



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

Canadian Dental Hygienists Association

Dental Hygiene Research Agenda

October 26, 2003

Table of Contents

Workshop Participants.....	2
Executive Summary.....	6
Glossary.....	9
Role of the Canadian Dental Hygienists Association in Research.....	12
Purpose of the Research Agenda Workshop	13
Objective of the Research Agenda Workshop.....	14
Design of the Research Agenda Workshop.....	14
Background to Health Research in Canada.....	15
Outcomes of the Research Agenda Workshop	16
Guiding Principles for Research	18
Research Topics.....	18
Recommendations	22
Conclusions	30
Appendix: Milestones in Dental Hygiene Research in Canada	32
Bibliography.....	35

Acknowledgments

The Research Agenda Workshop was sponsored in part by:

Dentistry Canada Fund

CIHR, Institute of Musculoskeletal Health and Arthritis

CIHR, Institute of Aboriginal People's Health

Workshop Participants

Joanne Clovis, DipDH, BEd, MSc, PhD (Facilitator/Consultant)

Associate Professor

Dalhousie University

5981 University Ave.

Halifax, NS B3H 3J5

Tel: (902) 494-8887

Fax: (902) 494-2111

j.clovis@dal.ca

Sandra Cobban, MDE, DipDH (Workshop participant)

Assistant Professor,

University of Alberta

2032B Dentistry Pharmacy Centre

Edmonton, AL T6G 2N8

Tel: (780) 492-1325

Fax: (780) 492-8552

sandy.cobban@ualberta.ca

Laura Dempster DipDH, BScD(DH), MSc, PhD candidate (Workshop participant)

Senior Lecturer

Faculty of Dentistry

University of Toronto,

124 Edward St.

Toronto, ON M5G 1G6

Tel: (416) 979-4929

Fax: (416) 979-4936

l.dempster@utoronto.ca

Dianne Gallagher DipDH, BGS, MEd (Workshop participant)

Faculty, Camosun College Dental Hygiene Program
3100 Foul Bay Rd.
Victoria, BC V8P 5J2
Tel: (250) 370-3215
Fax: (250) 370-3234
gallagher@camosun.bc.ca

**Herenia P. Lawrence, DDS, MSc, PhD
(Workshop participant representing IAPH)**

Assistant Professor
Discipline of Community Dentistry
Dept. of Biological and Diagnostic Sciences
Faculty of Dentistry
University of Toronto
124 Edward St., Room 515D
Toronto, ON M5G 1G6
Tel: (416) 979-4908 ext. 4492
Fax: (416) 979-4936
herenia.lawrence@utoronto.ca

Barbara Long SDT, CACE, RDH (Workshop participant)

Dental Hygiene Instructor
College of Dentistry
University of Saskatchewan
105 Wiggins Rd.
Saskatoon, SK S7N 5E4
Tel: (306) 966-5148
Fax: (306) 966-1795
barbara.long@shaw.ca

Dr. Jim Lund, BDS, PhD (Workshop participant representing IMHA)

Dean of Dentistry
McGill University
Tel: (514) 398-7219
Fax: (514) 398-8900
james.lund@mcgill.ca

Judy Lux, BA, MSW (CDHA Staff)

Health Policy Communications Specialist
Canadian Dental Hygienists Association
96 CentrepoinTE Dr.
Nepean, ON K2G 6B1
Tel: (613) 224-5515 ext. 23
Fax: (613) 224-7283
jal@cdha.ca

Audrey Penner, DipDH, BSc, MEd (Workshop participant)

Research Officer, Innovations and Life Long Learning Project
University of Prince Edward Island
550 University Ave.
Charlottetown, PE C1A 4P3
Tel: (902) 629-1839
Fax: (902) 629-1773
apenner@hollandc.pe.ca

Susanne Sunell, BA, DipDH, MA, EdD (Workshop participant)

Faculty member
Vancouver Community College
Tel: (604) 443-8509
Fax: (604) 922-3316
ssunell@idmail.com

Susan Ziebarth, CHE (Workshop Chairperson)

Executive Director, Canadian Dental Hygienists Association
96 CentrepoinTE Dr.
Nepean, ON K2G 6B1
Tel: (613) 224-5515 ext. 25
Fax: (613) 224-7283
saz@cdha.ca

Executive Summary

The Canadian Dental Hygienists Association called for a Research Agenda for dental hygiene in Canada in accordance with CDHA goals for quality, accessible oral health care and the advancement of the dental hygiene profession. A Workshop, chaired by Susan Ziebarth and facilitated by Joanne Clovis, was convened May 23 to 25, 2003, with 12 participants. Over the three-day period, participants reviewed an extensive range of resources; selected the pillars of the Canadian Institutes of Health Research (CIHR) as a framework for the generation of a wide range of research topics; identified a complementary fit for dental hygiene research with the historical emphases in oral health research; recognized the strengths, weaknesses, opportunities, and challenges to research in dental hygiene; and applied that analysis to the identification of recommendations for research.

Research topics identified by dental hygiene as research that provides a foundation for dental hygiene services and practice were categorized within the Canadian Institutes of Health Research's (CIHR) four broad themes or pillars: biomedical research; clinical research; health services and health systems research; and the health of populations, societal and cultural dimensions of health, and environmental influences on health. Many topics are cross-cutting; that is, the same topic may be researched across all four pillars. Topics that cut across two or more pillars can be approached from different perspectives from the cellular level to that of individuals and populations. A number of guiding

principles were also suggested as fundamental to all research. These are viewed as providing an overarching umbrella for the conduct of research.

The recommendations are grouped within three main themes: the need to increase research capacity, the importance of transferring knowledge at all levels of research, and the potential to enhance all research activity through collaboration and partnerships. There are research capacity needs across dental hygiene in education, practice, and research, and wide-ranging responses are required. Communication is essential throughout the research process, and the dissemination of research results to professionals and the public also involves strategies for communication. Alliances and partnerships in research are central to the advancement of dental hygiene research. An action plan for the CDHA role in fostering research is an important first step.

In providing direction for research efforts, the CDHA recommendations and action items are exceptionally consistent with the strategic initiatives of CIHR's first corporate plan, "Investing in Canada's Future: CIHR's Blueprint for Health Research and Innovation, draft July 7, 2003. CIHR Strategic Plan 2003/04 – 2007/08" (released following the CDHA Workshop). The seven values that guide CIHR are notably consistent with the five guiding principles identified by participants at the Workshop and included in this report. The CIHR Blueprint affirms CIHR's commitment to a balanced research agenda that will increase understanding of disease as well as understanding and prevention of the underlying causes of injuries and lifestyle diseases. This confirmation of a research agenda balance with attention to the prevention of illness and the

promotion of health is welcome news for dental hygiene as the chief health service dedicated to the prevention of oral disease and the promotion of oral health. The CIHR Blueprint also identifies as a priority the strengthening of Canada's health research community with specific strategies to strengthen and deepen research excellence, and to reach out to new research communities. Dental hygiene research in Canada can be renewed and strengthened through many of these CIHR initiatives. Within the context of CIHR priorities, the initiation of a Research Agenda for Dental Hygiene by CDHA is remarkably timely.

Glossary

This glossary defines terms as they are used in this report.

Decision-support aids: tools that include the client's personal values and can be used by clients in making decisions about appropriate interventions.

Evidence-based position statements: statements of policy or principles based on documented supportive research evidence, particularly from systematic research.

Evidence-based practice: integrates individual clinical expertise with the best available external clinical evidence obtained from systematic research.

Knowledge transfer: dissemination of knowledge with the goal of improving health policy and health services. This is a requisite component of the research process. The process engages people on many levels and is manifested in evidence-based decision-making and evidence-based practice.

Participatory research: also named action research, community-based research, and collaborative research. Key features are a democratization of the knowledge process and an emphasis on social change. Those people normally excluded from research become involved in the research process itself and are empowered by the increase in their knowledge. The research is intended to stimulate action that reduces inequities, empowers those who most need empowerment, and returns social power to grassroots individuals and organizations.

Partnerships: partnerships are composed of a researcher or group of researchers affiliated with a post-secondary educational institution and an

organization not affiliated with a post-secondary educational institution. The latter can be from the public, private, government, or non-profit sector. Partners usually contribute intellectually and participate in the research; however, some may provide financial contributions only. Material contributions can be in-kind or monetary.

Policy governance model: a theoretical foundation for the governing board role in business, non-profit, and governmental organizations.

Research collaboration: bringing together different fields of thought for a partnership. Research collaboration may take many forms.

The following terms are grouped here to facilitate clarity.

Intersectoral: joint inter-organizational initiatives across two or three sectors.

The three sectors of society are business (private, for-profit entities that produce private goods and services), government (governance institutions at the local, national, and international levels), and public or civil society (private citizens, nonprofit organizations, academia, volunteers).

Interdisciplinary research: research between disciplines.

Multidisciplinary: input from several disciplines.

Interprofessional: refers to all professions related to health and including social services. The use of the term “professional” does not distinguish among professions that may or may not be perceived as a “discipline.”

Transdisciplinary research: defined by the CIHR as the integration and transformation of fields of knowledge from multiple perspectives in order to

define, address, and resolve complex real-world problems (derived from multiple sources). See <www.cihr-irsc.gc.ca/services/funding/opportunities/institutes/2001/trans_f.shtml>.

Role of the Canadian Dental Hygienists Association in Research

The Canadian Dental Hygienists Association is the collective voice and vision of dental hygienists in Canada advancing the profession, supporting its members and contributing to the oral health and general well-being of the public. In pursuit of this mission, CDHA promotes high quality accessible oral health care and advancement of the dental hygiene profession.

The impetus for the CDHA National Research Agenda Workshop and documented outcomes is the CDHA Board-defined Ends, and the *Dental Hygiene: Definition, Scope and Practice Standards* statements. The “Ends,” a term from the Policy Governance Model, are the outcomes desired by CDHA. The following research-related Ends for the association signify the importance of research to the dental hygiene community:

- There is a strong national voice and vision for Canadian dental hygienists.
 - There is a strong research base to support the profession of dental hygiene.
 - The public, members and media have access to current, credible, accountable and timely information about oral health.
 - There are national evidence-based position statements related to the profession.
- The Profession continues its evolutionary process.
 - There is research about the outcome of dental hygiene services.

- There is professional growth for dental hygienists.
 - There is ongoing research to contribute to the growing body of dental hygiene knowledge.

Two of these Ends are the foundation of a research agenda: dental hygiene practice must be supported by a strong research base, that is, grounded in internationally recognized research, and the outcomes of dental hygiene services must be validated. The goals are that dental hygiene practice is evidence based, and that dental hygiene practice has positive health outcomes for clients.

The definition of dental hygiene as a health profession involving theory and evidence-based practice also affirms research as the foundation of dental hygiene. While "research" is defined by CDHA as one of the six key responsibility areas, all dental hygienists incorporate research, and the evidence produced by research, in their individual practices and practice settings. The privilege of practising dental hygiene as a profession requires a basis in evidence generated by internationally accepted research.

Purpose of the Research Agenda Workshop

The goal of the CDHA Research Agenda is improved oral health for all Canadians, a significant and integral contributor to overall health. The purpose of the May 2003 CDHA National Research Agenda Workshop was to develop a national dental hygiene research agenda that reflects current national oral health priorities and directs future dental hygiene research efforts. Although there are no formal or generally accepted Canadian goals for oral health that help to identify

research priorities (such as the U.S. Healthy People 2010), recent publications by the Federal, Provincial, Territorial Dental Directors, the Canadian Association of Public Health Dentistry, and CDHA reveal many problems in oral health and gaps in oral health services. Research efforts directed toward identified oral health problems are priorities. Guided research efforts that extend the knowledge base of dental hygiene education and practice will contribute notably to research endeavours leading to improved health outcomes for individuals and populations.

Objective of the Research Agenda Workshop

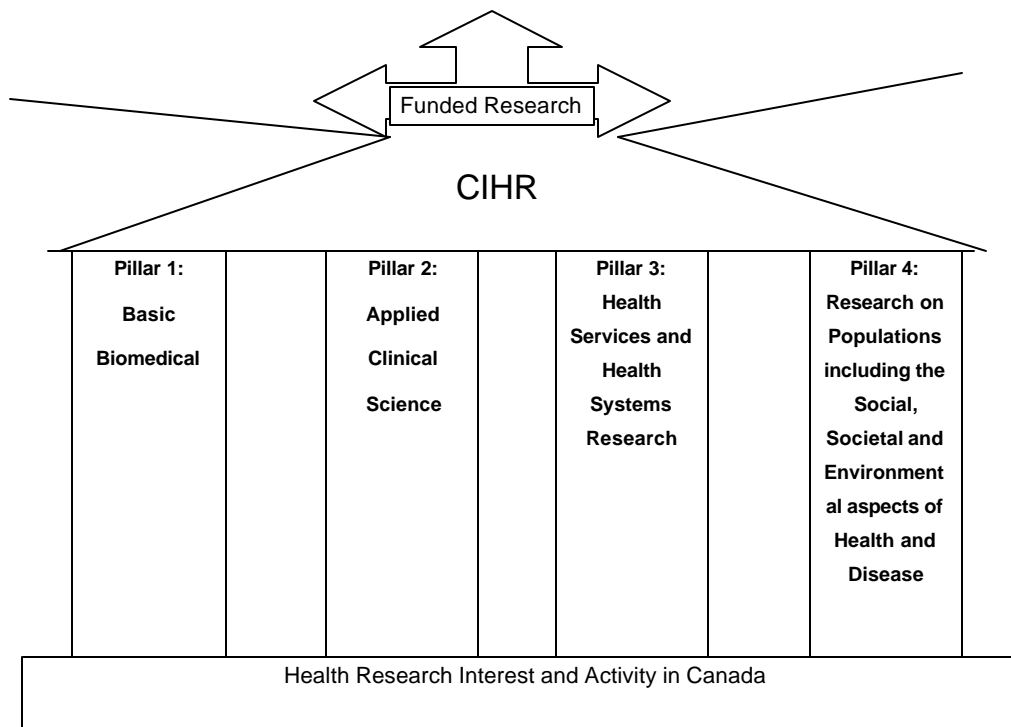
The objective of the Workshop was to make recommendations leading to a renewed focus on dental hygiene research in Canada.

Design of the Research Agenda Workshop

The Workshop was designed as a meeting of participants who represent a broad range of research activity and experience in oral health and dental hygiene. An extensive listing of resources was reviewed as background and for applicability to dental hygiene in Canada. (See Bibliography.) “Milestones in Dental Hygiene Research in Canada” point to the previous achievements of CDHA and Canadian dental hygienists in fostering research development throughout the history of dental hygiene in Canada (see Appendix B).

Background to Health Research in Canada

The CIHR are the leading health research agency for Canada. The Institutes categorize health research into four broad themes or pillars: biomedical research; clinical research; health services and health systems research; and the health of populations, societal and cultural dimensions of health, and environmental influences on health. These areas of research are not mutually exclusive.



The CIHR is organized into 13 institutes that represent health challenges facing Canadians.



Outcomes of the Research Agenda Workshop

The outcomes of the National Research Agenda Workshop are an extensive review of research agenda and priority documents; the selection of the Canadian Institutes of Health Research (CIHR) pillars as a framework for the generation of a wide range of research topics; identification of the complementary fit for dental hygiene research with the historical emphasis in oral health research; recognition of the opportunities and challenges to research in dental hygiene; and identification of recommendations for research.

Many health research topics in general cut across two or more pillars and can be approached from different perspectives, from the cellular level to that of individuals and populations. Those research topics identified by dental hygiene as research that provides a foundation for dental hygiene services and practice demonstrate a shift from the current emphasis on biomedical and clinical areas toward the health services and social, cultural, environmental, and population health pillars. Guiding principles provide an overarching umbrella for the elaboration of research topics.

Guiding Principles for Research

- Ethical issues underpin all areas, and ethical conduct is the first consideration.
- Acceptable evidence from research includes both qualitative and quantitative approaches.
- Interprofessional and intersectoral partnerships are preferred.
- Cultural and linguistic sensitivity is requisite.
- Participatory research is essential for the empowerment of individuals and communities.

Research Topics

Biomedical Research

Research identifiable with this pillar of research involves cellular, body system, and whole body processes, as well as therapies or devices that may be used to improve health. The following are examples:

- Immunology related to periodontology, oral cancer, and dental caries
- Relationship between periodontal and systemic diseases
- Genetic conditions that influence oral health
- Hormonal relationships with oral disease
- Relationship between nutritional intake and oral conditions
- Pharmacological preparations that improve oral conditions such as xerostomia

- Tissue response in vulnerable populations

Clinical Research

Clinical research on humans includes diagnosis and intervention through treatment, prevention, and health promotion. Examples include:

- Risk assessment for oral disease and disability of individuals
- Identification of clinical signs of oral health and illness
- Testing of measurement tools for assessment of clinical signs
- Impact of ergonomics on patient care
- Effectiveness of topical anti-microbial and anti-cariogenic agents
- Testing the efficacy, effectiveness, and efficiency of dental hygiene clinical interventions such as non-surgical periodontal therapy; pain, fear and anxiety strategies and techniques; and counselling to reduce risk for oral disease
- Evaluating the outcomes of dental hygiene care

Health Services Research

The way that health services are delivered, their quality and costs, and how they are received, are all issues for research in health services. Some examples are:

- Clinical decision-making in dental hygiene practice
- Analysis of gaps between research and dental hygiene practice
- Clinical practice guidelines/standards
- Cost-effectiveness and cost-benefit of all dental hygiene services

- Testing of models of dental hygiene practice informed by different theories
- Financing of oral care, particularly dental hygiene services
- Health policy related to access to oral care, particularly dental hygiene
- Alternative settings and providers for the delivery of oral care
- Relationship of oral care services to quality of life
- Dental hygienist satisfaction with work and career
- Dental hygiene human resources, education, and lifelong learning

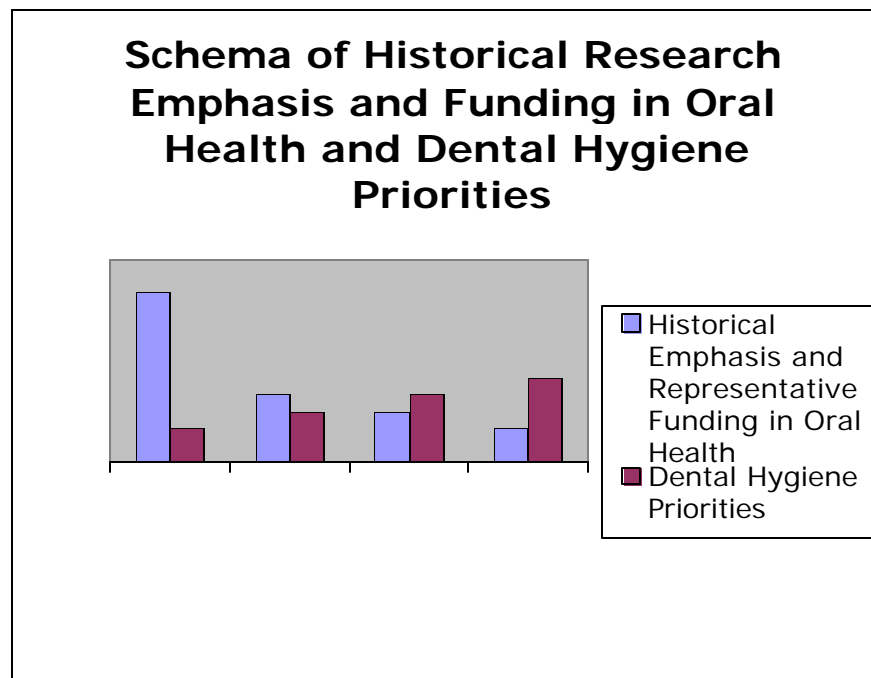
Social, Cultural, Environmental, and Population Health

Investigating how the oral health of populations, or sub-populations, is affected by the determinants of health is the goal and theme of the Social, Cultural, Environmental and Population Health pillar. Examples include:

- Distributions of oral disease and care
- Social and economic impact of oral health and disease on populations
- Barriers and opportunities for oral care for all populations
- Equity and social justice reflected in the provision of oral care for populations
- Need and demand for dental hygiene services for groups throughout their life-cycle
- Cultural and linguistic relevance of dental hygiene services
- Dental hygiene services related to quality of life of populations

These research topics, identified by dental hygiene as research that provides a foundation for dental hygiene services and practice, represent a shift away from

traditional research emphasis and funding in the biomedical area and more emphasis in the topics of the last three pillars. These topics are complementary to those traditionally researched and funded as biomedical research. A graphic of the CIHR pillars illustrating traditional funding priorities, and the complementary research priorities identified in dental hygiene are shown in the following chart. The pillars are representative of historical funding; they do not depict exact amounts of funding.



The emphasis in dental hygiene research topics—a shift away from biomedical toward population health, health services, and clinical—is also consistent with changing patterns in CIHR funding. Since 2000, while continuing to extend funding for biomedical research, the CIHR funding pattern clearly demonstrates significant investment in the non-biomedical research represented in the other three pillars.

Recommendations

The recommendations provide direction for research efforts based on priorities. They identify three priorities with numerous strategies for enhancing research capacity, pursuing partnerships and collaboration in research, and promoting processes to increase the translation and use of knowledge. The three priorities are not mutually exclusive nor are they listed in order of priority. Implementation of these recommendations may proceed concurrently rather than sequentially.

1.0 Increase Research Capacity

There are research capacity needs across dental hygiene in education, practice, and research, and wide-ranging responses are required. Fundamental to moving research forward in dental hygiene is training in statistics, research design, theory, and methodology in order to develop skills to critically appraise research, conduct literature reviews (especially systematic reviews), and acquire basic research competence. This research training is the foundation for dental hygiene and all levels require it—students, educators, and practising dental hygienists. Graduate level training and progression toward funded research in dental hygiene is dependent on the acquisition of fundamental skills at the undergraduate level of education.

The following strategies will increase research capacity in dental hygiene :

1.1 Build a Foundation of Research Culture in Dental Hygiene Education

Encourage and facilitate the development of a research culture in dental hygiene education: recruit, train, promote, and retain selected faculty and students to provide a research culture; develop curricula that support student interest and skill in research; mentor individual faculty members toward a productive research career.

1.2 Expand Opportunities for Dental Hygiene Researchers

Facilitate networking opportunities for researchers. Examples include a database on researchers and their areas of interest and research outcomes; ongoing workshops to review and update research priorities; and facilitation of opportunities to foster mentorship, create research teams, and write grant applications.

1.3 Create a Home for Canadian Dental Hygiene Research

Create a dental hygiene research institute (the Canadian Dental Hygiene Research Institute [CaDHRI]) that will provide an organizational structure to facilitate research conferences and workshops aimed at those interested in the process of research; to train researchers; and to be the official liaison with other partners.

1.4 Expand the CDHA Role in Fostering Research

Create a CDHA Research Advisory Council to provide ongoing support and direction for research activity through research workshops and conferences,

research content in national conferences, and research themes in the journal of the Canadian Dental Hygienists Association, *Probe*. A Research Advisory Council can function both as an interim home for dental hygiene research until CaDHRI may be established, and also as an ongoing committee responsible for overseeing research issues. A project development and implementation process can be used to transfer priorities from the Research Advisory Council to a project board or committee.

Operationalize strategies that strengthen the CDHA role in fostering research. These include the following :

- Use the CDHA web site to maintain an account of research activity and to showcase current activity and success.
- Create a CDHA directory of researchers to include those who are funded and published in research, their past and current research interests and activities, and their recommendations for further research.
- Create a listing of funding sources and current opportunities.
- Provide more opportunities at annual CDHA professional conferences for researchers to communicate with each other and other researchers, for example, a research connection similar in nature to the current “Community Connections” session, poster sessions or competitions, workshops (e.g. How to critique literature), and papers.
- Facilitate the organization of a research conference focused on the research process to support current and future researchers in building their capacity to conduct research.

- Facilitate the organization of a research conference dedicated to the investigation of outcomes of dental hygiene care.
- Use the journal of the Canadian Dental Hygienists Association, *Probe*, to provide increased profile on research and evidence-based practice

Examples:

- Provide more opportunities for students to publish
- Commission articles in *Probe* on the following topics:
 - How to pose a research question
 - How to read literature and do a review
 - Evidence-based decision-making
- Ensure that the journal is indexed with databases including Medline, PubMed, CINAHL, ERIC.

2.0 Improve Knowledge Dissemination

Communication is essential throughout the research process and the dissemination of research results to professionals and the public also involves strategies for communication. The issues of communication and knowledge transfer for research in dental hygiene are addressed within several strategies.

2.1 Identify, Utilize, and Enhance Communication Strategies for Research

Recognize communication strategies as integral to research. Strategies must include the events and ideas leading to research, the strategies for

communication during research, and the plan for dissemination of information, and knowledge transfer of the research results and conclusions.

Enhance the lead role of the Canadian Dental Hygienists Association's journal, *Probe*, in nurturing communication within the profession including the dissemination of research initiatives and outcomes, and encouragement of adoption of evidence-based practice guidelines.

Increase opportunities at CDHA professional conferences to disseminate research results and foster the adoption of evidence-based practice guidelines.

Facilitate unique and timely opportunities to review knowledge and practice in dental hygiene including the development of clinical practice guidelines.

2.2 Create a Knowledge Transfer Designate

A new role for dental hygiene, and other professions, may be the creation of a knowledge transfer individual whose area of expertise is the translation of evidence for practitioners, principally through the development of clinical practice guidelines. Literature in the field of knowledge utilization refers to the potential for individuals with these skills.

2.3 Provide Consumer Decision-Support Aids

Consumer decision-support aids provide new information to assist the process of decision-making in such a way that the client is empowered. While

the evidence-based practice movement is leading the way in producing clinical practice guidelines to assist practitioners in their clinical decision-making, a similar set of tools that considers the client's personal values, as well as risks and benefits, can be used by the client in the process of decision-making regarding dental hygiene interventions. Dental hygienists can be involved in developing and studying the use of decision-support aids for clients of oral health services. There is a need for research and theory development around appropriate models for use in dental hygiene practice settings, and for research that evaluates the efficacy of decision aids for health outcomes, client satisfaction and empowerment, and economics.

3.0 Foster New Partnerships

The unique role of dental hygiene in the field of health care can be advanced through collaboration and partnership with other health care providers, health care institutions, governments, research agencies, industry, and the public, including the volunteer sector. Alliances and partnerships in research are central to the advancement of dental hygiene research. The following strategies recognize the importance of broad inclusive partnerships in research.

3.1 Advocate for New Collaborations to Address Research Priorities in Oral Health

Collaborate with government, professional, and community organizations such as:

- Federal, provincial, and territorial ministries of health
- Dental Hygiene Educators Canada
- Canadian Association for Dental Research (CADR/InternationalADR)
- Canadian Association of Public Health Dentistry
- Association of Canadian Faculties of Dentistry
- Canadian Dental Association
- American Dental Hygienists' Association
- Canadian Pharmacy Association
- Canadian Healthcare Association
- Canadian Homecare Association
- Canadian Dietetic Association
- Canadian Nurses Association
- Client/patient advocacy organizations
- Community service organizations
- Self-help groups
- Representatives of Aboriginal groups (Métis, Inuit, and First Nations) and other vulnerable populations
- International health agencies and organizations

3.2 Align with Research and Funding Institutions

Investigate CIHR programs for new researchers to support dental hygiene research initiatives; link research capacity with CIHR priorities, pillars, and Institutes.

Develop a coordinating strategy to serve oral health research in consultation with the proposed oral health research national network, suggested by the CIHR Oral Health Research Planning Workshop, June 2002, under the auspices of a group such as CADR. The proposed new Canadian Dental Hygiene Research Institute (CaDHRI) could serve as the link between dental hygiene research and other oral health research units within the Canadian network.

Raise the profile and importance of oral health and oral health research through collaboration and partnerships.

Recognize the priorities of the following as principal funding agencies for dental hygiene research, and plan collaborative research in accordance with their policy and strategic initiatives:

- Canadian Foundation for Dental Hygiene Research and Education
- Dentistry Canada Fund
- National Science and Engineering Research Council (NSERC)
- Canadian Health Services Research Foundation
- Social Sciences and Humanities Research Council
- Provincial Organizations such as Alberta Heritage Foundation

Conclusions

The role of CDHA in fostering research is central to the development of dental hygiene research in Canada. Two research goals are the foundation of a research agenda for dental hygiene: dental hygiene practice must be supported by a strong research base, grounded in internationally recognized research; and the outcomes of dental hygiene services must be validated. CDHA research initiatives will continue to shape the evolution of dental hygiene research in Canada. The ultimate impact of dental hygiene research will be improved health for individuals and populations, and affirmation of the health benefits of dental hygiene services.

The recommendations for research are based on the framework of topics identified within CIHR pillars, and the complementary fit of the identified research topics with the historical emphasis on biomedical research in oral health. The recommended research principles and priorities are notably consistent with the more recent strategic directions provided by CIHR's "Investing in Canada's Future: CIHR's Blueprint for health research and innovation." The Blueprint affirms CIHR commitment to a balanced research agenda that will increase our understanding of disease as well as our understanding and prevention of the underlying causes of injuries and lifestyle diseases. This confirmation of a research agenda balance with attention to the prevention of illness and the promotion of health is welcome news for dental hygiene as the chief health service dedicated to the prevention of oral disease and the promotion of oral health. The CIHR Blueprint also identifies as a priority the strengthening of

Canada's health research community with specific strategies to strengthen and deepen research excellence, and to reach out to new research communities.

Dental hygiene research in Canada can be renewed and strengthened through many of these CIHR initiatives. Within the context of CIHR priorities, the initiation of a Research Agenda for Dental Hygiene by CDHA is remarkably timely.

The next steps for CDHA are the implementation of the recommendations and the further development of initiatives supportive of research. The priorities and recommendations identified in this Research Agenda can be extended by elaborating measurable objectives with appropriate timeframes related to the recommendations, and by identifying specific research topics, especially those related to vulnerable populations and access to dental hygiene care. A review of this Agenda within the next decade will set the stage for updating dental hygiene research priorities and plans. CDHA will continue to lead dental hygiene in Canada in the promotion and support of research to improve the oral health of Canadians.

Appendix

Milestones in Dental Hygiene Research in Canada

1950s

In the 1950s, individual dental hygienists began to participate in research endeavours, applying their interest and knowledge in dental hygiene to other areas such as nutrition, epidemiology, education, behavioural sciences, periodontology, and dental materials.¹

1980

In April 1980, the Canadian Dental Hygienists Association (CDHA) presented a brief to the Health Services Review Commission under the chairmanship of Justice Emmett Hall. One of the 14 recommendations was that “further research be conducted concerning dental care delivery systems in Canada.”²

1982

On September 30 to October 1, 1982, in Winnipeg, Manitoba, the School of Dental Hygiene at the University of Manitoba and the Working Group on the Practice of Dental Hygiene, Department of National Health and Welfare, Canada, sponsored a Conference on Dental Hygiene Research.³ This was the first conference in the world held on dental hygiene research.⁴ Fourteen distinguished researchers and consultants from across Canada and the United States served as conference leaders. Forty-two dental hygienists representing education, public health, hospital, and private practice settings registered as participants. The conference format was designed to facilitate small group discussion, individual consultations with leaders, as well as to provide for presentation of papers.

1988

CDHA published a national survey of dental hygienists, “Dental Hygiene in Canada, 1987 National Survey of Dental Hygienists: A Demographic, Educational and Employment Profile.”

The Working Group on the Practice of Dental Hygiene, Department of National Health and Welfare, Canada, published a report, “The Practice of Dental Hygiene in Canada: Description, Guidelines and Recommendations.” The report highlighted a need for more research in such areas as the epidemiology of dental diseases, methods of preventing dental diseases, factors affecting the use of preventive measures, cost-effectiveness of preventive measures, different human resources configurations in dental health care, and innovations in delivery systems for dental health care.

1990

In 1990, in Edmonton, Alberta, CDHA held a Symposium on Clinical Dental Hygiene: Directions for Research, Teaching and Evaluation.^{5,6} The purpose of the symposium was to emphasize the relationship among clinical dental hygiene research, education, and dental hygiene practice; to explore ways of participating in collaborative research; and to investigate a conceptual framework for the dental hygiene profession. The program included keynote addresses, panel discussions, and workshops.

1993–1998

On October 15 to 17, 1993, in Niagara Falls, Ontario, CDHA held the fourth annual professional conference, “North American Research Conference: An Exploration into the Future.”⁷ The American Dental Hygienists’ Association (ADHA) participated in the development of the conference workshops. Some of the presentation topics included common flaws in research, development of the dental hygiene research curriculum learning outcomes, qualitative research, using research in dental hygiene practice, survey research, and dental hygiene research in the United States.

In 1993, CDHA struck a Board Council on Education and Research, which existed until 1998. In 1995, the Council, as part of CDHA’s goal to promote quality dental hygiene research, offered the first research grant/award to members. Other research grants/awards followed in 1997, 2000 and 2001. In May, 1997, the CDHA Council published the *Educators Directory*, which includes a listing of researchers and their subject areas.

In 1994, Dentistry Canada Fund (DCF) was formed when the following three funds were merged: Canadian Dental Research Fund, Canadian Fund for Dental Education, and Canadian Dental Foundation. As of May 2003, DCF consisted of 34 endowment funds, including the Canadian Dental Hygienists Association Education Fund.

1999

CDHA published an inaugural edition of *Probe Scientific*, which offered a forum for Canadian dental hygienists to publish their own research. The journal was also open to publishing international research.

2001–2002

In 2001 and 2002, the CDHA submitted briefs calling for increased oral health research to Commissioner Romanow of the Commission on the Future of Health Care in Canada, and to Senator Kirby, Chairperson of the Standing Senate Committee on Social Affairs, Science and Technology.^{8,9} In September 2002, CDHA submitted a brief to the House of Commons Standing Committee on Finance, calling for oral health research that would contribute to the development of a national report on Canada’s oral health status and also calling for an increase in the total health spending for the federal health research budget.¹⁰

In September 2002, CDHA published *Dental Hygiene Practice in Canada 2001: Report No. 3: Findings*, a report on a national survey of dental hygienists. The purpose of the study was to identify and investigate current practice patterns of dental hygienists and to examine trends and changes over the past 12-year period. The primary focus was dental hygiene clinical practice.

2003

In May, 2003, the Canadian Dental Hygienists Association held a National Dental Hygiene Research Agenda Workshop. Eleven individuals from across Canada were brought together to develop the first CDHA National Dental Hygiene Research Agenda.

Endnotes

1. Canadian Dental Hygienists Association: *History of dental hygiene in Canada*. Ottawa: CDHA, 1988
2. ———: Brief presented by the Canadian Dental Hygienists Association to the Health Services Review Commission. *Can Dent Hygienist* 14(2): pp. 35, 1980
3. ———: *Proceedings of a conference on dental hygiene research*. Ottawa: CDHA, 1982
4. ———: *History of dental hygiene in Canada*.
5. ———: Proceedings of the symposium on clinical dental hygiene: directions for research, part 1. *Probe* 24(4): pp. 162–185, 1990
6. ———: Proceedings of the symposium on clinical dental hygiene: directions for research, part 2. *Probe* 25(1): pp. 12–27, 1991
7. ———: Diary of a research conference. *Probe* 28(1): pp. 12–13, 1994
8. ———: *Brief to the Commission on the Future of Health Care in Canada*. Ottawa, October 31, 2001
9. ———: *Dental hygiene care in Canada*. Brief to the Standing Senate Committee on Social Affairs, Science and Technology. Ottawa, February 21, 2002
10. ———: *Financing Canada's oral health system*. Brief submitted to the House of Commons Standing Committee on Finance. Ottawa, September 9, 2002

Bibliography

- Agency for Healthcare Research and Quality (AHRQ): Diagnosis and management of dental caries. Evidence report/technology assessment Number 36 [on-line]. [Cited February 19, 2003.] <www.ahrq.gov/clinic/epcsums/dentsumm.htm>
- Agency for Healthcare Research and Quality (AHRQ): Outcomes research fact sheet [on-line]. [Cited February 19, 2003.] <www.ahrq.gov/clinic/outfact.htm>
- Allison, P., Bedos, C.: What are the research priorities of Canadian dentists? [on-line] *J Can Dent Assoc* 68(11): pp. 662–662. [Cited February 14, 2003.] <www.cda-adc.ca/jcda/vol-68/issue-11/662.pdf>
- American Dental Association: Research of importance to practicing dentists [on-line]. 2003 ADA Research Agenda. [Cited March 12, 2003.] <www.ada.org/prof/resources/positions/research.asp#research>
- American Dental Hygienists' Association: ADHA national dental hygiene research agenda. Revised. Chicago: ADHA, October 2001
- American Dental Hygienists' Association: Fourth national research conference: an online supplement to the Spring 2001 *J Dent Hyg*. [Cited March 18, 2003.] <www.adha.org/publications/nrc/index.html>
- British Dietetic Association: BDA Research Strategy 2002–2007 [on-line]. [Cited February 14, 2003.] <www.bda.uk.com/Downloads/Research%20Strategy.pdf>
- Canada. Department of National Health and Welfare and University of Manitoba, School of Dental Hygiene Working Group on the Practice of Dental Hygiene: *Proceedings of the Conference on Dental Hygiene Research*. Winnipeg, Manitoba, September 30–October 1, 1982. Ottawa: National Health and Welfare, 1982
- Canada. Health Canada: Population health: What determines health? [on-line] [Cited March 17, 2003.] <www.hc-sc.gc.ca/hppb/phdd/determinants/index.html>
- Canadian Association of Public Health Dentistry: The need for an examination of, and recommendations to address, inequities in oral health and access to oral health care. A brief to the Commission on the Future of Health Care in Canada [on-line]. October 11, 2001. [Cited April 16, 2003.] <www.caphd-acsd.org/Romanow%20brief.pdf>
- Canadian Dental Hygienists Association: *Access angst: a CDHA position paper on access to oral health services* [on-line]. Ottawa: CDHA, 2003. [Cited May 3, 2003.] <www.cdha.ca/pdf/position_paper_access_angst.pdf>
- Canadian Dental Hygienists Association: *Dental Hygiene: Definition, Scope and Practice Standards* [on-line]. Ottawa: CDHA, 2002. [Cited October 4, 2003.] <www.cdha.ca/content/resources/publications_definition.asp>
- Canadian Dental Hygienists Association: Milestones in dental hygiene research in Canada. Ottawa: CDHA, 2003
- Canadian Institutes of Health Research (CIHR): *Grants and Awards Guides* [on-line]. <www.cihr-irsc.gc.ca/e/services/17209.shtml>
- : Institutes [on-line]. [Cited March 17, 2003.] <www.cihr-irsc.gc.ca/e/institutes/9466.shtml#?>

———: *Investing in Canada's future: CIHR's blueprint for health research and innovation. Draft July 7, 2003. CIHR Strategic Plan 2003/04–2007/08*. National consultations, Ottawa. Ottawa: CIHR, 2003

———: Visions of the future: health researchers of tomorrow speak out [on-line]. [Cited June 7, 2003.] <www.cihr-irsc.gc.ca/e/strategic/health_research_training_e.pdf>

Canadian Institutes of Health Research (CIHR), Institute of Aboriginal People's Health: Institute overview [on-line]. [Cited Feb. 14, 2003.] <www.cihr-rsc.gc.ca/e/institutes/iaph/9109.shtml#?>

Canadian Institutes of Health Research (CIHR), Institutes of Health Services and Policy Research: About the institute [on-line]. [Cited March 17, 2003.] <www.cihr-irsc.gc.ca/e/institutes/ihspr/11939.shtml#?>

Canadian Institutes of Health Research (CIHR), Institute of Musculoskeletal Health and Arthritis: Strategic research priorities [on-line]. [Cited Feb. 14, 2003.] <www.cihr-irsc.gc.ca/e/institutes/imha/13792.shtml>

———: Oral health research planning workshop. Ottawa, June 14, 2002

Canadian Institutes of Health Research (CIHR), Institute of Population and Public Health: About this institute [on-line]. [Cited March 17, 2003.] <www.cihr-irsc.gc.ca/e/institutes/ipph/12199.shtml#?>

Dalton, J.M.: Development and testing of the theory of collaborative decision-making in nursing practice for triads. *J Adv Nursing* 41(1): pp. 22–33, 2003

Federal/Provincial/Territorial Dental Directors: National Oral Health Strategy [on-line]. [Cited March 5, 2003.] <www.fptdd.ca/>

Federal/Provincial/Territorial Dental Directors: *Oral health: its place in a sustainable health care system for Canadians. A submission to the Commission on the Future of Health Care in Canada* [on-line]. January, 2002. [Cited April 15, 2003.] <www.caphd-acsdpc.org/news.html>

Finley-Zarse, S.R., Overman, P.R., Mayberry, W.E., Corry, A.M.: Information-seeking behaviors of U.S. practicing dental hygienists and full-time dental hygiene educators. *J Dent Hyg* 76(2): pp. 116–124, 2002

International Council of Nurses: Nursing research: a tool for action [on-line]. [Cited Feb. 14, 2003.] <www.icn.ch/matters_research.htm>

Johnson, P.M.: *Dental hygiene practice in Canada 2001. A report prepared for the Canadian Dental Hygienists Association* [on-line]. Ottawa: CDHA, page 401, 2002. [Cited June 7, 2003.] <http://www.cdha.ca/pdf/profile2001eng/chapter_15.pdf>

Lawrence, H.P.: The first line of defense: the role of dental hygienists in prevention, treatment, and management of Early Childhood Caries in Aboriginal communities. A PowerPoint presentation made at the May 23, 2003, Canadian Dental Hygienists Association National Dental Hygiene Research Agenda workshop, Ottawa

Lawrence, H.P., Leake, J.L.: The U.S. Surgeon General's report on oral health in America: a Canadian perspective. *J Can Dent Assoc* 67(10): pp. 587, 2001. [Cited May 5, 2003.] <www.cda-adc.ca/jcda/vol-67/issue-10/index.html>

Locker, D., Matear, D.: *Oral disorders, systemic health, well-being and the quality of life. A summary of recent research evidence* [on-line]. Canadian Association of Public Health Dentistry. [Cited April 15, 2003.] <www.caphd-acsdpc.org/articles1.html>

- Lund, J.: Institute of Musculoskeletal Health and Arthritis. A PowerPoint presentation to the Canadian Dental Hygienists Association National Dental Hygiene Research Agenda Workshop. Ottawa, May 23–25, 2003
- National Center for Dental Hygiene Research: National Center News: About the Center: Mission, Teams, Projects. [Cited May 24, 2003.] <www.usc.edu/hsc/dental/dhnet/news/about.html>
- National Institute of Dental and Craniofacial Research: NIDCR Strategic Plan. [Cited March 17, 2003] < <http://www.nidcr.nih.gov/about/strat-plan/>> [Please note that the draft version accessed on March 17, 2003, is no longer available.]
- National Institutes of Health: Setting research priorities at the National Institutes of Health [on-line]. [Cited March 17, 2003.] <<http://www.nih.gov/about/researchpriorities.htm>>
- O'Connor, A.M.: Consumer/patient decision support in the new millennium: where should our research take us? *Can J Nursing Res* 30(4): pp. 257–261, 1999
- P&G Dental ResourceNet: Influence of behavioral science research on oral health promotion [on-line]. [Cited February 19, 2003.] <www.dentalcare.com/soap/ce113pc/pg07.htm>
- Rogers, E.M.: *Diffusion of innovations*. 4th ed. New York: Free Press, 1995
- Romanow, R.: *Building on values: the future of health care in Canada*. Final report of the Commission on the Future of Health Care in Canada. Ottawa, ON: Queen's Printer, 2002
- Tabak, L.A.: National Institute of Dental and Craniofacial Research, National Institutes of Health. The U.S. strategic plan for oral health research: NIDCR planning activities. PowerPoint presentation at the Canadian Dental Hygienists Association National Dental Hygiene Research Agenda Workshop. Ottawa, May 24, 2003.
- U.S. Department of Health and Human Service: *National call to action to promote oral health*. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute of Dental and Craniofacial Research. NIH Publication No. 03-5303, Spring 2003
- U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion: Healthy People 2010 [on-line]. [Cited July 23, 2003.] <www.healthypeople.gov/default.htm>
- U.S. Department of Health and Human Services: *Oral health in America: a report of the Surgeon General* [on-line]. Rockville, MD: USDHHS, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000. [Cited February 20, 2003.] <www.surgeongeneral.gov/library/oralhealth/default.htm>

ⁱ Canadian Dental Hygienists Association: *History of Dental Hygiene in Canada*, Canadian Dental Hygienists Association, (1988)

ⁱⁱ Canadian Dental Hygienists Association: Brief Presented by the Canadian Dental Hygienists Association to the Health Services Review Commission. *The Canadian Dental Hygienist*, Vol. 14, No. 2, pp. 35-35, Summer 1980

ⁱⁱⁱ Canadian Dental Hygienists Association: Proceeding of a Conference on Dental Hygiene Research. CDHA, Ottawa, Ontario, September 30, 1982

-
- ^{iv} Canadian Dental Hygienists Association: *History of Dental Hygiene in Canada*, Canadian Dental Hygienists Association, (1988)
 - ^v Canadian Dental Hygienists Association: Proceedings of the Symposium on Clinical Dental Hygiene: Directions for Research, Part 1. CDHA, Ottawa, *Probe*, Volume 24, no. 4, pp: 162-185, Winter 1990
 - ^{vi} Canadian Dental Hygienists Association: Proceedings of the Symposium on Clinical Dental Hygiene: Directions for Research, Part 2. CDHA, Ottawa, *Probe*, Volume 25, no. 1, pp: 12-27, Spring 1991
 - ^{vii} Canadian Dental Hygienists Association: Diary of a research conference. *Probe* vol. 28, no. 1, pp: 12-13, Jan/Feb 1994
 - ^{viii} Canadian Dental Hygienists Association, Brief to the Commission on the Future of Health Care in Canada. CDHA, Ottawa, Ontario, October 31, 2001
 - ^{ix} Canadian Dental Hygienists Association, Dental Hygiene Care in Canada: Brief to the Standing Senate Committee on Social Affairs, Science and Technology. CDHA, Ottawa, Ontario, February 21, 2002
 - ^x Canadian Dental Hygienists Association, Financing Canada's Oral Health System: Brief Submitted to the House of Commons Standing Committee on Finance. CDHA, Ottawa, Ontario, September 9, 2002