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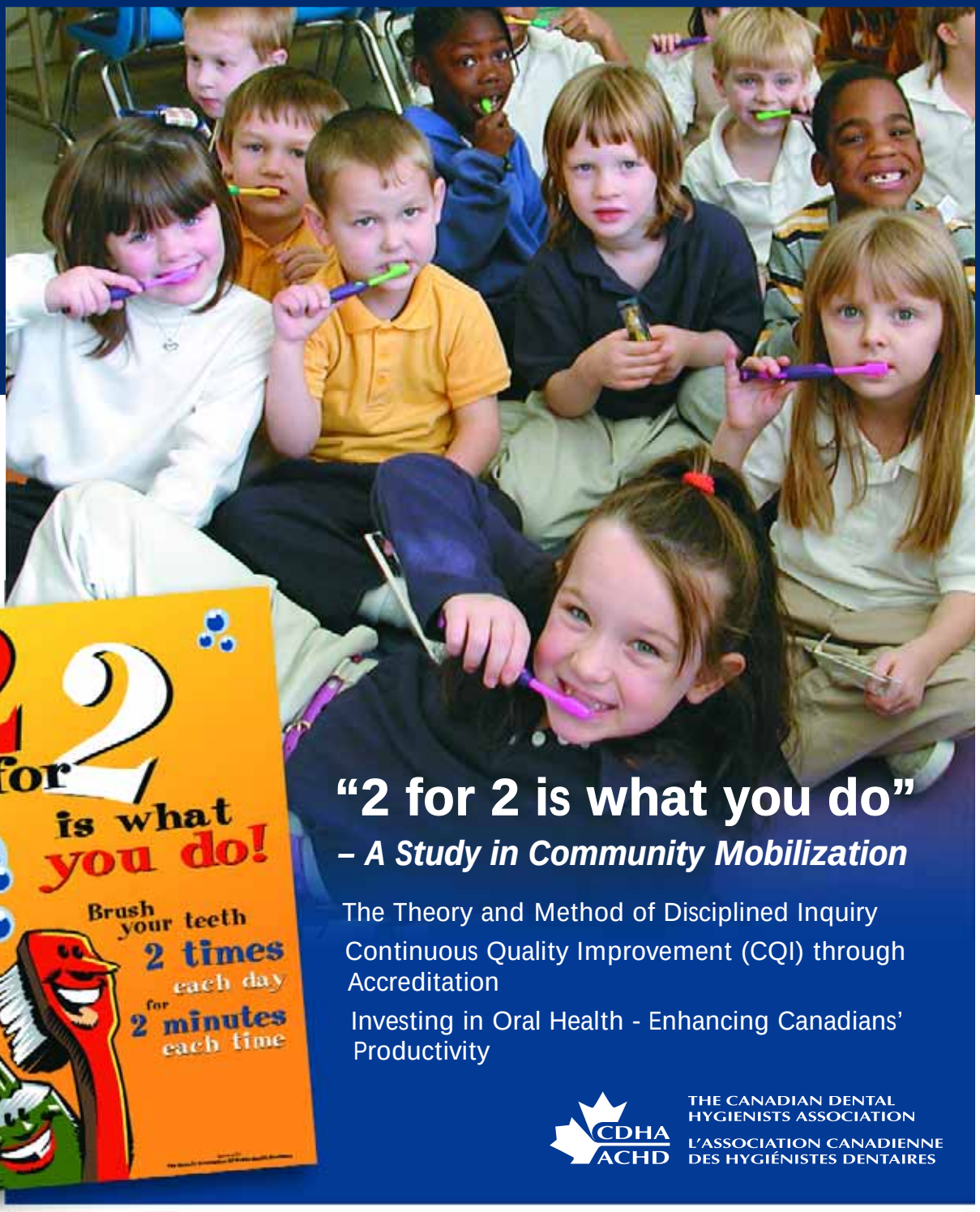

"2 for 2 is what you do"

– A Study in Community Mobilization

The Theory and Method of Disciplined Inquiry

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THE CANADIAN DENTAL HYGIENISTS ASSOCIATION

L'ASSOCIATION CANADIENNE DES HYGIÉNISTES DENTAIRES

THE OFFICIAL JOURNAL OF THE CANADIAN DENTAL HYGIENISTS ASSOCIATION

Take Ownership of Your Profession!

by Diane Thériault, RDH

Happy New Year to all!

BEFORE WE TURN THE PAGE ON 2005 AND PREPARE FOR the new year and new beginnings, I would like to take this opportunity to briefly bring you up to date on a few of the many key achievements in dental hygiene in Canada and our hopes for the future.

One part of CDHA's mission is to contribute to the oral health and general well-being of the public. This year, we pressed for policy changes in both written and oral presentations to the House of Commons Standing Committee on Finance. We concentrated on how productivity in Canada could be increased through improving oral health and by instituting tax incentives for continuing education. (You can read what was said in this issue of the journal.) CDHA was also active this fall at a national conference, "Tobacco or Health," where we gave a talk on the role of the dental hygienist in tobacco cessation. These two activities raised the profile of dental hygienists and oral health within the context of general health.

It is through a strong and active membership that CDHA will be able to strengthen our profession.

The self-governance front has also seen developments. At the time of writing, the bill for self-regulation in Manitoba has passed the Standing Committee Stage and is slated for third reading in the legislature. I applaud the courage and determination of all the volunteers involved in this endeavour. I suspect that a few more provinces will be following suit and I hope that we will all be soon celebrating another milestone in the profession of dental hygiene.

The Canadian Foundation for Dental Research and Education, launched at the June 2004 CDHA conference, has now funded two research projects. This was made possible by generous donations received from individuals, corporations, and provincial associations. The projects are headed by Dr. Lance Rucker with Dr. Susanne Sunell and Sandra Cobban with Dr. Profetta-McGrath. To read more about the foundation, to learn how you can help support

Take Ownership of Your Profession! *…continued on page 41*

Appropriez-vous votre profession!

par Diane Thériault, RDH

Bonne année à toutes et à tous!

AVANT QUE NOUS TOURNIONS LA PAGE SUR 2005 ET que nous nous préparions à la nouvelle année et à de nouveaux débuts, j'aimerais profiter de l'occasion pour faire brièvement le point avec vous sur quelques-unes des nombreuses réalisations importantes en hygiène dentaire au Canada ainsi que sur nos espoirs pour l'avenir.

Une partie de la mission de l'ACHD consiste à contribuer à la santé bucco-dentaire et au bien-être général du public. Cette année, nous avons fait des présentations, écrites aussi bien qu'orales, au Comité permanent des finances de la Chambre des communes afin d'exercer des pressions en faveur de modifications dans les politiques. Nous nous sommes concentrés sur les façons d'accroître la productivité au Canada grâce à l'amélioration de la santé bucco-dentaire et à l'établissement de stimulants fiscaux pour la formation continue. (Vous avez la possibilité de lire ce qui y a été dit dans le présent numéro du journal). L'ACHD est aussi intervenue cet automne lors d'une conférence nationale sur « Le tabac ou la santé »; nous y avons fait un exposé sur le rôle de l'hygiéniste dentaire dans le renoncement au tabac. Ces deux activités ont augmenté la visibilité des hygiénistes dentaires et de la santé bucco-dentaire dans le contexte de la santé générale.

C'est au moyen d'un effectif vigoureux et actif que l'ACHD sera en mesure de renforcer la profession.

Il y a également eu des éléments nouveaux dans le dossier de l'autodétermination. Au moment où j'écris ces lignes, le projet de loi sur l'autoréglementation au Manitoba a franchi l'étape de l'étude en comité permanent et il devrait faire l'objet de la troisième lecture à l'Assemblée législative. Je félicite tous les bénévoles associés à cette cause pour leur courage et leur détermination. J'ai tout lieu de croire que quelques autres provinces emboîteront le pas et j'espère que nous soulignerons bientôt le franchissement d'une nouvelle étape au sein de la profession d'hygiéniste dentaire.

Appropriez-vous votre profession! *…suite page 15*

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Please see our advertisement on page 6

Leadership and Energy

by Susan Ziebarth, BSc, MHA, CHE

*Your first and foremost job as a leader is to take charge of your own energy and then to help orchestrate the energy of those around you.**

– Peter F. Drucker

THESE ARE EXCITING TIMES FOR MANITOBA DENTAL hygienists and for the dental hygiene profession. The Manitoba Dental Hygienists Association has just reported that their drive to achieve self-regulation for dental hygienists has succeeded! The *Dental Hygienists Act* became law on December 8, 2005. What an achievement for this group of volunteers! The group, led by legislative chair Mickey Wener, has strategically and methodically persevered through what must have seemed like an endless uphill trod, through the snow, in –40 degree temperatures. If you listen really hard, I am sure you will hear a resounding cheer of support throughout the nation, recognizing the work of so few who will have an impact on so many.

Developing a critical mind, honing research skills, and practically incorporating these skills into practice is such an important skill to cultivate in this fast-paced world.

Peter Drucker captured the essence of leadership and the core of leadership is energy. What I have observed in the Manitoba dental hygienists is an incredible passion and positive belief that they could achieve their goal. There were times when energy lagged, but they rallied and paced themselves, recognizing and celebrating milestones along the way. We can all thank the MDHA not only for achieving its goal but also for its great positive energy that will spread and renew the spirit of other dental hygiene leaders from coast to coast.

Leadership and Energy *…continued on page 36*

* Cooper RK, Sawaf A. *Executive EQ. Emotional intelligence in leadership and organizations*. New York: Grosset/Putnam; c1997. p. 17.

Leadership et énergie

par Susan Ziebarth, B.Sc., M.H.A., C.H.E.

*Votre tâche primordiale, en tant que dirigeant, consiste à rassembler vos propres énergies puis à orchestrer celles des personnes qui vous entourent.**

– Peter F. Drucker

LES HYGIÉNISTES DENTAIRES DU MANITOBA ET LA profession d'hygiéniste dentaire vivent des heures passionnantes. La Manitoba Dental Hygienists Association vient tout juste de signaler que sa campagne en faveur de l'autoréglementation des hygiénistes dentaires a été couronnée de succès! La *Loi sur les hygiénistes dentaires* a en effet été adoptée le 8 décembre 2005. Quel succès pour ce groupe de bénévoles! Sous la direction du président de l'Assemblée législative, Mickey Wener, ce groupe a persévéré stratégiquement et méthodiquement tout au long de ce qui semble avoir été une interminable ascension, dans la neige, par –40 degrés. Si vous tendez l'oreille très attentivement, je suis certaine que vous entendrez retentir des acclamations d'appui dans tout le pays; vous reconnaîtrez aussi que le travail d'un petit nombre de personnes aura des répercussions sur quantité de gens.

Acquérir un esprit critique, roder ses compétences en recherche et pratiquement intégrer ces compétences dans la pratique est une habileté tellement importante à cultiver dans un monde au rythme très rapide.

Peter Drucker a saisi l'essence du leadership; or l'énergie est à la base du leadership. Pour ma part, j'ai constaté, chez les hygiénistes du Manitoba, une incroyable passion et une croyance positive en leur capacité de parvenir au but. L'énergie a fait défaut par moments, mais les gens se sont ralliés et ils ont ménagé leurs forces tout en reconnaissant et en soulignant les étapes franchies. Nous pouvons tous remercier la MDHA, car non seulement a-t-elle atteint son but, mais elle a fait preuve d'une énergie positive considérable qui va se répandre d'un océan à l'autre et

Leadership et énergie *…suite page 36*

"2 for 2 is what you do": A Study in Community Mobilization

by Joyce Sinton, BDS, BMSc, DDPH, and Elizabeth McIntosh, BA, DipDH, GradDip(Adult Ed), RDH***

ABSTRACT

"2 for 2 is what you do" was a health information campaign targeted at 7-year-old children in the spring of 2003 that was coordinated by the Ontario Association of Public Health Dentistry (OAPHD). **Objectives:** These were to (1) mobilize the diverse and geographically scattered public health dental community to undertake a province-wide health communication campaign; (2) provide training in health promotion to front-line staff; (3) increase public awareness that toothbrushing is an easy and effective way of preventing dental disease; (4) promote toothbrushing twice a day; and (5) encourage groups of people who do not normally brush often enough to change their behaviour. **Methods:** Using existing community supports, OAPHD raised $17,000 in seed money, which was leveraged through local efforts to $90,000 province-wide. A subcommittee coordinated the campaign, including design and focus testing of graphics, the message, and the evaluation tools as well as procurement of supplies. At a January 2003 training day, participants were briefed on the campaign and received a campaign kit. **Results:** Twenty-eight of the 37 Ontario Health Units were able to participate in the campaign. Staff learned skills in effective health communication. **Conclusions/outcomes:** The campaign proved that by working together and pooling resources and expertise, the public health dental community was able to organize and implement a large-scale, sophisticated health information campaign and mobilize the dental community on a common issue.

MeSH headings: Child; Community Health Planning; Community Health Services; Communication; Consumer Participation; Dental Caries, prevention and control; Health Behavior; Health Education, Dental; Health Promotion; Ontario; Oral Health; Program Evaluation; Toothbrushing

INTRODUCTION

THIS IS A CASE STUDY OF HOW A SMALL GROUP OF individuals, working in an under-resourced part of the Ontario Public Health system, were able to work together strategically to mobilize the people and resources needed to implement an effective, province-wide health information campaign.

BACKGROUND

For most of the twentieth century, dental diseases had been a substantial focus of the Ontario (and to a lesser extent Canadian) public health system.[1] However, during the late 1980s and early 1990s, a combination of factors led to the apparent perception that dental programs were only marginally necessary in a modern public health system. These factors included the following:

- Caries rates in children fell dramatically.[2]
- Dental care was tended to be seen as a business/cosmetic issue rather than a health issue.[3]
- The science of marketing had advanced. Since consumers were increasingly sophisticated, "old style" public service posters exhorting people to "brush their teeth" no longer had much effect.[4]

At the same time, there were also significant changes in the theoretical models and philosophy of public health practice with an increasing emphasis on health promotion rather than on providing access to care for vulnerable groups. There was a move towards population approaches to health rather than working with individuals. Traditional public health dental programs that emphasized disease detection and treatment for vulnerable groups did not fare well at a time when the pressures on the public health system as a whole were very great.

Years of unstable funding and of continually changing government policy priorities undermined the public health systems across the country.

Years of unstable funding and of continually changing government policy priorities undermined the public health systems across the country.[5,6] It was hard for the public health system to recruit and retain qualified staff. Scarce funding resources were dedicated first to the highest priority areas, thus marginalizing the perceived "less important" health issues like dental disease. Many dental programs saw a reduction in budgets and staffing.

* Director of Child and Family Health, Brant County Health Unit
** Program Coordinator, Oral Health Services, Brant County Health Unit

RÉSUMÉ

« 2 fois 2, voilà ce qu'il faut faire! » était le slogan d'une campagne d'information en santé destinée aux enfants de 7 ans et coordonnée par l'Ontario Association of Public Health Dentistry (OAPHD) au printemps 2003. **Objectifs :** Mobiliser les spécialistes de la dentisterie en santé publique – une population diversifiée et géographiquement dispersée – pour lancer une campagne de communication en santé dans toute la province; donner de la formation en promotion de la santé aux intervenants de première ligne; sensibiliser le public aux bienfaits du brossage des dents comme moyen facile et efficace de prévention des maladies dentaires; promouvoir le brossage des dents deux fois par jour; et encourager les groupes de personnes qui ne se brossent pas assez souvent les dents à modifier leur comportement. **Méthodes :** Utilisant les appuis existants dans la collectivité, l'Association a amassé 17 000 $ comme capital de départ, montant qui a ensuite été porté, grâce à des efforts locaux, à 90 000 $ à l'échelle de la province. Un sous-comité a coordonné la campagne, y compris la mise à l'essai de la conception et de l'évaluation des éléments visuels, du message et des outils d'évaluation, et l'approvisionnement en fournitures. Lors d'une séance de formation tenue en janvier 2003, on a fourni aux participants de l'information sur la campagne et on leur a remis une trousse de travail. **Résultats :** Vingt-huit des 37 bureaux de santé de l'Ontario ont pu prendre part à la campagne. Le personnel a acquis des compétences pour communiquer efficacement en matière de santé. **Conclusions/résultats :** La campagne a montré qu'en travaillant de concert et en mettant en commun les ressources et le savoir-faire, les spécialistes de la dentisterie en santé publique étaient capables d'organiser une campagne d'information complexe de grande envergure, de la mette à exécution ainsi que de mobiliser les spécialistes de la dentisterie autour d'un objectif commun.

The dental staff who remained were too overworked and under-resourced to develop effective health communication campaigns, especially on their own. While a few individual Ontario Health Units had the resources and expertise to develop excellent campaigns, these were carried out in isolation. This resulted in a wide variation in oral health promotion across the province of Ontario and a reduction in the impact of the campaigns because of lack of "critical mass."

A NEED FOR LEADERSHIP

By 1996, it was becoming clear that a group needed to provide leadership to the diverse and geographically scattered dental public health community in Ontario. The Ontario Association of Public Health Dentistry (OAPHD) was formed in 1996 to fill that role. The 80-member organization has several roles, including networking support, professional education, and acting as a lobby group on public health dental issues.

OAPHD began a strategic planning process in the spring of 1999 and health promotion became one of several key strategic directions. By 2002 it was becoming evident that, of all the strategic directions, the health promotion strategy had had the greatest impact. At the strategic planning retreat in April 2002, it became clear that OAPHD needed to deal with four realities in the dental public health environment:

1. The current dental public education campaigns were not effective.
2. Formal training and application in the techniques of effective health communication was needed.
3. Resources were not being used as wisely as possible. A pooling of expertise and resources in a coordinated, province-wide manner was required.
4. It was up to the OAPHD members to help themselves.

The end of the retreat saw four clear objectives developed to improve the effectiveness of dental public health education campaigns over the next five years. These objectives were to

1. systematically learn about effective health communication;
2. put what was learned into action;
3. pool money, time and resources; and
4. deliver at least two high-quality, province-wide health communication campaigns.

At the same retreat, two of the attendees showcased a project they had recently worked on. They had developed a small-scale health information campaign and had been delivering in schools in the London area, to considerable attention from the local media. The resources produced for the campaign clearly had the potential to be increased in scope and in the level of professionalism. The slogan for the campaign was "2 for 2 in 2002. I am a tooth two timer and you should be one too." It was evident that this campaign could be adapted to be OAPHD's first province-wide campaign.

Through "2 for 2," OAPHD was able to organize its members, raise funds, and implement a successful campaign on time and on budget.

The campaign was called "2 for 2 is what you do." Not only was it to be a health information campaign, it was also a self-help strategy evolving out of the 2002 OAPHD strategic planning retreat. At one level, this project was about how a small group of people decided to take charge of their own destiny. OAPHD is a volunteer organization with no staff and only a limited budget. Individuals within the group had a variety of talents and experience in health promotion, but the organization overall appeared to lack the training, experience, and money to successfully produce a provincial oral health communication cam-

paign. Through "2 for 2," OAPHD was able to organize its members, raise funds, and implement a successful campaign on time and on budget. This campaign had a positive impact on both public awareness and staff morale.

PROJECT MANAGEMENT

After the 2002 retreat, the next stage was to form a project team from among OAPHD members who had an interest in learning about health promotion and effective health communication. This group was officially called the OAPHD Health Promotion and Advocacy Committee but unofficially was known as the "2 for 2 group." This project team came from across Ontario and reflected a variety of backgrounds and skills. There were approximately 12 individuals, with one person acting as project manager over a period of a year. With team members contributing according to skill, interests, and time, a richer mix was achieved than otherwise would have been possible, from both the technical competence and geographic perspective. Ontario covers a wide area, and to be effective, a province-wide campaign has to work in Northern Ontario as well as in the major urban centres in the south.

The cost of treating [caries and peridontitis] in Canada is estimated to be $6.4 billion.

The use of information technology (IT) allowed the "2 by 2" group to work virtually. People could remain in their own offices that were far apart but stay connected with the group. This provided opportunities for professional development and helped reduce some of the sense of professional isolation that had been adding to the recruitment and retention problems. The members also utilized the expertise of The Health Communication Unit (THCU) from the University of Toronto. THCU offers a number of short training programs in effective health communication, as well as project-planning tools, resources, and consultation services.

OBJECTIVES OF "2 FOR 2"

Through training, the "2 for 2" group learned that two of the most important concepts in health communication were the importance of clear objectives and careful planning to support these objectives. The committee developed the following four objectives:

- to mobilize the diverse and geographically scattered public health dental community to undertake a province-wide health communications campaign;
- to provide training in health promotion to front-line staff;
- to increase public awareness that toothbrushing twice a day is an easy and effective way of preventing dental disease; and
- to promote toothbrushing twice a day and to encourage groups of people who do not normally brush often enough to change their behaviour.

The second concept, careful planning, became evident as the campaign planning progressed. With committee members scattered across the province of Ontario, communication was essential, as was having a clear definition of responsibility and deliverables. No two people on the committee worked in the same location and misunderstandings did happen. Committee members returned repeatedly to the initial planning documents and objectives to keep the campaign on track. Details of the project-planning methodology can be found elsewhere.[7]

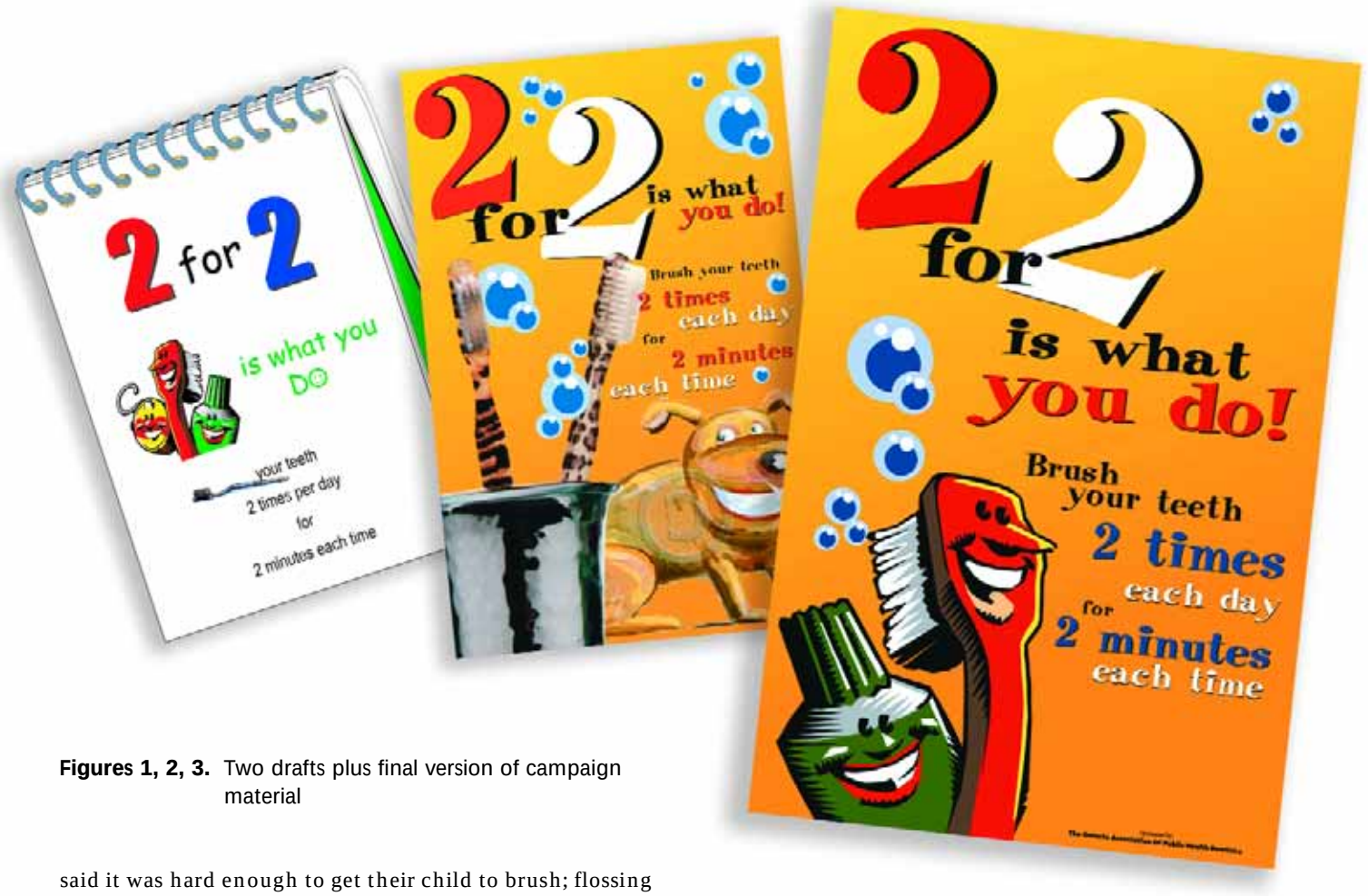
MESSAGE DESIGN

The "2 for 2" campaign was targeted mainly at 7-year-old children for several reasons. At this age, most children start to brush their teeth without parental help and are developing the necessary physical coordination to do so. They are also open to new ideas and usually want to put what they learn into practice. Good education materials exist for this age group. Finally, it was speculated that the children would "teach" their parents what they had learned at school.

Secondary target groups included parents, grandparents, and teachers since they influence children's behaviour by what they say and by example. Health professionals were also a target group in that they added credibility to the message by endorsing and promoting it.

Toothbrushing was to be the key message. There were multiple rationales for focusing on this as the key message. Toothbrushing is one of the easiest and most effective methods individuals can take to protect themselves from two common dental diseases, caries and periodontitis. The cost of treating these diseases in Canada is estimated to be $6.4 billion.[8,9] Thus the prevention of these diseases is of considerable interest to the public health system. Also, a survey released by Health Canada suggested that fewer than half of Canadian adolescents brush their teeth twice a day. International comparisons in the same study showed that fewer Canadian adolescents brush twice a day than in any other developed country other than Greece.[10] Another recent longitudinal study by the University of Dundee suggested that children who brush their teeth only once a day are at least twice as likely to get dental cavities as children who brush twice a day.[11] Another reason for focusing on toothbrushing was that the results of focus testing suggested this message would be appropriate for the primary target group.

The committee, however, recognized that the message, "Brush your teeth twice a day for two minutes each time" was somewhat controversial in the dental community. Dentists and dental hygienists often want to talk about brushing *and* flossing *and* proper snacking *and, and, and*... because of the multifaceted nature of oral health. However, after focus testing various combinations of the message with the public and especially with children in the target range, the committee decided to keep the basic message very simple: brush twice a day for two minutes each time. As a result of focus groups conducted for an earlier project, the committee already had some knowledge about parents' attitudes to toothbrushing. Most parents



Figures 1, 2, 3. Two drafts plus final version of campaign material

said it was hard enough to get their child to brush; flossing was just too much to add to the routine. Brushing after every meal was also considered unrealistic for adults and children alike. However, most parents and other adults thought they could increase brushing from once a day to twice a day.

Mock-ups of the campaign material were shown to groups of Grade 2 students and to individual 7-year-old children to see what they thought of them. It was important that the material appealed to the target audience and the visual identity of the campaign changed significantly based on feedback from the children. Figures 1, 2, and 3 demonstrate how the visual identity of the campaign evolved based on the focus testing.

Seven-year-old children are beginning readers. They found that the version shown in figure 1, with its Rebus writing, very confusing and difficult to read.

Figure 2 did not fare much better. Many 7-year-old children are afraid of dogs, even cartoon ones.

Figure 3 shows the final visual image used in the campaign. If the material had not been focus tested, time and money would have been wasted. It is interesting to note that older children, aged 9 and 10, enjoyed the Rebus puzzles and cartoon dogs. A campaign targeted at them would have looked quite different.

CAMPAIGN ROLLOUT

The project-planning phase took about three months. By the end of December 2002, the elements of the campaign were complete and the campaign was ready for roll out at the training day in January 2003.

To be effective, a message needs to be given three different times, through three different channels, in three slightly different ways. The three components of this campaign were the

1. school component, with in-school presentations to Grade 2 classes by public health staff and community volunteers;
2. media component, including radio and print advertisements, media releases, and newsletter inserts;
3. public awareness component, with merchandise to be used in a variety of settings.

The committee assumed that given the tools and training, individuals would be well equipped to tailor the campaign to fit the needs of their Health Unit and to coordinate the campaign locally. Therefore a "train the trainer" approach was taken. Each Health Unit was encouraged to send a least one staff member to a training day in January 2003. The training day included sessions on how to organize a media campaign, how to do the evaluation component of the program, how to recruit and organize volunteers, and how to organize a classroom presentation. At the completion of the day, each participant received a basic campaign kit of supplies that included sample merchandise and a CD containing artwork and media relation material. With this training, the participants then returned to their Health Units to train other staff members and act as campaign coordinator. All participants were added to an e-mail list so that they could be sent periodic updates and information.

RESULTS

Participation

In April 2003, the public health system in Ontario was divided into 37 geographic areas called Health Units. Overall, 28 out of the 37 Health Units in the province of Ontario participated in the "2 for 2" campaign in April 2003 (see figure 4). The major gaps in provincial coverage were the City of Toronto and Northern Ontario but these gaps were entirely understandable. The City of Toronto at this time was in the middle of the SARS outbreak. Staff from the Health Units in the far north were involved in the development process but in the end, could not free sufficient resources to implement the campaign. The campaign was successfully delivered by both small and large Health Units and in rural and urban environments.

Budget

The "2 for 2" committee was able to raise initial seed money of $17,000. This was mainly donated by the College of Dental Hygienists of Ontario (CDHO), with additional funds from OAPHD and the Ontario Dental Nurses Association (ODNA). Objectives 3 and 4 of the campaign (to increase public awareness that toothbrushing twice a day is an easy and effective way of preventing dental disease, and to promote toothbrushing twice a day) were a good fit with the vision of both the CDHO and the ODNA. As both of these organizations are provincial in nature, they were very supportive of a province-wide campaign.

$17,000 was leveraged by local and "in-kind" donations to almost $90,000 across Ontario.

The seed money was used in a variety of ways. Posters, bookmarks, stickers, and other promotional materials were produced to support the campaign. Each Health Unit was provided with a basic campaign supply kit, which included posters, t-shirts, toothbrushes, timers, and a CD containing resource material for local replication. The seed money also helped OAPHD provide each Health Unit with enough imprinted toothbrushes and 2-minute timers to supply 5 per cent of their Grade 2 population.

This money and materials were sufficient to get the campaign underway. It was then up to each individual Health Unit to raise any additional funds needed to implement the campaign locally, which could be as elaborate and far-reaching as local resources allowed. In total, the $17,000 was leveraged by local and "in-kind" donations to almost $90,000 across Ontario. A local radio station and a professional musician created the radio advertisements and a graphic design company designed the campaign logo at cost. Many Health Units were able to tap into the generosity of the local dental community (dentists, dental hygienists, and dental assistants) for volunteers and/or money.

Figure 4. "2 for 2" coverage across Ontario (participating Health Units shown in black)

When Health Unit staff returned from the January 2003 training day with the campaign kit and sought volunteers and cash for use in their own areas, the response was greater than expected. Many Health Units found the funds to order more merchandise. In fact, the company supplying the toothbrushes imprinted with "2 for 2" had to put on a second shift to meet the demand. The company contracted to supply 2-minute timers ran out of supplies. The purchasing power of public health dental community when they worked to a common goal was certainly noted.

EVALUATION

Evaluation was a fundamental part of the project design and a variety of evaluation tools were used to measure changes in behaviour over the time of the campaign. These tools included pre- and post-surveys of patients visiting selected dental offices, one week prior to and one week after the campaign. There was also a survey of those people who telephoned Health Units during the month after the campaign and each Health Unit filled out an extensive questionnaire. There was a pre- and post-lesson questionnaire for the school lesson plans as well.

DISCUSSION

By working together and pooling resources and expertise, the public health dental community was able to organize and implement a large-scale, sophisticated health information campaign in a very short time frame. This raised the profile of the Ontario Association of Public Health Dentistry with a number of stakeholder groups. However, stakeholder involvement is double edged. Stakeholders may be very helpful to a project by contributing time, money, expertise, and creditability. Examples of positive stakeholder involvement included the following:

a College of Dental Hygienists of Ontario grant of $12,000 bankrolled most of the project development costs; many Health Units gained funding and/or volunteers through local dental associations; 16 per cent of the people who heard about the campaign, had learned about it through promotional material distributed through dental offices; and dental offices assisted in the evaluation.

On the negative side, stakeholder conflict about the appropriateness of the message may have seriously undermined the campaign's credibility in some communities.

However, it was shown that a well-planned and well-implemented health information campaign can be a tool for community mobilization. In other words, it can get the sometimes fractured community of dental health professions to work together. Some Health Units seemed to be more successful at this than others.

A well-planned and well-implemented health information campaign can be a tool for community mobilization.

The "2 for 2" committee discovered it was possible to leverage a relatively small initial start-up campaign budget ($17,000) into a much larger one ($90,000) when each Health Unit taped into the resources of its local community.

Mass media outlets can be supportive of public dental health messages: many Health Units received considerable free coverage of the campaign while some Health Units paid for airtime to play a radio advertisement. The evaluation showed that this was a particularly effective method of communicating the campaign message. Media coverage was affordable in communities outside of the Greater Toronto Area (GTA) but prohibitively expensive in the GTA.

The campaign was developed by a central committee, condensed into a tool kit, and disseminated out for implementation through the OAPHD network. This model appeared to be particularly effective given the decentralized nature of the organization.

This campaign was a positive first step. Oral health staff in many Public Health Units learned of new and innovative modes of public health practice. They tapped into funding and volunteers in their own communities in a manner they had not been able to do previously.

OUTCOMES (WHAT HAPPENED NEXT)

By working with The Health Communication Unit of the University of Toronto (THCU), OAPHD members became aware that an entire network of health promotion experts existed in the province of Ontario. These experts brought valuable expertise to the "2 for 2" campaign.

Over time, many Health Units realized that there was a need to link health promotion experts and dental experts together formally, and a number of Health Units have assigned health promotion experts to dental programs. This has increased the level of knowledge and skill in health promotion among front-line dental staff (an early goal of the "2 for 2" campaign) and therefore increased the effectiveness of local oral health promotion efforts. It has also raised the profile of oral health issues within the health promotion community. In return, OAPHD members have been able to share expertise in program evaluation with the health promotion community. The "2 for 2" campaign has been used as a teaching tool for health communication workshops at THCU.

Prior to "2 for 2," the Ontario public health dental community had been very naïve about the mass media. There was little understanding of the strengths and weaknesses of various media, how to craft the messages, or how to pick the appropriate channel for the audience to be reached. As a result of formal training and from nerve-racking personal experience, OAPHD members have learned several things about working with the media. They now realize that free or low-cost media coverage is fairly easy to generate in rural areas of the province and that careful planning helps to take advantage of media opportunities when they arise. They know they must understand the local media networks and refine the message in order to maximize exposure. It is also important to understand the needs of journalists—they often have tight timelines and need a "hook" to hold the reader's interest. However, more work remains to be done with media awareness before OAPHD members are comfortable working with the media.

Many Health Units tapped into the local dental community (dentists, dental hygienists, and dental assistants) for volunteers and money. The "2 for 2" campaign also offered an opportunity for the Health Unit dental programs to reach out to the local community with valuable resources, which could be used for a variety of purposes. It helped to demonstrate the "value-added" aspect that a strong public health system can add to clinical practice.

As a result of "2 for 2," many OAPHD members have learned a variety of skills in health communication, health promotion, the use of IT, and virtual teamwork. Some members have also clarified personal growth objectives. A number of dental hygienists have enrolled in degree programs and others have taken advantage of distance learning programs offered on-line.

FUTURE PLANS

The "2 for 2" campaign provided a rather steep learning curve and OAPHD members continue to learn as they apply new ideas and information in the area of health communication, project management, and community mobilization. However, they remain convinced that it is possible for those with a passion to improve the oral health of Ontario citizens to work together to bring about change.

A second campaign was always a part of the original objectives of the Health Promotion and Advocacy Committee when they started with the "2 for 2" campaign. Based on what they learned from "2 for 2," they felt equipped to tackle a more ambitious, multi-year campaign called OPEN WIDE. This campaign, in its second year of

operation, focuses on the need to raise awareness that dental disease is still a very real problem for many people in Ontario, and that many individuals are unable to access appropriate dental care.

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Appropriez-vous votre profession! *(suite de la page 3)*

La Fondation canadienne pour la recherche et l'éducation en hygiène dentaire, lancée lors de la Conférence de l'ACHD en 2004, a financé deux projets de recherche jusqu'à présent. Ce geste a été rendu possible grâce aux généreux dons reçus de particuliers, d'entreprises et d'associations provinciales. Ces projets sont l'un sous la direction du Dr Lance Rucker et de la Dre Susanne Snell, et l'autre sous celle de Mme Sandra Cobba et de la Dre Profetta-McGrath. Pour de plus amples renseignements au sujet de la Fondation, pour découvrir la manière de contribuer à son beau travail et pour trouver la façon de demander des fonds de recherche, veuillez consulter le site Web de la Fondation, au www.cfdhre.com.

Ce ne sont là que quelques-unes des activités auxquelles travaille votre association nationale. Pour de plus amples renseignements au sujet des nombreux projets de l'ACHD, je vous invite à visiter le site Web de l'Association.

Maintenant plus que jamais, l'ACHD a besoin de votre appui et de vos commentaires au moment où nous nous engageons dans l'avenir. On s'efforcera toujours de limiter ou de réduire la portée de notre profession. Aussi nous faut-il contrer ces forces et plaider en faveur du droit d'exercer notre profession dans toute son ampleur, une ampleur fondée sur la base de connaissances propre à l'hygiène dentaire. Il faut aussi que nous nous tenions au courant des changements dans la technologie et les méthodes de traitement afin de mieux servir le public. C'est au moyen d'un effectif vigoureux et actif que l'ACHD sera en mesure de renforcer la profession.

Les membres de l'ACHD devraient se considérer eux-mêmes comme d'estimés « clients », en ce sens que la qualité de membre confère un certain nombre d'avantages importants – l'assurance responsabilité; des régimes d'assurance collective exceptionnels pour les assurances habitation et automobile, l'assurance invalidité de longue durée, l'assurance vie et l'assurance en cas de décès accidentel; un excellent REER collectif; des possibilités de formation permanente grâce à des cours et à la conférence annuelle. La qualité de membre a ses avantages, mais, ce qui a encore plus d'importance, elle vous donne un rôle de propriétaire à l'égard de l'orientation future de notre profession au Canada.

Un des objectifs des organismes comme l'ACHD consiste à protéger et à promouvoir les intérêts de ses membres-propriétaires. En tant que membre de l'ACHD, vous avez donc une responsabilité importante : celle de faire part de vos commentaires au conseil d'administration à propos de ce que vous voulez que votre association fasse pour vous et vos collègues hygiénistes dentaires. N'oubliez pas que l'ACHD est une organisation nationale et qu'elle doit par conséquent être à l'écoute de la collectivité des hygiénistes dentaires plutôt qu'à celle des désirs de chacune et de chacun. Au cours de l'année prochaine, votre conseil d'administration élaborera un plan détaillé de maillage pour qu'il vous soit plus facile de faire valoir point de vue. À cette fin, nous avons facilité vos rapports avec votre représentant par l'intermédiaire du site Web de l'ACHD; nous avons en effet attribué une adresse électronique à chaque membre du conseil d'administration. Votre représentant attend avec impatience votre opinion au sujet de la façon dont vous entrevoyez l'avenir de la profession d'hygiéniste dentaire au Canada. J'ose espérer qu'en 2006, vous exercerez vos droits en tant que propriétaire et que vous contribuerez à déterminer l'avenir de la profession.

On peut communiquer avec Diane Thériault à l'adresse <president@cdha.ca>.

Continuous Quality Improvement (CQI) through Accreditation: Application to Dental Hygiene Practice

*by Anne Clift, RDH**

This article is based on a presentation at the CDHA 16th Annual Conference in June 2005 in Ottawa.

"Quality means doing the right things right and making continuous improvements."[1]

INTRODUCTION

CONTINUOUS QUALITY IMPROVEMENT (CQI) IS "A management philosophy which contends that most things can be improved."[2] CQI focuses on the process, not the people. It seeks to improve rather than blame. CQI principles, tools, and techniques have long been found to be effective in manufacturing industries and more recently in human service industries including healthcare. CQI is most effective when it becomes a natural part of the way everyday work is done.

The following lists core concepts of CQI:

- Quality is defined as meeting and/or exceeding the expectations of the customer.
- Success is achieved through meeting the needs of those we serve.
- Most problems are found in processes, not in people. CQI does not seek to blame but to improve processes.
- Unintended variation in processes can lead to unwanted variation in outcomes, and therefore we seek to reduce or eliminated unwanted variation.
- It is possible to achieve continual improvement through small incremental changes using the scientific method.
- Continuous improvement is most effective when it becomes a natural part of the way everyday work is done.

The pursuit of quality is the most important aspect of what we do as health care providers. Patients/clients and families consistently rank quality of care and safety of their care as a high priority.[3] The large organization in which I work is committed to the CQI concepts, believing that quality is achieved only through the collaborative efforts of staff, physicians, volunteers, clients, and leadership teams. A manual entitled *Developing a Quality Plan*[4] and a group of individuals called quality facilitators help the various programs and departments to achieve that quality.

Keywords: accreditation; quality assurance, health care; dental hygienists; oral hygiene

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The expectation of continuous quality improvement permeates my organization. But continuous quality improvement is not just for health care facilities. It is applicable as well in dental hygiene practices in the community and in other locations. We all attend continuing education courses, read journals, and change our practice based on current standards. Later in the paper we shall look at some of the ways accreditation standards can be useful in implementing CQI in the dental hygiene setting.

An organization that focuses on CQI provides a stimulating environment as well as the tools to keep up with current trends and evidence-based practices. The leadership teams aim at doing the right things right and making continuous improvement. Ideas for improvement are sought from all levels of the organization. For example, as dental manager, my input is sought when policies relating to oral health are being developed or revised. Individual and team awards that recognize achievement are promoted.

The best thing about the accreditation process is that it ensures you take the time to reflect on what you are doing and why you are doing it that way.

It is very satisfying to work in such an environment but there are challenges. At times, the process of continuous improvement is overwhelming; it is difficult to know where to start. But accreditation activities can be a steadying guide.

Continuous quality improvement guided by accreditation is logical. With accreditation, there are set standards the organization is expected to meet in a pre-set time frame. Like CQI, accreditation does not assign blame. It asks the organization to recognize strengths. Accreditation notes weaknesses or deficiencies but looks upon them as opportunities for improvement. The concepts of continuous quality improvement outlined above are easily applied to any dental hygiene practice and the accreditation process can be adapted to assist in that process.

RÉSUMÉ

L'amélioration continue de la qualité (ACQ) est « un principe de gestion selon lequel la plupart des choses peuvent être améliorées ». L'ACQ met l'accent sur les procédés et non sur les gens. Elle cherche à améliorer plutôt qu'à blâmer. Les principes de l'ACQ, ses outils et ses techniques ont depuis longtemps prouvé leur efficacité dans l'industrie manufacturière et, plus récemment, dans le secteur des services à la personne, soins de santé compris.

Les concepts fondamentaux de l'ACQ sont les suivants : la qualité est définie comme la satisfaction ou le dépassement des attentes du client. La satisfaction des besoins de ceux que nous servons est synonyme de succès. La plupart des problèmes se trouvent dans les procédés, non chez les gens. L'ACQ ne cherche pas à blâmer, mais à améliorer les procédés. La variation involontaire dans les procédés peut conduire à une variation indésirable dans les résultats; par conséquent, nous cherchons à réduire, voire à éliminer, la variation non désirée. Il est possible de parvenir à une amélioration continue par de petits changements graduels en utilisant la méthode scientifique. C'est quand elle devient une composante naturelle de notre façon quotidienne de faire le travail que l'amélioration continue est la plus efficace.

L'agrément peut guider l'amélioration continue de la qualité. L'agrément est assorti de normes définies que l'organisation se doit de respecter selon un calendrier préétabli. Comme l'ACQ, l'agrément ne jette pas de blâme mais demande plutôt à l'organisation de reconnaître ses forces. L'agrément note les faiblesses ou les déficiences, mais les considère comme des « occasions d'amélioration ». Les concepts d'amélioration continue de la qualité soulignés ci-dessus sont facilement appliqués à toute pratique d'hygiène dentaire et il est possible d'adapter le processus d'agrément pour contribuer à cette démarche.

The CCHSA carries out a broad assessment of quality of care and service every three years and their accreditation must be in place prior to a CDAC accreditation.

ACCREDITATION

Accreditation can be defined in different ways. The *Canadian Oxford Dictionary* (2001) says it is "official recognition as meeting certain standards." The Canadian Council on Health Services Accreditation (CCHSA) defines accreditation in a health care setting as "a detailed comparison of an organization's services and method of operation against a set of national standards."[5] The Commission on Dental Accreditation of Canada (CDAC) defines accreditation as "a non-governmental, peer review process that measures education programs and dental services against predetermined national requirements (*or* standards)."[6] In health care, there is always a process of self-assessment—an internal review looking at what you do compared to national standards—as well as peer review. There is also external review when an impartial third party looks at what you do and compares it with national standards.

The best thing about the accreditation process is that it ensures you take the time to reflect on what you are doing and why you are doing it that way. The time lines and requirements of the accreditation process assist greatly in organizing one's thoughts and actions. In addition, preparation for an accreditation site survey cannot be done by one person. The team approach to an organization's self-assessment is an invaluable learning tool. In an organization as large as the one where I am employed, there are numerous accreditation teams with each one reviewing a particular aspect of the organization.

My organization's accreditation team that prepares for the Canadian Council on Health Services Accreditation (CCHSA) is composed of nurses and physicians, a respiratory therapist, dietician, physiotherapist, teacher, quality facilitator, social worker, and child life worker; I am a member of the team representing oral health. The accrediting body sets down standards that must be reviewed; each member of the team participates in the discussion. The bonus in having such a diverse group is that someone has expertise in almost any standard being reviewed. If this is not the case, then we seek the expertise outside the team.

The accreditation team for the Commission on Dental Accreditation of Canada (CDAC) is considerably smaller and includes members of our dental staff, a quality facilitator, and managers of services such as diagnostic imaging, health records, environmental services, perioperative, surgery, and emergency as required. I serve in the capacity of coordinator.

Accreditation process

Prior to the peer review by the accrediting body (this includes a site visit), the organization's accreditation team carries out its self- assessment. The resulting information forms the basis of a document that will be submitted to the accrediting body about two months before the site visit. Before the document is finalized, it is reviewed for accuracy many times. When it is sent, it is accompanied by an evidence binder that contains the many supporting appendices.

The accrediting body reviews the documentation and arranges the site visit by a group of objective external reviewers called surveyors. These surveyors must have current experience as a senior health service professional, be knowledgeable about the Canadian health system, and have excellent communication and analytical skills.[7] The surveyors visit the organization and conduct interviews

with staff, physicians, board members, patients/clients, and family members. The survey team uses the same national standards to measure this organization independently against similar organizations across the country.

The site visit generally verifies the previously submitted documentation and clarifies any questions arising from the submission.

Accreditation results and recommendations

The findings from the on-site visit are "summarized in a written report and focus on the organization's strengths and weaknesses. Recommendations are made to help the organization develop plans to improve areas which are weak and maintain areas which are strong."[5] Recommendations must be responded to in a specified period of time. The surveyors may also make suggestions but unlike recommendations, suggestions do not have to be acted on.

Cyclical nature of accreditation

Thus the health care facility's accreditation team moves from planning for accreditation to doing the self-assessment, identifying strengths and opportunities for improvement, submitting the documentation, working through the site visit and peer review, receiving the report and recommendations, addressing the recommendations, setting future goals, preparing annual program reviews to be submitted to the accrediting body on a regular basis, and then going back to planning for the next accreditation. This cycle is well represented by the following chart from CCHSA's website:

Get the Facts → Get Ready → Do the Self-Assessment → Plan and Have the Survey → Use the Report → Make Ongoing Improvements

Accrediting bodies

There are two accrediting bodies for dental and oral health services in health care institutions, the Canadian Council on Health Services Accreditation and the Commission on Dental Accreditation of Canada. Quality of care and continuous quality improvement are the main focus of both.

Canadian Council on Health Services Accreditation

The Canadian Council on Health Services Accreditation (CCHSA) is "a national non-profit, independent organization whose role is to help health services, across Canada and internationally, examine and improve the quality of care and service they provide to their clients."[8] The CCHSA carries out a broad assessment of quality of care and service every three years and their accreditation must be in place prior to a CDAC accreditation. It is not unusual for specific services of an accredited health facility to undergo their own accreditation. Physiotherapy and cancer care center are two of many examples of accredited services in our organization.

The accreditation programs within CCHSA are always changing, a point we sometimes note with chagrin when the next site visit is fast approaching. Accreditation itself, just like continuous quality improvement, is never finished. CCHSA, just like the facilities it accredits, also seeks opportunities to improve. The current program in use is AIM (Achieving Improved Measurement). A description taken from CCHSA's website explains this approach:[9]

> *AIM program*
>
> All CCHSA clients are now accredited using the AIM: Achieving Improved Measurement program and standards. AIM is a valuable health services accreditation program that represents the next step in the evolution of accreditation, one that puts a stronger focus on results.
>
> Built on the foundation of our successful Client-centred Accreditation Program, the AIM Program is an improved measurement system that ensures consistency in the accreditation process. It also enables health services organizations to compare their accreditation results over time, and share information on good practices.
>
> …AIM's primary purpose is to help organizations evaluate the quality of care they provide. AIM also enables organizations to measure their clinical and operational performance more accurately, giving them a clearer picture of their strengths and areas where they need to improve.
>
> AIM builds on the strengths of previous accreditation programs, adding new components and scientific rigour, while maintaining a client-centred focus on quality.

Commission on Dental Accreditation of Canada (CDAC)

The Commission on Dental Accreditation of Canada (CDAC) accredits dental, dental hygiene and dental assisting educational programs and institutional dental services.[10] CDAC reviews just the dental service of a health care facility every five years.

The CDAC has developed and recently revised accreditation requirements for health facilities that are the criteria used to compare hospital dental services throughout Canada. The accreditation requirements are modeled on current evidence-based practice standards.

Each of the 16 requirements contains a brief statement and a list of documentation necessary to meet the requirement. (The entire 2005 document with all 16 requirements can be accessed online at www.cda-adc.ca as of December 1, 2005.) The following three requirements have the most relevance to dental hygiene practice:[10]

- 10.0 Patient Care and Quality Assurance
- 11.0 Clinic Administration
- 12.0 Oral Hygiene Care.

10.0 PATIENT CARE AND QUALITY ASSURANCE

Requirement

10.1 Policies and/or protocols must exist relating to the following:

a) Audit of Patient Care
b) Collection of Patient Fees
c) Confidentiality of Patient Information
d) Consultative Protocols
e) Informed Consent
f) Patient Assignment
g) Patient Continuing and Recall Care
h) Patient Records
i) Professional Decorum

Such policies and protocols must be written and readily available for the professional staff and support staff. Mechanisms must be in place to monitor compliance of these policies and protocols.

Requirement

10.2 The dental service must have policies and mechanisms in place that provide quality assurance and education for patients about their comprehensive treatment needs. Patients accepted for dental care must be advised of the scope of care available at the facility and be appropriately referred for procedures that cannot be provided within the facility.

The primacy of care for the patient must be well established in the management of the clinical program, assuring that the rights and best dental interests of the patient are protected. There must be a formal mechanism in place to permit dentists to review and evaluate the pattern and quality of clinical practice within the dental service.

The quality assurance process must ensure that the following are in place:

a) patient-centred, comprehensive care;
b) an ongoing documented review of a representative sample of patients/patient care records;
c) mechanisms to determine the cause of treatment deficiencies;
d) patient review policies, procedures, outcomes and corrective measures and;
e) describe any other activities and initiatives by the dental service.

Requirement

10.3 Patients and/or patient care advocates should be surveyed regarding their impressions of the care provided and this feedback should be used to evaluate and enhance the clinical program.

Discussion of Requirement 10

The three subheadings of this requirement, *Patient Care and Quality Assurance*, all provide scope for CQI in dental hygiene practice. Below are examples of quality issues derived from Requirement 10 that could be used in private dental hygiene practice.

Confidentiality of patient information. The *Privacy Act* has had a major impact on how we practise. Some issues to address are the following:

- Does your office display a day sheet in easy view of clients/patients? It should be kept covered.
- Must staff discuss patient/client care and financial issues within earshot of others (including telephone conversations)? No specific client/patient should be named in any discussion if at all possible. Try some "white noise" to muffle personal conversations.
- Ask your co-workers to audit your practice for slip-ups in protection of privacy. It is always good to offer yourself first and others are likely to follow your example.
- Blatant breaches of confidentiality must be addressed with the offending person through whatever mechanism you use at your office.

Client/patient records. Are client/patient visits properly and thoroughly recorded? Is there a section on the chart to update the medical history and is there a mechanism to ensure it is done? Is there a written interpretation of radiographs? Ask if someone else can do a review of your charts to determine if there is good record keeping.

Is the treatment plan explained to the client/patient?

Are fees always discussed with the client/patient prior to a procedure being initiated?

Is there an effective recall system?

Client/patient satisfaction questionnaire. This is always an interesting exercise. There are a number of questionnaires available in the literature or you can create your own. A word of caution: Do not include questions involving matters you have no power to change. For example, I work in a hospital that is located on a university campus. There are parking problems but we cannot change the situation. Therefore, when we devised our client/patient satisfaction questionnaire, we did not include a question on parking.

Feedback from questionnaires is valuable as it gives you the client's/patient's impression of your service. You can use the information to improve your practice.

Complaints. Nobody likes dealing with complaints. I am fortunate to have expertise available in the hospital to help me deal with unhappy clients/patients. Complaints, however, should be dealt with promptly. Often the person just wants to tell their side of the story without being interrupted.

11.0 CLINIC ADMINISTRATION

Requirement

11.1 Policies and/or protocols must exist relating to Fire and Safety Procedures, Hazardous Materials and Waste Management, Infection Control, Medical Emergency Procedures. Such policies and/or protocols must be consistent with related regulation, legislation and by-laws of the various jurisdictions and must be readily available for the professional staff and support staff. Mechanisms must be in place to monitor compliance of these policies and protocols.

Requirement

11.2 Protocols must be developed and implemented for the use and monitoring of nitrous oxide, mercury, pharmaceutical and other substances and techniques that might be hazardous to patients and staff.

Discussion of Requirement 11

This requirement, *Clinic Administration*, provides many helpful examples of CQI in dental hygiene practice.

Occupational health and safety. Legislation relating to occupational health and safety requires dental offices, no matter how small, to have an Occupational Health and Safety protocol and a specific person must be named as the representative for health and safety in that work environment. See the Canada's National Centre for Occupational Health and Safety website at www.ccohs.ca for more information. It is a good idea to plan an occupational health and safety walk-through at specified times throughout the year. Different staff volunteers should do it each time; if the same person carries out this task every time, he or she would probably notice the same things and not pick up on potential problems that new eyes might see.

Infection control procedures. There is a wealth of information on infection control procedures in the dental office. The Canadian Dental Association has a document entitled *CDA Workbook on Infection Control* and the Centers for Disease Control in Atlanta, Georgia, has a 98-page document on its website (www.cdc.gov) entitled *Guidelines for Infection Control in Dental Health Care Settings—2003*.

Fire and medical emergencies. Your local fire department will often provide someone to present a fire safety in-service with staff. There should be staff with current first aid and CPR in accordance with provincial dental regulations. Plan to do this on a regular basis.

Hazardous materials and waste management. The material safety data sheets for all materials used in the dental clinic should be organized in a binder and updated each time a new material is purchased. Your dental supplier or the manufacturer's web site can provide the information.

All dental offices in Canada are being challenged to find a method of safely disposing of mercury in dental amalgam. Make sure you are up to date regarding the current legislation in your province.

If nitrous oxide sedation is used in your office, there must be proper scavenging of the gas to protect the health and safety of staff and clients. Nitrous oxide emissions should be monitored annually.

Biofilms in dental unit waterlines are under scrutiny as a potential health risk in immunocompromised patients/clients. Check the literature and your dental supplier for the most up-to-date information on dental unit waterline maintenance.

Sterilizers should be monitored according provincial statute, provincial dental association, or CDA infection control guidelines. Biological and chemical indicators are usually recommended.

Gluteraldehyde high-level disinfectant solution should also be monitored and care should be taken to protect staff from exposure to fumes and splashes. There is a great deal of information in the literature on occupation exposure risks associated with gluteraldehyde.

12.0 ORAL HYGIENE CARE

Requirement

12.1 A plan to provide oral hygiene care for health facility patients should be developed and implemented. Strategies to provide instruction of nursing personnel in mouth care, the provision of oral hygiene aid to patients who can care for themselves and the maintenance of oral hygiene for those who cannot, should be a regular component of nursing care for all patients.

Discussion of Requirement 12

This requirement, *Oral Hygiene Care,* also provides examples of how to incorporate CQI in dental hygiene practice.

Oral hygiene care is what we do. Continuous quality improvement in oral hygiene care means making sure we are familiar with the latest evidence-based information.

- Be familiar with the CDHA practice standards and code of ethics.
- Our aging dentate population will challenge all of us to provide care to clients who are more and more medically compromised. We need to familiarize ourselves with new medications that our client may be taking and their side effects. The information is there. Call pharmacists or physicians for information and remember your CDHA library that is there to help (library@cdha.ca).
- What about the latest information on fluorides, topical medicaments, mouthwashes, power toothbrushes, to name just a few? Educate yourself on the latest developments.

Our aging dentate population will challenge all of us to provide care to clients who are more and more medically compromised.

IN YOUR DENTAL HYGIENE PRACTICE

Think of Continuous Quality Improvement as a means of energizing your practice. The most rewarding aspect of accreditation for those on the organization's accreditation team is to see how much of what we are doing is good. Also, there is a feeling of empowerment when an area is identified as needing improvement and you are part of making the change happen.

In a dental hygiene practice, the provision of quality care using current evidence-based information should be the ultimate goal. The flow chart on the CCHSA website can form the basis for continuous quality improvement in one's own practice. Of course, in order to make ongoing improvements, you have to "Get the Facts" and so the cycle begins again.

Get the Facts → Get Ready → Involve Co-Workers → Do the Self-Assessment → Make Ongoing Improvements → Get The Facts….

Example of CQI application

I believe the biggest challenge facing dental hygiene practice in the future is the aging population. At the 2005 CDHA Annual Professional Conference, Marilynne Fine and Arlyn Broder discussed the issue of who will provide care for clients when they can no longer come to the office. Does the dental hygienist have an ethical responsibility to provide care in the client's residence, whether in their own home or a facility? When is your client no longer your client?

The World Health Organization published an article in 2005 that discussed the negative impact of poor oral health on quality of life in older adults.[11] The article stresses oral health promotion and disease prevention as an affordable means of improving oral health in the elderly. Dental hygienists, as recognized prevention specialists in the field of oral health, can and should take on this task.

Using the concepts of CQI, what appears to be a Herculean task can be broken down into manageable pieces. We are told continual improvement can be achieved through small incremental changes and continuous improvement is most effective when it becomes a natural part of the way everyday work is done. Some suggestions to address maintenance of good oral health in the older population follow:

- Audit the client database to see how many patients are age 60 years or older. One begins with the facts.
- Be proactive if you have clients who are nursing staff or caregivers for the elderly. It is a great opportunity to provide information. Offer to do an in-service.
- Take action as soon as you note a decline in the client's oral health such as increased plaque, gingivitis, or pre-carious lesions.
- Review the medical history; question changes in medications especially or medical events since the last visit.
- Review oral hygiene techniques as sometimes decreased manual dexterity is a problem.
- If the problem persists, ask if there is someone who can come to the next appointment to receive instruction on assisting with mouth care for this client.
- Keep samples of dry mouth products to give to clients to try. Oral Balance Gel by Biotene is excellent.
- Consider a chlorhexidine mouth rinse.
- Involve family members or caregivers as early as possible.

CONCLUSION

Continuous quality improvement should be the goal of all health care practitioners, whether they work in health care facilities, in private practice, or in community settings. Employing the accreditation process to improve quality in the work place is one way of approaching CQI.

APPENDIX: RESOURCES

The Canadian Dental Hygienists Association has developed many tools to assist dental hygienists in improving the quality of their practice. In the *Members Only* section of the web site, there are two documents deserving of special mention: *Dental Hygiene: Definition, Scope, and Practice Standards* and the *Code of Ethics*. The Definition and Scope of Practice document has an excellent diagram entitled "a process model to guide dental hygiene practice" on page 7. The preamble to the Code of Ethics states that the "profession… is devoted to promoting optimal oral health for all."

- On CDHA's *Members Only* web site (www.cdha.ca) under *Resources and Tools*:
  - *The Canadian Journal of Dental Hygiene* (CDHA)
  - *Dental Hygiene: Definition, Scope, and Practice Standards*
  - *Code of Ethics* (CDHA)
  - Fact Sheets, located at the CDHA Oral Care Centre
- CDHA Library (www.library@cdha.ca)
- Your local dental hygienists' association
- Canadian Dental Association, *CDA Workbook on Infection Control*
- Centers for Disease Control, *Guidelines for Infection control in Dental Health Care Settings–2003*. Available from: www.cdc.gov
- *The Privacy Act*. Available on Justice Canada's website (http://laws.justice.gc.ca)
- The Canadian Centre for Occupational Health and Safety (www.cchos.ca)
- *Compendium of Pharmaceuticals and Specialties (CPS)* published by the Canadian Pharmaceutical Association
- The National Institute of Dental and Craniofacial Research. National Oral Health Clearinghouse (www.nider.nih.gov)
- CPR and first aid. Contact your local Canadian Red Cross and Heart and Stroke Association
- Fire Safety. Contact your local fire department
- Updating patient health history with information provided by the patient or caregiver or the patient's physician
- For general medication information, contact your local pharmacist
- Canadian Council on Health Services Accreditation (CCHSA) (www.cchsa.ca)
- Commission on Dental Accreditation of Canada (www.cdac-adc.ca)

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Laura Myers, CDHA's new Director of Education

The Canadian Dental Hygienists Association is pleased to welcome Laura Myers as the Director of Education, a newly created position. Ms. Myers joined the CDHA staff on January 3, 2006.

Ms. Myers is a dental hygiene graduate of John Abbott College and holds a BA in Psychology from Carleton University. She has extensive experience in educational, administrative, clinical/restorative, and community health dental hygiene practice. Fluently bilingual, Ms. Myers has been an educator at Algonquin College and La Cité Collégiale. She has served as a council member of the College of Dental Hygienists of Ontario, a member of the Commission on Dental Accreditation of Canada site visit teams, and a member of the National Dental Hygiene Certification Board's Examination Committee. She is currently a member of the Dental Hygiene Educators Canada Board of Directors. Ms. Myers comes to CDHA from the National Dental Hygiene Certification Board where she was Executive Director.

Manitoba Dental Hygienists Are Now Self-Regulated

Very good news for the dental hygiene profession and for Manitoba dental hygienists in particular! They are now able to regulate their own profession, joining their counterparts in British Columbia, Alberta, Saskatchewan, Ontario, and Quebec. The *Dental Hygienists Act* received Royal Assent in the Manitoba Legislature on December 8, 2005. This was achieved through the tireless work by the Legislative Committee of the Manitoba Dental Hygienists Association, the committee led by Mickey Wener. Congratulations to all Manitoba dental hygienists on this great accomplishment, a major step toward improving the public's access to primary oral health care.

Call for Nominations

CDHA Life Membership

CDHA Life Membership is awarded to an active member, in good standing, of the Canadian Dental Hygienists Association, who has made an outstanding contribution to both dental hygiene and the association at the national level. Dental hygienists nominated for Life Membership shall fulfill the following qualifications:

1. They will have maintained continuous CDHA membership in the active category for a minimum of 15 years.
2. They will have been involved in dental hygiene at the national level and in an official capacity for a minimum of 10 years.
3. They will have made a significant contribution to the growth and achievement of the national association, compared with others involved for the same length of time and in similar capacities.

For nominations to be considered by CDHA, we require the written support of two CDHA members in good standing. Nominators may submit only one nomination for this award. Submissions must be accompanied by a detailed curriculum vitae of the individual being nominated, as well as an outline of accomplishments at the national level that the nominators consider worth of this award.

The CDHA Board of Directors will designate Life Members at their meeting in March 2006. Please submit your recommendations no later than February 24, 2006, to the Canadian Dental Hygienists Association, 96 Centrepointe Drive, Ottawa, ON K2G 6B1.

Life Membership will be bestowed during CDHA's 17th Annual Professional Conference in Edmonton, Alberta, in June 2006.

CDHA Distinguished Service Award

The **CDHA Distinguished Service Award** recognizes a dental hygienist or other individual who has made a significant contribution over a minimum four-year period to the advancement of the dental hygiene profession in Canada or nationally to the Canadian Dental Hygienists Association.

Eligible individuals are those whose contributions may include, but are not limited to, outstanding work on a task force or committee, work on an innovative project, work on the Board of the CDHA or any of the Board's committees, academic advancement, and/or corporate support. The individual's contribution and service to the profession must be national in focus, show personal commitment, and have had a positive impact on the profession.

The nomination must be supported by the following documentation to be considered:

- a cover letter from the principle nominator, outlining the nominee's contributions to the CDHA
- a letter of support from one additional nominator which should include aspects of the nominee's life and career
- a brief reflection of the project(s) or positions the nominee has been involved in with regard to the dental hygiene profession at the national level

The CDHA Board of Directors will designate the Distinguished Service Award recipient at their meeting in March 2006. Please submit your completed nomination along with all supporting documentation no later than February 24, 2006, to CDHA, 96 Centrepointe Drive, Ottawa, ON K2G 6B1. Submitted nominations and documents will be kept confidential and will be used by the CDHA only for the award nomination process. Only completed nominations with all the necessary documentation will be considered.

The award will be presented at CDHA's 17th Annual Professional Conference in Edmonton, Alberta, in June 2006.

CDHA is raising the profile of the dental hygiene profession through Shoppers Drug Mart partnership

CDHA is partnering with Shoppers Drug Mart to provide the public with oral health tips and information. Thanks to the dedicated efforts of a team of dental hygienists from the University of Manitoba, Carol-Ann Yakiwchuk, Mickey Wener, and Mary Bertone, the Canadian public will benefit from a series of tips designed to promote good oral health. The messages will help raise the profile of the dental hygiene profession in Canada. The tips will appear next to the CDHA logo and will be featured periodically in Shoppers Drug Mart flyers over the course of the next 12 months. The first of many CDHA tips was released in the October 29, 2005, flyer. The flyers are produced in both official languages and distributed to over 9 million households in Canada.

CORRECTION – The photographs in the "CDHA Position Paper on Sports Mouthguards" in the November-December 2005 issue of the journal were kindly provided by Dean Lefebvre, a dental hygienist in Saskatchewan who specializes in fabricating mouthguards. We apologize that this credit did not accompany the photographs and regret the omission.

The Theory and Method of Disciplined Inquiry

by Joanne B. Clovis, PhD, and Sandra J. Cobban, MDE, PhD student***

ABSTRACT

Evidence-based decision making is at the forefront of all decision-making in health care, yet health care practitioners may apply scientific evidence in their daily practices without any appreciation of the theories or methodologies involved. An understanding of "why" certain practices are appropriate and "how" they came into being contributes to both a better application in practice and ultimately, enhanced credibility and authority for the individual practitioner and the profession. The broad concept of research—the search for evidence—encompasses many formal and informal understandings. Scientific inquiry, the research that provides the evidence for health care practitioners, is firmly embedded in theory and methodology. The current diversity of theory and method reflects a long history, as well as the more recent explosion, of thought regarding how knowledge is acquired and what counts as acceptable evidence. Complexity occurs even in our most basic beliefs about how we perceive the world and acquire knowledge. These fundamental differences in beliefs have given rise to differing paradigms that are expressed in theory and methodology as quantitative or qualitative research. Dental hygiene researchers need to determine, at the time of designing their inquiry, if qualitative, quantitative, or mixed methods are most appropriate to answer their research question. The nature of the inquiry will dictate the appropriate research paradigm. The purpose of this paper is to describe the distinct paradigms that guide scientific inquiry, compare and contrast quantitative and qualitative research, and provide background for two papers to follow: a practical guide to conducting research, and a more in-depth review of survey methodology.

Keywords: quantitative research, qualitative research, research quality, dental hygienists, dental hygiene research, disciplined inquiry

INTRODUCTION

THE INDIVIDUAL AND COLLECTIVE PURSUIT OF KNOWLedge is subject to diverse approaches and interpretations. Polarized notions about what is right and how knowledge should be pursued have contributed to the current diversity in research theory and method. The complexity of the issues reflects our most fundamental human understandings about how we come "to know." The term *science,* from the Latin word *scientia* meaning knowledge, is commonly used to encompass the activities and the outcomes of our search for knowledge.[1] Science is traditionally accepted as the appropriate term for the pursuit of knowledge. This paper describes the distinct paradigms that guide scientific inquiry and compares and contrasts quantitative and qualitative research.

Disciplined inquiry is conceptually and practically distinguishable from other forms of lay inquiry. The systematic process of research is intentional, planned, and executed according to accepted criteria, and the results are critiqued publicly. The process of research is conducted within a framework of beliefs and practices that define the direction and strategies to be used. There is fundamental agreement regarding the aim of inquiry as a way of knowing and understanding through a systematic approach or discipline that is distinct from other forms of inquiry.[1-6] Indeed, the uniqueness of the approach includes not only systematic inquiry but also critiquing and dissemination of the results, a process akin to seeking the truth and questioning the acquired wisdom.[4]

There is fundamental agreement regarding the aim of inquiry as a way of knowing and understanding through a systematic approach or discipline that is distinct from other forms of inquiry.

Inquiry as a process produces knowledge through a continuous interplay of theory and research. In the traditional view of science, research is a testing of hypotheses by empirical observation. The hypotheses are generated from theories that are formal expressions of concepts and their relationships purported to explain a given set of phenomena. The observations produce generalizations, and the generalizations are used to support or modify the theory. These events can be depicted as a cycle of theory, hypotheses, observations, and empirical generalizations leading back to theory. Within the cycle, research produces the theory that, in turn, guides research.[1,4,5]

It is the differences in beliefs about how humans can understand the world and acquire knowledge that ultimately drives the current debates in scientific inquiry. The

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RÉSUMÉ

La prise de décision fondée sur des données probantes est à l'avant-plan de toute prise de décision en soins de santé. Pourtant, les praticiens dans ce domaine peuvent appliquer des preuves scientifiques dans leur pratique quotidienne sans se rendre compte le moins du monde des théories ou des méthodologies qui les sous-tendent. Le fait de comprendre les raisons justifiant la pertinence de certaines pratiques et l'historique de leur genèse contribue à la fois à en améliorer l'application dans la pratique et, ultimement, à accroître la crédibilité et l'autorité du praticien et de la profession. La vaste notion de recherche – la recherche de données probantes – englobe de nombreuses compréhensions méthodiques ou non. L'enquête scientifique, la recherche qui fournit des données probantes aux professionnels de la santé, est fermement enracinée dans la théorie et dans la méthodologie. La diversité actuelle des théories et des méthodes est le reflet d'une longue histoire, tout comme l'explosion plus récente de la pensée concernant les modes d'acquisition du savoir et la validation de la preuve acceptable. La complexité surgit même dans nos croyances les plus élémentaires au sujet de notre façon de percevoir le monde et de faire l'acquisition de connaissances. Ces différences fondamentales dans les croyances ont donné naissance à différents paradigmes qui sont exprimés en théorie et en méthodologie comme les recherches quantitative ou qualitative. Les chercheurs en hygiène dentaire doivent déterminer, au moment de la conception de leur enquête, quelles sont les meilleures méthodes pour répondre à leur question de recherche : les méthodes qualitatives, les méthodes quantitatives ou une combinaison des deux? C'est la nature de l'enquête qui déterminera le paradigme de recherche adéquat. Cet article a pour objet de décrire les paradigmes distincts qui guident la recherche scientifique, de comparer et d'opposer les recherches quantitative et qualitative, et de jeter les bases de deux articles à venir : un guide pratique la conduite de recherches et une revue plus en profondeur de la méthodologie des enquêtes.

world views associated with two modes of inquiry—the quantitative and qualitative traditions—are so different that they are held to be incompatible by many researchers. Other researchers believe that, although there are indeed differences between the qualitative and quantitative positions, there are practically many similarities and opportunities for integrating the perspectives in the creation of functional partnerships.

Within disciplines, paradigms and metaparadigms are global views of the discipline that shape practice and research.[7] The views express the unique perspectives of the discipline and serve as the broadest and most inclusive level of a structural hierarchy of knowledge within a discipline. In nursing, for example, the structural hierarchy begins with the nursing metaparadigm and includes philosophies, conceptual models, theories, and empirical indicators.[8] A similar structural hierarchy is proposed for dental hygiene and includes paradigm concepts, conceptual models, theory, and practice, education, and research components.[9,10]

THE PARADIGMS THAT GUIDE INQUIRY

Scepticism regarding every aspect of traditional science has given rise to new systems of research belief and practice. Following the Second World War, the traditions of realism, objectivity, and deductive reasoning were questioned as new notions of social interaction emerged. Other sources of discontent emerged from the anti-establishment activity of the late 1960s and disadvantaged social groups, particularly blacks, native peoples, and women.[4] The context-free experiment was scorned as myth, and reality became negotiable. The realism and objectivity of the natural science model of theory and research is disputed by social theorists who believe that neither is possible in social research. At issue is the very notion of how humans know or understand.

The world views associated with two modes of inquiry—the quantitative and qualitative traditions—are so different that they are held to be incompatible by many researchers.

In the **positivist** tradition, the world exists independent of any human description. It may be understood by objective investigation that includes prediction, observation, and explanation. Explanations are given in terms of cause and effect, and observations are generalized to the population as a whole. The main criticisms of this tradition are that humans constantly interpret and interact with their environments, and it is therefore not possible to observe social action without becoming involved with it and the world. Social meanings are actually constructed by human interpretation and action. Accordingly, it is not possible to understand people without understanding how they think.

These more recent conceptions of social understanding have evolved into distinct paradigms in juxtaposition to positivism. Paradigm is defined as '"a basic set of beliefs that guides action."[11 (p.17)] Paradigms may not answer important questions but they tell us where to look for answers.[12] This interpretive framework includes beliefs about ontology, epistemology, and methodology.[11,13-15] *Ontology* refers to the nature of reality and human beings, *epistemology* is the study of knowledge and the relationship between the inquirer and the known, and *methodology* describes how the inquirer can find out about knowledge. These sets of beliefs characterize the frameworks and premises for research.

	Positivism	Postpositivism
Ontology	*Realist* – Reality exists "out there" and is driven by immutable natural laws and mechanisms. Knowledge of these entities, laws, and mechanisms is summarized conventionally in the form of time- and context-free generalizations. Some of these latter generalizations take the form of cause-effect laws.	*Critical realist* – Reality exists but can never be fully apprehended. It is driven by natural laws that can be understood only incompletely.
Epistemology	*Dualist/objectivist* –- It is both possible and essential for the inquirer to adopt a distant, non-interactive posture. Values and other biasing and confounding facts are thereby excluded automatically from influencing the outcomes.	*Modified objectivist* – Objectivity remains a regulatory ideal, but it can only be approximated, with special emphasis placed on external guardians such as the critical tradition and the critical community.
Methodology	*Experimental/manipulative* – Questions and/or hypotheses are stated in advance in propositional form and subjected to empirical tests (falsification) under carefully controlled conditions.	*Modified experimental/manipulative* – Emphasizes critical multiplism. Redresses imbalances by doing inquiry in more natural settings, using more qualitative methods, depending more on grounded theory, and reintroducing discovery into the inquiry process.

Table 1. Alternative paradigms of inquiry

Five defined paradigms

Four paradigms are defined by Guba as positivism, postpositivism, critical theory, and constructivism (see table 1).[11] Each paradigm is characterized by its distinctive ontological, epistemological, and methodological beliefs.

Positivism is the belief system of traditional science. It is rooted in the realist ontology, practises objectivist epistemology, and pursues experimental methodology that attempts to control for inquirer bias and other sources of influence.

Postpositivism similarly aims to predict and control but acknowledges that it is impossible for human beings with imperfect sensory and intellectual mechanisms to truly perceive the world. It aims for neutrality in observation, uses experimental and quasi-experimental methods, may include qualitative methods, and affirms theory derived from inquiry rather than using theory as the precursor of inquiry.

The ***criticical theory*** paradigm is more removed from positivism and postpositivism and emphasizes the role of values in inquiry. It views inquiry as a way of raising the oppressed to "true consciousness" so that they may act to transform the world. The ideologies in this set of beliefs encompass neo-Marxism, feminism, and Afro-centrism. The methodologies are principally forms of dialogue and discussion.

Constructivism is clearly the most remote from positivism and seeks to replace it with sound arguments. In constructivism, reality exists only in the context of the mental framework or construct for thinking about it. Many constructions are possible and there is no single way to choose among them. "Thus no equivocal explanation is ever possible."[11 (p.25)] The movement from positivism to constructivism recognizes the inquirer/inquired as an interactive group of two that effectively erases the distinction between ontology and epistemology, as there can be no difference between what can be known and the individual who comes to know it. Table 1 summarizes the four paradigms and the characteristic ontology, epistemology, and methodology of each.

Other theorists and authors have described the paradigms and their features in alternate frameworks. Denzin and Lincoln in their first handbook actually distinguish among six paradigms but grouped them into four more general levels.[14] In this schema, positivist and postpositivist are united, as are constructivist and interpretive, Marxist and emancipatory, and feminist-poststructural. At the more specific levels, Denzin and Lincoln identify multiple versions of the feminist paradigm including Afro-centric and poststructural, as well as ethnic, Marxist, and cultural studies paradigms.

In their more recent handbook, Denzin and Lincoln adopt Guba's four paradigms and add a fifth, ***participatory***, based on work by Heron and Reason.[15,16] The participatory paradigm holds that reality is both subjective and objective, knowing occurs as a participatory transaction, and the method requires political participation in collaborative action inquiry. The participatory paradigm emphasis the primacy of the practical and insists on language grounded in shared experience (see table 1, column 5).[11,16] A more global position regarding the para-

Critical theory	Constructivism	Participatory
Critical realist – As in the case of post-postivism.	*Relativist* – Realities exist in the form of multiple mental constructions, socially and experientially based, local and specific, dependent for their form and content on the persons who hold them.	*Participant* – Participative reality. Subjective-objective reality, co-created by mind and given cosmos.
Subjectivist – In the sense that values mediate inquiry.	*Subjectivist* – Inquirer and inquired into are fused into a single (monistic) entity. Findings are literally the creation of the process of interaction between the two.	*Critical subjectivist* – Critical subjectivity in participatory transaction with cosmos. Extended epistemology of experiential, propositional, and practical knowing. Co-created findings.
Dialogic, transformative – Eliminates false consciousness and energizes and facilitates transformation.	*Hermeneutic, dialectic* – Individual constructions are elicited and refined hermeneutically, and compared and contrasted dialectically, with the aim of generating one (or a few) constructions on which there is substantial consensus.	*Political participation in collaborative action inquiry* – Primacy of the practical. Use of language grounded in shared experiential context.

Adapted from Guba E. The alternative paradigm dialog. In: Guba EG, editor. The paradigm dialog. Newbury Park, CA: SAGE Publications, Inc.; 1990: p. 17-27 and Denzin NK, Lincoln YS, editors. Handbook of qualitative research. 2nd ed. Thousand Oaks, California: SAGE Publications, Inc.; 2000: p. 164-169.

digms views the debate as a dichotomy between two essentially different traditions designated as quantitative and qualitative.[4,13,17,18]

Two dominant paradigms

The quantitative and qualitative subcultures of the social sciences each demonstrate considerable variation, and "each general perspective has its liberal and orthodox contingents."[4 (p.3)] In general, the quantitative tradition is associated with realist ontology and objectivist epistemology whereas qualitative traditions are premised in relativist ontology and subjectivist or interpretive epistemology. The paradigm of the extreme quantitative subculture is positivism, which aims to increase neutrality and objectivity by a reliance on research procedures adopted from the natural sciences. In the qualitative tradition, the extreme paradigm of constructivism begins with the understanding that subjectivity and value-laden investigation are the only possible bases for inquiry. The two paradigms are diametrically opposed in their ontology and epistemology.

Hedrick uses the term "design" to refer to the manner in which issues of causal attribution and representativeness are managed in each approach.[19] Quantitative studies adopt experiments and quasi-experiments that use the scientific method to determine causality. Statistical techniques are frequently used in these designs to rule out alternative explanations. Constructivism, conversely, incorporates a doctrine in which meanings and understandings refer to the unique capacity of humans to make sense of the world.[20] It demands designs that compare and contrast divergent constructions or interpretations in an effort to achieve a synthesis in the construction of the inquiry.[21] This design values the reality of all stakeholders equally. Conclusions are based on the consensus of the participants and causal explanations may be derived from the consensus regarding perceptions. These demonstrate the extremes of dichotomy in quantitative and qualitative design.

Quantitative studies adopt experiments and quasi-experiments that use the scientific method to determine causality.

The term "method" is used by Hedrick to refer to the form of data and the manner of collection.[19] Quantitative methods use systematic approaches such as questionnaires to collect items defined in advance by the researcher using deductive logic. Qualitative methods such as participant observation, interviews, and document analysis require that the data be coded and categorized during and after the research. These qualitative methods are especially oriented toward induction, which begins with observation and builds towards patterns and theory.[20] At this level of the quantitative-qualitative debate—methodology—there is clearly some overlap; for example, both quantitative and qualitative methods can be used in the same study. At the ontological and epistemological levels of comparison, however, the two paradigms are mutually exclusive.

POSITIONAL DIFFERENCES BETWEEN QUANTITATIVE AND QUALITATIVE RESEARCH

Differences between qualitative and quantitative research are significant from a practical perspective. The beliefs associated with each affect the research process directly as well as the interpretation and use of the results. The following issues contrast their divergent natures.

Purpose of the research

Clarity of purpose is the single most critical issue in the research process. The aim or purpose establishes the basis for the research, focusing the goal, and directing the methodology. Typologies of research purposes illustrate the quantitative-qualitative dichotomy. One typology of research purposes suggests three directions for research: basic, applied, and evaluation.[3] The goal of basic research in this typology is to produce new knowledge including the discovery of relationships and the capacity to predict outcomes. Applied research is intended to provide knowledge immediately useful to policy makers to alleviate or eliminate a social problem. Evaluation research should provide a social accounting of programs applied to social problems. In all forms, the selection of a guiding theory at the outset suggests a deductive approach within a quantitative tradition.

Clarity of purpose is the single most critical issue in the research process.

Another classification of research is the categorization of research aims as exploratory, descriptive, explanatory, or relational/predictive although differing interpretations persist.[4,14,15,20,22] Some qualitative researchers suggest that all but predictive purposes are amenable to qualitative methods.[4,22] The resistance to prediction and control appear to be the key identifying elements in qualitative research aims.

In summary, the purposes of quantitative research are the derivation of causal explanations, generalization to the whole population, and prediction of future occurrences of the phenomena studied.[1-6] In contrast, the purposes of qualitative research are contextualization or making sense of lived experience in a given context, understanding from the individual's perspective, interpretation of meaning, and transformation of social situation.[14,15,20-23]

Quality criteria

The assurance and assessment of quality is a primary concern in both the qualitative and quantitative traditions of research.[24] The issues to which all research must respond are the truthfulness of the inquiry, the applicability of the findings to other people, the replicability of the research findings, and the assurance that the findings actually reflect the subjects and the inquiry rather than the biases of the researcher.[25] In quantitative research, these concerns are labelled internal validity, external validity, reliability, and objectivity. In qualitative research, the comparable concepts are collectively termed trustworthiness.

Validity is the degree to which research actually investigates and yields discoveries about the phenomena it purports to investigate.[26] In the quantitative tradition, internal validity refers to the degree to which research findings satisfy all conditions for establishing causality, that is, whether the independent variable did indeed cause change in the dependent variable.[27] External validity is the degree to which the research results can be inferred or generalized to other populations or settings.[27] Reliability refers to stability and consistency of the same phenomena over time as well as through the observations and judgments of different observers.[1,4,26,27] The two common measurements of this criterion are the test-retest that measures the same phenomena or set of variables twice and correlates the sets of measures, and the inter-rater reliability test which measures the level of agreement among observers or researchers to determine their consistency. Both of these, and other more complex forms of reliability measurement, evaluate the quality of the operational definitions that define the concepts under investigation. Objectivity, the fourth quality criterion, refers to the distance and neutrality of the observer, which is believed to ensure bias-free inquiry.

Conceptually, these may be compared with the trustworthiness criteria of qualitative research: credibility, transferability, dependability, and confirmability.[25,28] Credibility and confirmability more closely parallel quantitative concepts than do transferability and dependability. Credibility parallels internal validity and is a demonstration that the inquiry was conducted in a manner ensuring adequate identification and description of the subject. The strength of a qualitative study is its credibility or validity. "An in-depth description showing the complexities of variables and interactions will be so embedded with data derived from the setting that it cannot help but be valid."[22 (p.143)] Confirmability very closely parallels the concept of objectivity. Numerous "controls" for bias in interpretation have been recommended such as value-free note taking, constant rechecking of the data with testing of possible rival hypotheses, and constant searching for negative instances.[14,15,22,25] Transferability, a concept parallel to external validity in quantitative research, is conversely problematic in qualitative research and is generally seen as a weakness by proponents of quantitative research. Reference to the original theoretical framework to demonstrate the guiding of data collection and analysis enhances transferability of the results to other settings. The concept of dependability is even more notably different from the quantitative concept of reliability. Dependability refers to the attempt of the researcher to account for changes in the study phenomenon as well as changes in the design by continuously refining understanding of the setting. Qualitative researchers note that the concept of reliability is problematic because the social world is ever changing, and the most a researcher can do is attempt to account for change over time. The concept of reliability as reproducability has no meaning for qualitative researchers.

Values and ethics

Quantitative research claims that values are excluded from the research process and, indeed, that values are confounding variables not allowable in objective inquiry.[11] Qualitative research, in contrast, includes values and intentionally incorporates their formative influence in the research process.[28] The value-free ideology maintains that social researchers can remain neutral in research. Mounting evidence and conviction no longer support this tenet as the substantial influence of values on the research process is demonstrated in the influence of researcher and sponsor on the selection of research topics and the use made of research findings.[1,5]

The influence of values on ethical behaviour is a further consideration in distinguishing the two research approaches. Clearly ethics is a critical element in both traditions. In quantitative research, ethics may be characterized as extrinsic to the inquiry process itself whereas qualitative research accepts ethics as intrinsic to the process because of the inclusion of participant values.[28] Note that qualitative research refers to "participants" while quantitative research largely retains the term "subjects." The moral high ground is attributed to qualitative research as the inquirer values and incorporates participant meanings, while quantitative research continues in the search for the objective reality as truth.[28]

In both approaches, ethical behaviour is advocated in codes of conduct, monitored through human subjects and ethics committees, and expressed in strategies designed to inform consent and protect anonymity and confidentiality. Ethical decision making may be perceived as the imposition of rules or as a complex process of competing values.[4] All ethical guidelines promote an egalitarian exchange of information between the researcher and the participant but demonstrate considerable variation.[4] Although all ethical guidelines tend to assume that researchers are in a position of power, Palys notes that researchers are subject to the rewards and reproach of influential individuals and institutions.[4]

Hegemony

The influence of broad social processes and trends shapes the hegemony or dominance of the research approaches because research requires access to resources, facilities, and populations of interest.[4] The dominance of the quantitative tradition is confirmed through its capacity "to control publication outlets, funding sources, promotion and tenure mechanisms, dissertation committees, and other sources of power and influence."[28 (p.116)] There is, moreover, a methodological hierarchy that favours "hard data" over "soft data" where hardness refers to the precision of statistics.[20] Qualitative research seeks legitimacy and power through the inclusion of relevant papers in journals and professional meetings, the development of new journals, and the inclusion of qualitative guidelines by funding agencies.[28] The struggle for resources and market share of research may be the driving force in the war between the two traditions.[29]

Qualitative research includes values and intentionally incorporates their formative influence in the research process.

Neither quantitative nor qualitative prevails in terms of the lessons contributed to the understanding of research. Each has furnished understanding but is incomplete with regard to the questions used, design of the research, appropriate data and collection methods, attribution, analysis, and reporting of results.[30] Qualitative research, for example, has shown the importance of understanding how all stakeholders see the issues although it does not demonstrate clearly how to deal with stakeholder values that are antithetical to those of the researcher. Is it possible for the researcher to represent their reality and also to empower them without coercion or bias, or is this duality an inherent conflict? Quantitative research has similarly demonstrated the importance of detailing the conduct of the study including measures, instance selection, data reduction and analysis, the precautions taken to achieve quality, and the limitations and strengths of the research. It lacks clarity, though, in such issues as the design appropriate for situations where the problem and approaches to it are flexible and unpredictable. Even more questionable in the quantitative tradition are designs and analysis that are technically correct but meaningless. The differences between the positivist and interpretist paradigms are believed by some to be irreconcilable.[21] Resolution is possible only "if a new paradigm emerges that is more informed and sophisticated than any existing one."[28 (p.116)]

A BASIS FOR QUANTITATIVE AND QUALITATIVE PARTNERSHIP IN RESEARCH

While the distinctive features of the two research approaches divide the search for knowledge into two, "at the most global level, the two traditions have a common goal: to understand and improve the human condition."[18] Each tradition, however, tends to exaggerate inadequacies in the other and to underestimate its own. Addressing the improvements needed in both traditions could ultimately lead to a third paradigm.[30,31] Their commonalities may also inform this evolution. Meanwhile, potential partnerships and integration are advocated and explicated by many researchers in both.[4,18,32]

Commonalities: the bases for partnership

Yin states that four characteristics define the substantive commonalities of quantitative and qualitative research: thorough coverage and investigation of all evidence, constant awareness and testing of rival hypotheses, pursuit of results with significant implications, and demonstration of investigatory expertise in the subject matter.[33] These commonalities should be recognized and brought into the methodological vocabularies in both traditions.

Dental hygiene does not have a specific research method consistent with its philosophical or professional traditions.

Shared fundamental values are central to integration of the traditions. Reichardt and Rallis describe convincing evidence of values compatibility.[18] They assert that post-positivism is widely integrated into the work of quantitative researchers and both qualitative and quantitative paradigms share many values. The theory-ladenness of facts, for example, is the principle that states that the theory, hypothesis, and background knowledge of the researcher strongly influence what is observed. It can be argued that this is shared by both.

Similarly, both believe in the fallibility of knowledge, holding that knowledge is not truth and that it is subject to continuous change. The undetermination of theory by fact is a principle which states that many theories may be compatible with the data. The value-ladenness of inquiry is the principle that research is influenced by values. Again, it is argued that both accept these principles. Finally, the belief in the nature of reality as reality constructed by people is equally shared by most researchers of both traditions. These shared fundamental values, together with shared ideologies including "a commitment to understanding and improving the human condition" are basic to integration and partnership.[18] (p.89)

Weaknesses of both encourage partnership

The weaknesses in both approaches may be pragmatically addressed by using multiple methods as research strategies.[20,32,34] "All kinds of variations, combinations, and adaptations are available for creative and practical situational responsiveness."[20] (p.39) The effective strengthening achieved by using multiple methodologies, designs, or analyses is termed triangulation. Four basic types of triangulation are data, investigator, theory, and methodology.[35] Each respectively requires the use of more than a single set, person, theoretical framework, or method. The extensive ranges of methodologies are summarized as typologies of distinctly quantitative or qualitative methods, or as collective combinations and mixes of methods.[14,15,20,22,36]

A composite illustration is provided by Patton by first contrasting a pure quantitative or hypothetical-deductive approach including experimental design, quantitative data, and statistical analysis with a pure qualitative approach using naturalistic inquiry, qualitative data, and content analysis.[20] Four mixed forms arise from the two traditions: two use experimental design and qualitative data but differ in content and statistical analysis; the remaining two use naturalistic inquiry and statistical analysis but differ in qualitative or quantitative data. Critics might contest these mixed forms on a number of issues. It may be argued that it is impossible to test predetermined hypotheses and still remain open to emergent theory; that is, both deductive and inductive reasoning cannot be employed simultaneously. The extent to which any approach is used actually, however, may vary along a continuum. Initially, a discovery or more inductive approach may be used. Later in the investigation, a researcher may apply a more deductive approach to verify emerging data.[20] In a more recent practical guide to research strategies, DePoy and Gitlin suggest five distinct ways in which the research traditions can be integrated.[37] A clear limitation on mixing methods is the impossibility of converting purely quantitative measures into detailed qualitative descriptions although the reverse is possible.

In summary, four possible ways that qualitative and quantitative methods might be integrated are modelled by Steckler et al.[32] Qualitative methods may be used to help develop quantitative measures and to help explain quantitative findings. Quantitative methods may be used to embellish a primarily qualitative study. Both methods may also be used equally and in parallel. Funding is clearly an issue in the selection of multiple methods. A series of independent studies varying in method is less likely to receive the extensive required funding than one study incorporating multiple methods.

A shared paradigm

Although each tradition demonstrates a high degree of internal consistency, each is inadequate as a complete and comprehensive set of beliefs and actions that guide research. House suggests that a better set of research assumptions could address the failures of both.[31] He notes that the real world is complex and stratified, that society does not exist outside of individual actions, and that human action is intentional. Furthermore, knowledge is social and historical. Concerning science, House states that scientific explanation is explanation of how causal structures produce events, that the regularity theory of causation based on assumptions of invariant regularities is incorrect, and that there is no distinction between facts and values. Rather, value claims can be established in ways similar to facts. Collectively, these assumptions are a more effective beginning for research. These presuppositions may be the basis for the new, more informed paradigm sought by Guba and Lincoln but not yet elucidated.[28]

CONCLUSION

The history of theory and research in disciplined inquiry demonstrates an evolution from a largely positivist paradigm to a diversity of theory and method incorporating paradigms of quantitative and qualitative approaches to research. The paradigms with their characteristic ontological, epistemological and methodological beliefs are held by many researchers to be unchangeable in their distinctions. The positivist paradigm of the natural sciences with its emphasis on objective, bias-free, experimental manipulation is not readily applicable in the social sciences where humans interact with cognition and intention to actively construct social meaning. Paradigms in juxtaposition to the positivist paradigm have served to divide inquiry into essentially quantitative and qualitative traditions.

The differences between the traditions are demonstrated in their purposes; criteria assuring quality, values and ethical considerations; and hegemony. In contrast, they both adhere to the tenets of the theory-ladenness of facts, the fallibility of knowledge, the undetermination of theory by fact, the value-ladenness of inquiry, and the nature of reality as reality constructed by people. Methodological integration of the two traditions is common and highly desirable in many forms of social inquiry. Although a new blended paradigm does not seem imminent, integration and partnerships are increasing in research purpose, design and method.

Unlike anthropology or sociology, dental hygiene does not have a specific research method consistent with its philosophical or professional traditions. Rather, dental hygienists have used methods consistent with numerous disciplinary traditions. Dental hygiene researchers need to determine, at the time of designing their inquiry, if qualitative, quantitative, or mixed methods are most appropriate to answer their research question. The nature of the inquiry will dictate the appropriate research paradigm. If using deductive methods, dental hygienists need to situate their research within a theoretical framework within the domain of dental hygiene. This will help to reduce the number of isolated studies and contribute to a stronger body of knowledge within an emerging discipline of dental hygiene. A positive outcome will be that this will provide a stronger discipline-based body of evidence for dental hygiene practitioners to turn to with their practice questions.

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Leadership and Energy *(continued from page 7)*

While we continue to celebrate this leadership achievement, we also have other examples of orchestrated energy in this first issue of the journal for 2006. The three feature articles show the positive energy that dental hygienists infuse into their professional lives. Dr. Joanne Clovis and Sandra Cobban begin the first of a series of articles on research. Developing a critical mind, honing research skills, and practically incorporating these skills into practice is such an important skill to cultivate in this fast-paced world. Anne Clift explores the role of continuous quality improvement in oral health in the hospital accreditation process. Her examples take management theory and bring it to life in everyday dental hygiene practice. Dr. Joyce Sinton and Elizabeth McIntosh also share their energy and passion for making a difference in the oral health of Ontarians by marshalling the resources of the public health dental community not only to convey the importance of proper brushing but also to enable a change in behaviour in populations who normally do not brush.

What a wonderful way to start the year with such fine examples of leadership energizing dental hygienists' pride in their profession and developing excellence in practice that will help all Canadians. Come join your colleagues and celebrate the profession in person in Edmonton this June. We have a great group of dental hygiene leaders investing their energy to stimulate your mind and heart.

Bravo!

Leadership et énergie *(suite de la page 7)*

renouveler l'esprit des autres chefs de file en hygiène dentaire.

Si nous continuons de souligner cette réalisation sur le plan du leadership, nous avons aussi d'autres exemples d'orchestration de l'énergie dans ce premier numéro du journal pour 2006. Les trois articles de fond témoignent de l'énergie positive que les hygiénistes dentaires insufflent dans leur vie professionnelle. Joanne Clovis et Sandra Cobban présentent le premier d'une série d'articles à propos de la recherche. Acquérir un esprit critique, roder ses compétences en recherche et pratiquement intégrer ces compétences dans la pratique est une habileté tellement importante à cultiver dans un monde au rythme très rapide. Pour sa part, Anne Clift étudie le rôle de l'amélioration continue de la qualité en santé buccodentaire, dans le processus d'agrément des hôpitaux. À l'aide d'exemples, elle prend la théorie de la gestion et lui donne vie dans la pratique quotidienne de l'hygiène dentaire. Quant à Joyce Sinton et Elizabeth McIntosh, elles communiquent elles aussi l'énergie et la passion qu'elles mettent à changer les choses sur le plan de la santé buccodentaire des Ontariennes et des Ontariens. Elles canalisent en effet les ressources des spécialistes de la dentisterie en santé publique pour faire part de l'importance d'un brossage adéquat, certes, mais aussi pour favoriser un changement de comportement dans des populations qui, normalement, ne se brossent pas les dents.

Quel merveilleux moyen de commencer l'année que ces si beaux exemples de leadership qui inspirent aux hygiénistes dentaires la fierté à l'égard de leur profession et cultivent l'excellence dans la pratique au profit de toute la population canadienne. Venez vous joindre à vos collègues à Edmonton, en juin prochain, pour célébrer la profession en personne. Nous avons, en hygiène dentaire, un groupe formidable de chefs de file qui investissent leur énergie afin de stimuler votre esprit et votre cœur.

Bravo!

Developing Your Search Strategy *(continued from page 43)*

your search, you can use the "Advanced Scholar Search." Here you can specify words or phrases that have to be there (AND), "with at least one of the words" (OR function), words that must not be there (NOT), and where in the document the words should occur. You can restrict your search to author(s), publication, or the date.

Two last things… *Phrases:* database search terms are organized as words or phrases and you can search for either. As mentioned above, the advanced search section can have a specific box for phrases. Otherwise, different search engines treat phrases in various ways. In some, the phrases should be placed within quotation marks or parentheses. Otherwise, you might retrieve all the words but they may be in separate places and anywhere in the document, not making the phrase you want. However, both Google Scholar and PubMed treat the words as phrases if they exist in the database index.

Truncation: To simplify the search for everything dealing with, say, periodontology, periodontitis, periodontic, periodontics, periodontal, you could search on the term "periodont*" with the asterisk asking the search engine to search for any terms beginning with "periodont-". In PubMed, a search with "periodont*" yields 53,568 hits; periodontal, 40,285; periodontitis, 15,794. This is an efficient way of dealing with plural forms of words, such as "child*" for "'child" and "children." There are still a few bibliographic databases that use "$" or "%" for the truncation symbol. This underscores the need to familiarize yourself with the instructions on how to use each database or search engine if you want to achieve better success in your search results with much less frustration.

Some sites that will help with Internet searching are in this issue's *Probing the Net* section.

E_____n

Q. What starts with "E," ends with "N," is a place where you can learn, grow, mingle with colleagues, make new friends, and have loads of fun to boot...?

A. Edmonton

Join us in Edmonton, Alberta, June 16-18, 2006, for 3 value-packed days during CDHA's 17th Annual Professional Conference

Here's why YOU should attend:

- An exceptional continuing education opportunity that covers the latest topics, issues, and trends affecting your profession
- A chance to share your experiences, network with colleagues, and make new contacts
- An exciting exhibit hall where you can meet with industry leaders to learn about the newest innovations in oral health care products and services
- An opportunity to take a break, connect with your profession, and be inspired
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- Plus we have lots of fun and some great surprises in store for you too!

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Win Some Fabulous Prizes, including a special grand prize package in our first ever Conference Trivia Contest!

Attendees will receive a list of 10 Edmonton trivia questions in the conference delegate bags. The answers to the trivia questions will appear over the months leading up to the conference, in regularly scheduled broadcast e-mails to CDHA members and in the *Canadian Journal of Dental Hygiene*. And no need to worry if you don't collect all of the answers prior to attending the conference. You will still have a chance to get the answers during the conference by visiting the exhibit hall. Ten exhibitors (we won't tell you which ones) will each have the answer to 1 of the 10 questions. If you answer all 10 questions correctly, your name will be placed in a draw for some great prizes including a special grand prize package. To start you off, here's your first answer to 1 of the 10 Edmonton trivia questions:

Jasper Avenue is the main street in the heart of downtown Edmonton. The Shaw Centre, site of CDHA's 17th Annual Professional Conference, is located on Jasper Avenue.

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

Investing in Oral Health – Enhancing Canadians' Productivity

Oral presentation to the House of Commons Standing Committee on Finance Pre-Budget Consultations, October 24, 2005

by the Canadian Dental Hygienists Association

THANK YOU FOR AFFORDING US THE OPPORTUNITY TO address concerns about Canada's fiscal priorities and productivity.

Our attention today focuses on two areas of public policy where the federal government can invest and look forward to dividends in the form of improved productivity. These two areas of public policy focus on oral health and tax incentives for continuing education.

CDHA calls on the federal government to invest in Canada's standard of living through improved oral health of Canadians.

If a healthy workforce results in increased productivity and oral health status is an important measure of health, then we should ask ourselves, "Who accesses oral health services and who pays for these services?"

I will walk you through an analysis of "who pays for what" in the area of oral health:

- In the area of **public oral health spending**, Canada placed far below other OECD countries at 4.6% of total oral health spending. In comparison, Germany spent 68% and France 36%.[1]
- In fact, Canada has the second lowest per capita *public* oral health expenditures of all OECD countries.[2]
- In addition, Australia, New Zealand, and the United Kingdom all have universal, national, publicly funded programs for children's oral health care.[3] However, Canada lags behind these leaders with provincial/territorial programs that vary in level of coverage; two provinces, Manitoba and New Brunswick, have no children's programs at all.[4]
- Furthermore, only three areas in Canada, including Alberta, Prince Edward Island, and the Northwest Territories, have seniors' programs.
- In the area of **private spending**, the private insurance industry carries the majority of the burden. However, only 58% of individuals have private oral health insurance. The remainder of the spending comes from individual citizens' pockets but 26% of Canadians report that they did not seek needed oral health care due to the cost.[1]

This analysis paints a picture of two large groups of citizens who **do not** have access to oral health services: the poor and those without oral health insurance.

The next question that we should ask ourselves is, "What are the consequences of poor oral health for the economy and productivity of the nation?"

Poor oral health often results in pain that affects daily functioning negatively. About 10% of the adult population experiences facial pain as a symptom of an untreated oral problem.[5] Loss of productivity from oral diseases and dental visits in the United States accounts for more than 164 million work hours per year.[6] This is a sizeable loss of productivity for the population as a whole.

About 10% of the adult population experiences facial pain as a symptom of an untreated oral problem.

Tooth decay has not been eradicated. Tooth decay in primary teeth predicts future tooth decay in permanent teeth—children with tooth decay will grow up to be adults with tooth decay. A new report from the Centers for Disease Control indicates there is a 15.2% increase in tooth decay among the nation's youngest children aged two to five years.[7] Canadian children with low socioeconomic status suffer twice as much tooth decay as their more affluent peers,[8-12] and Aboriginal children have two to five times the rate of tooth decay as non-Aboriginal children.[13]

Periodontal disease, historically considered to be a localized infection, is now considered a potential risk factor for a number of serious health problems, such as cardiovascular and respiratory disease, diabetes, and pre-term low birth weight babies.[14-16]

Fortunately, all of these oral diseases are preventable and can be reduced through health promotion and disease prevention programs. There is strong evidence for the effectiveness of these programs:

- Preventive health activities are estimated to be 6 to 45 times more effective than dealing with health problems after the fact.[17]
- The cost savings for workplace health promotion programs shows that an investment of every US$1 saved US$1.50 to $2.50 on health care costs and absenteeism.[18]

- The use of sealants on teeth can prevent tooth and root decay. The $15 cost of a sealant is minimal compared with the cost of treating a root canal for approximately $1,000.[19]
- Water fluoridation has net benefits for the payer that are as high as $5.3 million.[19]

CDHA proposes the following solutions to address poor oral health:

To better prepare children to contribute as future productive citizens, we must focus greater attention on their needs now. We must provide prevention programs including early and routine prevention, fluoridation, fluoride varnish, fissure sealants, and perinatal parental education. We must shift the focus from invasive tooth surgery to preventive public oral health programs for children.

We are not suggesting the creation of an "oral sick care" system, which treats disease after is arises, but an oral health promotion and disease prevention system.

The development of oral health programs is at the discretion of the provinces/territories. Given the provincial/territorial track record to date, it is now time for the federal government to step in and work with them to provide leadership and funding for national oral health programs for low-income Canadians, seniors, and persons with disabilities.

Canadian children with low socio-economic status suffer twice as much tooth decay as their more affluent peers.

The CDHA recommends that the federal government:

- work together with the provinces/territories to provide leadership and funding (36% of total oral health spending, or $2,972M) for categorical national oral health programs for low-income Canadians, including those receiving social assistance and those working, children, persons with disabilities, and seniors;
- call on the provincial/territorial governments to earmark funding for public oral health activities, including sealant, fluoride, and early screening programs;
- provide an annual increase of 10.9% for the Non-Insured Health Benefits Program funding.

CDHA also calls on the federal government to invest in human capital through lifelong learning.

Lifelong learning and continuing education are important investments in human capital, which directly enhance productivity. There are a number of arguments for encouraging continuing education through income tax incentives.

- Continuing education allows professionals to maintain their commitment to quality assurance and standards, standards that so many Canadians have come to depend on.
- Recent reports on continuing education identify gaps in infrastructure and a need to enhance access.[20] Continuing education programs, such as on-line courses and conferences, address these issues. These programs have a high degree of accessibility and are geared toward efficient use of time, a feature that is important for busy professionals.
- Many professionals must meet continuing education requirements of their regulatory bodies. Continuing education allows professionals to keep abreast of constantly changing research, education, and technology and to use new research to inform evidence-based practice.

The CDHA also calls on the federal government to improve student loans. Many dental hygiene students are battling the high costs of education, totaling up to $40,000. The federal government must provide increased support to students, through an improved grants program.

The CDHA recommends that the federal government:

- expand definitions in section 118.6(1a and 1c) of the *Income Tax Act*:
  - "Designated educational institution" should include groups such as professional associations that deliver educational programming through conferences and courses (including on-line courses).
  - "Qualifying education program" should include programs that are fewer than 3 consecutive weeks duration, including conferences of 2 or more days, and on-line courses consisting of 15 or more hours of study.
  - "Certified educational institution" should include professional associations offering conferences and courses (including on-line courses).
- extend the first-year grants for low-income students to all other years and institute a sliding scale based upon the students'/families' income. Furthermore, there must be additional accessibility funding for underrepresented groups such as Aboriginal peoples, and those who would be the first in their family to attend college or university.

In closing…

If Canada wants to improve productivity, it must make the right investment in its workforce by supporting oral health programs and providing tax incentives for continuing education programs.

Thank you.

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Take Ownership of Your Profession! *(continued from page 3)*

its good work, and to find out how to apply for research funding, please go to its web site at www.cfdhre.com.

These are only a few of the activities that your national association is working on. For more detailed information on all the many endeavours undertaken by CDHA, I invite you to visit the CDHA web site.

Now more than ever, CDHA needs your support and input as we move into the future. There will always be efforts to limit or reduce the scope of our profession. We need to counter these forces by advocating for the right to practise our full scope of practice based on dental hygiene's distinct knowledge base, and by staying current with changes in technology and treatment practices to better serve the public. It is through a strong and active membership that CDHA will be able to strengthen our profession.

Members of CDHA should see themselves as valued "customers" in the sense that membership confers a number of important benefits including liability insurance; exceptional group insurance plans for home and auto, long-term disability, life, and accidental death; an excellent group RRSP program; continuing education opportunities through courses and the annual conference. Membership has its advantages but even more importantly, it gives you an ownership role in guiding the future direction of our profession in Canada.

One of the purposes of organizations such as CDHA is to protect and promote the interests of its members-owners. Therefore you, as a member of CDHA, have an important responsibility to provide input to its board of directors as to what you want your association to do for you and your fellow dental hygienists. Please keep in mind that CDHA is a national organization and therefore must be responsive to the entire Canadian community of dental hygienists rather than individual desires. Over the next year, your board of directors will be developing an extensive linkage plan to make it easier for you to give your input. To this end, we have made it easier for you to contact your representative through CDHA's web site by assigning an e-mail address to each board member. Your representative looks forward to hearing from you regarding your vision for the dental hygiene profession in Canada. It is my hope that in 2006 you will all exercise your rights as an owner and help determine the future of our profession.

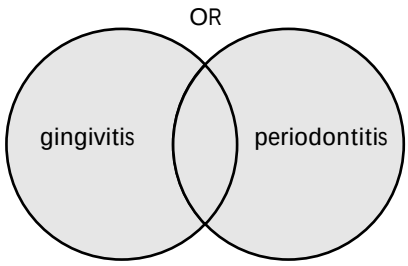
You can contact Diane Thériault at <president@cdha.ca>.

Developing Your Search Strategy

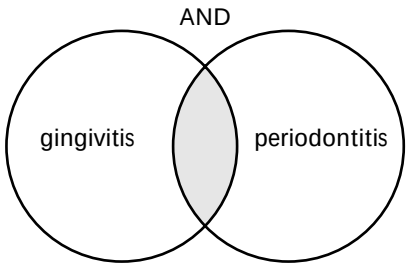
by CDHA staff

THE THIRD PART OF OUR SERIES ON "FINDING WHAT You Want" concentrates on how to formulate your search question. The last issue talked about finding appropriate search terms and dealing with different spellings, plural and singular versions, and the different terms that describe the same concept or item. Now comes the formulation of the search inquiry that will determine the relevance of your search results. High-precision retrieval is the aim; it is far better to get fewer highly relevant hits than thousands or hundreds of thousands of hits that have little or nothing to do with your research.

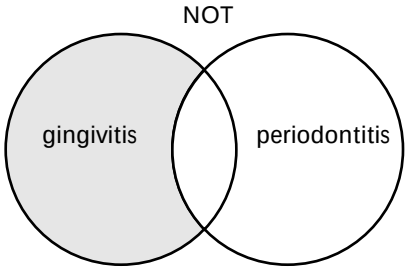
Understanding Boolean logic is key to developing a productive search strategy. Boolean logic refers to the relationship between the different search terms you are using. There are three operators, AND, OR, NOT, that influence the retrieval. Say our two search terms are *gingivitis* and *periodontitis*. We can show the retrieval patterns with the following Venn diagrams:



This search retrieves documents containing *gingivitis*, those containing *periodontitis*, and those that contain both terms (the shaded area of overlap). This type of search results in the most number of hits.



This search retrieves only those documents that contain both terms, shown by the shaded overlap area. All other documents with just one or the other word are ignored.



This search retrieves documents that contain *gingivitis* but only if they do NOT contain the word *periodontitis*. In this diagram, documents are not retrieved from either the *periodontitis* area or the overlap area. The NOT function is rarely used. More often, the searcher, in reviewing the output from the original search, sees that there could be ambiguity among terms and chooses to refine the search terms rather than risk possibly retrieving even more unwanted results.

Before searching a database, read the search tips section or the advanced search section to find out how to use Boolean logic to refine your search. Most Internet databases allow Boolean searching but may present this to the user in different ways. The "advanced" search function might use the operators AND, OR, NOT. But they may have sentences with the choices, such as "must include the word" (the AND function), "may include any of these words" (the OR function), or "must not include this word" (the NOT function).

In PubMed, the advanced search page is found under the "Preview/Index" tab. Here you can select the field to search and then combine your search terms with AND, OR, NOT. These advanced search techniques can also include field searching. In addition to specifying the search terms, you can for example limit the search to the article title, abstract, full text, to the journal name, or to specific dates Alternatively, you could just enter this search term straight into the search box: "hospice OR hospital AND palliative care" and get the same results. This site also has short tutorials (one to three minutes each) on searching for author(s), subjects, or authors and subjects.

There is also implied Boolean searching. When searching, if you do not specify how the search terms should be linked, databases will default to the OR operator or to AND. More and more, AND is the default operator. PubMed's search engine (www.ncbi.nlm.nih.gov/entrez/query.fcgi) defaults to AND; all words in the search box have to be in documents to be retrieved. This is also true of Google Scholar.

The Google Scholar site (http://scholar.google.com/) also has a number of slightly different ways of specifying what you want. If the word is a common one (these are often called "stop words") normally ignored in the search, you can put a plus sign + in front of it to force searching on it. You can put OR between terms; you can put "–" in front of a term to signify NOT. Rather than writing out

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Honing your searching skills

by CDHA Staff

THE LIBRARY COLUMN IN THIS ISSUE DISCUSSED VARIOUS search strategies, ways to improve the results of your searches so all the hits are precisely on topic. That sort of precision is, of course, the perfect scenario. However, learning more about retrieval strategies will make any on-line research go faster and be more productive. Here are some websites that will either refresh your existing knowledge or introduce new ways of finding the information you want.

Boolean Searching on the Internet *(State University of New York at Albany)*
http://library.albany.edu/internet/boolean.html

This is an excellent site with "A Primer in Boolean Logic" starting off the 9-page site. It is clear with lots of examples.

TheLearningSite – The Cyberlibrarians' Rest Stop
www.thelearningsite.net/cyberlibrarian/reststop.html

A good place to learn about different search strategies. It is arranged as lessons or tutorials, as follows: (1) What is the Web and why can't I find what I want? (2) Where do I start? (Web directories); (2a) Evaluating what you find (tips for selecting resources); (3) What's next? (Web indexes and search engines); (4) Power search techniques (Boolean and field searching); (5) Locating images: photos, pictures & graphics; (5a) Photos, pictures & graphics – quick reference; (6) Using metasearch engines. These are very informative and written in easily accessible language with terms defined. A definite starting point for learning how to research using the Internet.

Infopeople Project's Best Search Tools Chart
www.infopeople.org/search/chart.html

This chart lists the major search engines such as Google, Yahoo, Teoma, Librarians' Internet Index, divided into different categories: search engines, meta search engines, and subject directories. The chart describes the database; Boolean searching—what is the default, whether you can use "+" or "–"; lists search options such as truncation, wildcard symbols (to replace an unknown letter in the middle of words); and has useful information in the "Miscellaneous" column, information such as spell checkers, whether you can refine search results to narrow down the results.

Kathy Schrock's Guide for Educators
http://school.discovery.com/schrockguide/yp/iypabout.html

The strength of this site lies in the annotations that accompany the links that are arranged into three main sections. The first section *(About the Internet, HTML, and Graphics)* has, for example, links to "Finding Information on the Internet: A Tutorial"; "The HelpWeb: A Guide to Getting Started on the Internet"; "Learn the Net: Essential Internet Online"; "Internet 101," a basic tutorial for beginners. The *Internet Search Engines* section contains such links as "Spider's Apprentice" that is a "great tutorial on the use of the different search engines and techniques for successful searching"; "NoodleQuest" that asks you a few questions and then guides you to the best search tools and research strategies for your search; and "Sink or Swim: Internet Search Tools & Techniques." The *Internet Subject Directories* section has a good list of subject directories such as Librarians' Internet Index, Ask Jeeves, and LookSmart.

Learning more about retrieval strategies will make any on-line research go faster and be more productive.

Bright Planet – Tutorial: Guide to Effective Searching of the Internet
www.brightplanet.com/deepcontent/tutorials/search/index.asp

A comprehensive tutorial that has six major sections: *The Size of the Internet; Internet Search Basics and Why There's a Problem; Keywords – The Essence of the Search; Boolean Basics; Advanced Operators* [NEAR, BEFORE, AFTER, AND NOT]; *Advanced Construction* [of search queries]. There's even an Executive Summary highlighting the important aspects of searching and these are all linked to the more detailed discussion in the main tutorial. Very thorough and well worth exploring. BrightPlanet is a private U.S. company that specializes in "deep Web research."

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www.jobtrak.ca Dental hygienists required immediately. Several locations available at this time. To submit a résumé and application form, please visit our website.

CDHA CLASSIFIED ADS

Classified job ads appear primarily on the CDHA's website (www.cdha.ca) in the Career Centre (*Members' Only* section). On-line advertisers may also have their ad (maximum of 70 words) listed in the journal *CJDH* for an additional $50. If an advertiser wishes to advertise only in the print journal, the cost will be the same as an on-line ad. These classified ads reach over 11,000 CDHA members across Canada, ensuring that your message gets to the target audience promptly. Contact CDHA at **info@cdha.ca** or **613-224-5515** for more information.

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