235 ext. 131, or by e-mail: aew@cdha.ca

### Linda Roth, RDH, DipDH, Acquisitions Editor for the Canadian Journal of Dental Hygiene

Linda Roth graduated in Dental Hygiene with a diploma from Algonquin College, Ottawa. She has the backing of thirteen years experience in clinical practice in a variety of clinical practice settings. Her association with the CDHA is not new. She served as its consultant for the National



Ann E. Wright (left) and Linda Roth (right)

e-Claims Standard project for three years. The past ten years have seen her volunteer her skills in varied settings. Additionally, Linda brings extensive experience in business management. Currently, Linda continues to practise as a dental hygienist, and is a clinical instructor in the dental programs at Algonquin College. She hopes to utilize her knowledge of current concerns in clinical practice and education to attract manuscripts of interest and quality for the benefit of the journal's wide readership. Linda takes over this role from Laura Myers, who is dedicating her expertise and resources to the rapidly expanding and hugely successful continuing education programs of the CDHA. Linda can be reached by telephone 1-800-267-5235 ext. 136 or by e-mail: acquisitions@cdha.ca

Linda lives with a tortoiseshell cat, a dog of interesting lineage, her son and her husband. She enjoys cottage life, and visiting family in Europe. 🇨🇦

## Aider vos clients à améliorer leur santé est maintenant simplifié.

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Dans le but de vous aider à rendre votre message plus percutant, l'Association canadienne des hygiénistes dentaires a produit à votre intention un jeu de nouvelles ressources éducatives. « Une bouche en santé, c'est un corps en santé! » comprend quatre dépliants, deux feuillets d'information et une affiche.

Pour obtenir un bon de commande et connaître le prix de ces ressources, rendez-vous dans la section réservée aux membres du site de l'ACHD à [www.cdha.ca](http://www.cdha.ca).

N'attendez pas! De quelques clics, commandez ces ressources afin d'assurer à vos clients une meilleure santé buccale et un corps en bonne santé. [www.cdha.ca](http://www.cdha.ca)



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## A few favourites

CDHA staff

In a profession that is predominantly a female bastion, with 98.19% of CDHA's members belonging to the fairer sex, the role of a dental hygienist is stretched furthermore given the demands of the profession, clinic or office, home, setting up independent practice single-handedly, and in trying to find a sane balance. This column takes a quizzical look at practical solutions online to energize ourselves.

### Maintain your curves

No matter what the job is, ergonomics plays an important role in preventing injury and illness. Ergonomics is simply "the job task to the person performing the job." Many times this involves manipulating our work area so that it fits us better, e.g. we can work in neutral postures and maintain our curves. Check out the specific sub-heading that describes your work area and find out how you can adjust your work area to better fit you.

[http://dohs.ors.od.nih.gov/ergonomics\\_home.htm](http://dohs.ors.od.nih.gov/ergonomics_home.htm)

### Chilled-out change manager

Bosses keen to beat stress should ensure that support is available, and that the work to be done is sufficiently challenging to keep it interesting. Short temper, anxiety, tension, depression – are just some of the symptoms of stress. Is it possible to de-stress the workplace? Find out how some workplaces have been proactive.

<http://news.bbc.co.uk/2/hi/business/2996224.stm>

A healthy workplace provides mutual benefits for employers and employees within a common belief that good health practices by both will lead to individual and organizational self fulfillment and productivity. Health promotion is the process of enabling employees to increase control over and to improve their physical, emotional and social health. Major elements that constitute a healthy workplace are:

- Physical environment – safe, healthy, secure; equipment, technology.
- Professional environment – human resources/staffing practices, leadership, practice issues (e.g. autonomy, scopes of practice, workload).
- Psychosocial/cultural environment – recognition, respect, communication, values, support.

[http://www.hrsdc.gc.ca/en/lp/spila/wlb/wppp/04worklife\\_stress\\_management.shtml](http://www.hrsdc.gc.ca/en/lp/spila/wlb/wppp/04worklife_stress_management.shtml)

### Vacation value

A study released in 2005, and funded by the National Institute for Occupational Safety and Health (NIOSH), is an analysis of the research that involved 1,500 women in central Wisconsin, USA. Researchers compared psychological stress, quality of marital life and disruptive home life due to work among women who take vacations frequently and those who do not. Women who take vacations frequently are less likely to become tense, depressed or tired

and are more satisfied with their marriages.

While a vacation does not necessarily mean a trip to Hawaii, brief domestic sojourns may prove happy solutions.

<http://www.canada.com/topics/travel/index.html>

### Take back your time

Give yourself time at your local spa. Get a good and value added massage from practising students at the massage therapy programmes in the community college in your city. <http://www.healthspanweb.com/>

Use the CDHA / GoodLife Fitness Member Discount Program which offers substantial savings to members. Save on the dollars and shed the pounds.

[http://www.cdha.ca/members/content/member\\_benefits/group\\_discount\\_goodlife.asp](http://www.cdha.ca/members/content/member_benefits/group_discount_goodlife.asp)

### Eating French

There may be something in the French way of enjoying course meals, as the title of a bestseller by Mirielle Guiliano proclaims, *French Women Don't Get Fat*.

<http://www.mireilleguiliano.com/frenchwomen.htm>

Take the time to prepare meals with fresh ingredients, walk to the markets to buy those ingredients, and then actually sit down with friends and family to savour the meal. Now that's a start. "We need to make a choice to enjoy life more," said Laurence Hauben in:

<http://www.marketforays.com>

### Home improvements

Embark on bite-sized projects that are affordable, feasible, and that do not take up all of your saved time. For instance, instead of working an entire room, try painting only one wall with a complimentary colour to brighten the existing ambience.

<http://www.doityourself.com/>

### Laughter

Laughter is a positive energy. It creates a positive mental attitude and brings openness, generosity and willingness to help others. It shows us that people need to be loved and cherished.

<http://www.laughteryoga.org/>

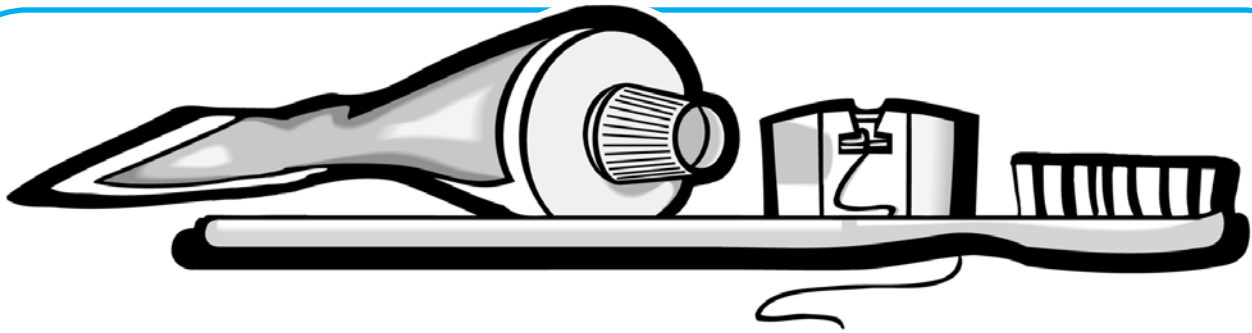
### Interprofessional collaboration

Within Canada, in spite of a variety of national and provincial supports for primary health care since 2000, the adoption of a team-based, interprofessional collaborative model of care and delivery remains in its infancy.

Healthcare providers working in an interprofessional collaborative manner are more satisfied and have a more positive experience, when compared to primary healthcare providers working in a uniprofessional model. This synthesis was initiated to help the Canadian Health Services Research Foundation and the Health Council of Canada gain a better understanding of the evidence surrounding interprofessional collaboration in Canadian primary healthcare, and the potential benefits for patients and healthcare providers.

[http://www.chsrf.ca/research\\_themes/documents/SynthesisReport\\_E\\_FINAL.pdf](http://www.chsrf.ca/research_themes/documents/SynthesisReport_E_FINAL.pdf)

The CDHA welcomes your feedback: [journal@cdha.ca](mailto:journal@cdha.ca)



## Crest Oral-B Oral Health Promotion Awards Announcement

We want to hear how creative you've been in promoting your profession this year. Send us your stories and photos. Entries will be judged on their creativity, planning, volunteer recruitment, educational elements, community impressions and impact as well as innovative partnerships. Applicants must submit an essay of less than 500 words. By submitting their essay and photos, applicants agree to have their essay or parts thereof published in the *Canadian Journal of Dental Hygiene*, at the discretion of CDHA.

To help you get your submission ready, please e-mail us at [lm@cdha.ca](mailto:lm@cdha.ca), fax us at 613-224-7283, or call toll free at 1-800-267-5235. Entries must be received by 28 November 2008, at the CDHA, 96 Centrepointhe Drive, Ottawa, Ontario, K2G 6B1.

### Get involved and you could win!

Enter by Friday, 28 November 2008

- Individuals: \$1,000
- Clinic teams: \$2,000
- Dental hygiene schools: \$2,000

Half of each prize will be shared with the winner's local dental hygiene chapter.

**Remember — the deadline for entry submission is 28 November 2008.**

## La Bourse Promotion de la santé buccodentaire Crest Oral-B - Annonce

Nous désirons savoir à quel point vous avez fait preuve de créativité pour promouvoir votre profession cette année. Faites-nous parvenir des anecdotes et des photos. Les envois seront jugés selon les critères suivants : créativité, planification, recrutement de bénévoles, éléments éducatifs, impressions et impact sur la collectivité ainsi que sur la dimension innovatrice des partenariats créés. Les candidates et les candidats doivent soumettre un essai de moins de 500 mots. En soumettant leur essai et leurs photos, les candidates et les candidats acceptent que leur essai ou des extraits de celui-ci soient publiés dans le *Journal canadien de l'hygiène dentaire*, à la discrétion de l'ACHD.

Pour qu'on puisse vous aider à préparer votre présentation, faites-nous parvenir un courriel à [lm@cdha.ca](mailto:lm@cdha.ca), télécopiez au 613-224-7283 ou appelez sans frais au 1-800-267-5235. Les inscriptions doivent être reçues au plus tard le 28 novembre 2008 à l'ACHD, 96 promenade Centrepointhe, Ottawa, Ontario, K2G 6B1.

### Participez, vous pourriez gagner !

Inscrivez-vous au plus tard le vendredi, 28 novembre 2008

- Individus : 1 000 \$
- équipes de cliniques : 2 000 \$
- écoles d'hygiène dentaire : 2 000 \$

La moitié de chaque prix sera partagée avec le chapitre local de l'association d'hygiène dentaire des gagnantes et gagnants.

**N'oubliez pas — la date limite pour la présentation est le 28 novembre 2008.**

**Crest**

**Oral-B®**

## CLASSIFIED ADVERTISING

CDHA and CJDH are not responsible for classified advertising, including compliance with any applicable federal and provincial or territorial legislation.

### ALBERTA

**GRANDE PRAIRIE** *Company/practice name:* Plaza Dental Clinic - Dr. Dhir. *Position available:* Full-time registered dental hygienist. *Position description:* Full time hygienist required immediately for busy general practice in Grande Prairie, AB. Friendly atmosphere, hourly or contract rates are negotiable. Moving allowance also included. *Qualifications:* Registered dental hygienist. *Contact:* Please fax résumé to **780-532-4656** or email: **toothclinic@hotmail.com** marked "Attention: Diana."

**MORINVILLE** *Company/practice name:* Dr. Darren Romanowski. *Position available:* Full-time/part-time general practice dental hygienist. *Position description:* Competitive salary, excellent patients, outstanding team. Modern office located only 20 minutes north of Edmonton. *Qualifications:* Enthusiastic and caring dental hygienist. *Contact:* For more information call Dr. Darren Romanowski at **780-939-1288** or **780-916-5845**. Please forward résumé via fax **780-939-1284**.

### ONTARIO

Mid-way **CHATHAM AND SARNIA** *Company/practice name:* County Fair Dental Office - Dr. Kevin Bacchus. *Positions available:* Full time restorative dental hygienists. *Position description:* Busy, progressive, well established family dental practice, located halfway between Chatham and Sarnia, is looking for 2 full-time restorative hygienists available Monday through Thursday. Excellent opportunity for a team oriented professional. New graduates welcome. *Contact:* Send résumé to: **dentist@cogeco.ca** or fax **519-627-7321**.

**OTTAWA** *Available:* Dental hygiene equipment for sale. *Description:* Equipment package includes Pelton Crane Chairman chair, DCI unit, Belmont light. All pole mount with small footprint. Good working order. \$3,500 or best offer. *Contact:* Telephone: **613-792-1111** or **819-682-1919**.

**PETERBOROUGH** *Company/practice name:* Dental Homecare Inc. *Positions available:* Dental hygienists - flexible work schedule. *Position description:* Dental Homecare Inc. is currently seeking dental hygienists who are interested in offering their skills in a mobile setting. *Qualifications:* You are certified or qualified to self initiate. Interested in the opportunity to work flexible hours. Have access to a reliable vehicle. Are willing to work with a diverse clientele. *Contact:* Please forward your résumés by email: **dentalprofessionals@levela.net** or by postal service to Level A, 277 George Street N. Suite 212, Peterborough, ON K9J 3G9. Telephone: **705-749-1919**.

**TORONTO** *Company/practice name:* Independent Dental Hygiene Centres Inc. (IDHC) *Positions available:* Full-time and part-time dental hygienists. *Position description:* Unique and exciting opportunity for self initiating dental hygienists. Are you excited about the recent legislative changes? Are you ready for an opportunity to join a different and rapidly growing company? A company that will enable you to utilize your experience, skills, and knowledge and offer you stability and professional career growth, all within a unique environment. We are seeking select dental hygienists to join our team. We offer competitive salary, benefits and the opportunity for advancement. *Qualifications:* Two years minimum experience with a College Diploma. *Contact:* If you feel you are the individual that can excel in our professional and friendly company, email your résumé to: **vgiorgi@idh.ca** or mail to IDHC Inc., 4576 Yonge Street. Suite 414, Toronto, ON M2N 6N4.

### NEWFOUNDLAND

**CORNERBROOK** *Company/practice name:* Dental Arts Clinic. *Position available:* Full-time dental hygienist. *Position description:* Full time maternity leave with possible extension. Caring, patient oriented dental hygienist want to join our busy, progressive, dental practice. Excellent growth opportunity for an ambitious, energetic, self motivated team player. Excellent working conditions and salary. Great area to live and work in. Excellent outdoors. *Contact:* For further information, please email: **boitsefski@nfld.net** Telephone **709-639-8451** or fax **709-634-4623** Attention: Sonia.

### CDHA classifieds

CDHA classified advertisements are listed on [www.cdha.ca](http://www.cdha.ca) >Members Only>Career Centre>Employment Opportunities>All/by province. Online advertisers can list their advertising in the *Canadian Journal of Dental Hygiene* for an additional fee. For pricing details, visit [http://www.cdha.ca/content/corporate\\_opportunities/hire\\_a\\_hygienist.asp](http://www.cdha.ca/content/corporate_opportunities/hire_a_hygienist.asp)

CDHA classified advertising reaches more than 11,000 members across Canada, ensuring that your message gets to a target audience of dental hygienists in a prompt and an effective manner. Contact CDHA at [info@cdha.ca](mailto:info@cdha.ca) or 613-224-5515 for more information.

### Corrigendum

In the previous issue, vol. 42 no.3 of May-June 2008, the article, **Current issues in infection control practices – Part II**, by J. Lux has a correction to Reference #59 on page 152: Milejczak CB. Optimum Travel Distance of Dental Aerosols in the Dental Hygiene Practice. *J Dent Hyg.* 2007 October;4:20-21.

Reference #59 should correctly read: Milejczak CB. Optimum Travel Distance of Dental Aerosols in the Dental Hygiene Practice. *J Dent Hyg.* 2005 October;81(4):20-21.

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### ABOUT THE COVER

People through the ages did spend time trying to take care of their teeth and dental hygiene.

The front covers of Volume 42 feature herbs used as remedies in dental treatments during the Renaissance period, and this note provides a *historical* perspective of their traditional use in oral or dental care, and hygiene.

Volume 42.4, July-August 2008

Cover picture credit:

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### *Sinapis alba* (mustard)

The seed of mustard "appeaseth toothache being chewed in the mouth". A gargle-rinse of pounded mustard seed with honey and vinegar is effective against the "tumours and swellings of the uvula, and the almonds about the throat and the root of the tongue".

John Gerard (1545-1612), *The Herbal or General History of Plants*. Reprint of the 1633 edition as revised and enlarged by Thomas Johnson. 1975. Dover Publications, NY. 245.



