

# Greyhead Associates

Dr Gordon Atherley, Principal

**Opinion for the College of Dental Hygienists of Ontario on the  
Report of an Expert Panel on the education of dental hygienists for self  
initiation of the controlled acts of scaling and root planing in Ontario**

by

**Dr Gordon Atherley  
Principal, Greyhead Associates**

January 22, 2007

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## Executive Summary

The Ontario Ministry of Health and Long-Term Care believes that the amendments proposed for the Dental Hygiene Act of 1991 will enhance access to preventive oral healthcare for patients. In my opinion, enhancing patients' access constitutes a matter of social justice because of the overarching challenge to healthcare: affordability.

The affordability of preventive oral healthcare is a challenge that disadvantages patients who cannot access services unless they can pay for them out of their own pockets, or they are enrolled in dental benefits plans, or they qualify for publicly funded programs.

Predictably growing sub-populations of Ontarians are disadvantaged by the affordability challenge of preventive oral healthcare: whence the root in social justice.

Given that no healthcare system can meet all the needs of all the persons it serves and given, too, the rising funding pressures on the Ontario government, substantial or even any increase in public funding for oral healthcare seems unlikely in the foreseeable future.

For these circumstances, a feasible and socially just approach is optimization aimed at reducing or holding down costs of privately and publicly funded services. Optimization can reasonably be expected to increase access to preventive oral healthcare.

Optimization of a key service in preventive oral healthcare would result if dental hygienists were permitted by the Act to self-initiate scaling and root planing. Amending the Act accordingly will be good public policy provided that the quality of care and the safety of patients are maintained, a requirement expressed by the Ministry.

The Ontario Dental Association and Ontario Dental Hygienists' Association agreed that self-initiation by dental hygienists should be enabled by the amendments. But they do not agree on the nature and extent of the compulsory educational and training requirements to prepare dental hygienists for self-initiation.

In my opinion, the concept of *contraindications* that both Associations embraced for inclusion in the Act is sub-optimal as a safety strategy and as a foundation for education and training of dental hygienists.

For its position on the educational and training requirements, the Ontario Dental Association relies chiefly on matters of risk and safety.

The principles of social justice and its component, accountability for reasonableness, reflect the non-negotiability of the quality of preventive oral healthcare and of its safety for patients.

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But the principles also resist barriers that would unnecessarily restrict the enhancement of access to oral preventive healthcare. And they encourage the search for innovative ways to address quality and safety.

In my opinion, the additional educational requirements advocated by the Ontario Dental Association erect unreasonable and unnecessarily restrictive barriers for dental hygienists contemplating self-initiation. The barriers could well obstruct social justice by inhibiting developments the Ministry believes would be beneficial.

In place of the barriers, I suggest alternative ways of maintaining quality and safety, ways that reflect the wider movements in today's healthcare, as follows.

1. The Ministry and healthcare generally should be encouraged to view dental hygienists as professionals highly practiced through continuing application of a particular skill-dependent and knowledge-dependent set of closely related clinical procedures that are positioned decisively in the preventive sphere of oral healthcare. Doing so would be consistent with the Ministry's beliefs.
2. The on-going process of education and training, post-graduate support and revalidation of practicing dental hygienists should embrace an innovative model. The model would support and encourage them in their progressive development as skilled practitioners highly practiced in self-initiation of scaling and root planing.
3. The innovative model would rely heavily on knowledge service, a concept that embraces established computer and web-based technologies, and related techniques.
4. Knowledge service is in existing and growing use for education, training and continuous updating of various categories of healthcare professionals, such as physicians, and it also sees current application in some contexts of dental hygiene.
5. The knowledge service that would underpin the ongoing education and training, and that would support the development of practicing dental hygienists, would also provide a safety strategy which would be preferable to and more practicable than reliance on contraindications enshrined in legislation.
6. I recommend the College of Dental Hygienists of Ontario to address the following web-based knowledge service developments with intense initial focus on scaling and root planing, and on the risks identified or implied in the list of contraindications.
  - (a) Continually updated, evidence-based protocols to inform dental hygienists' oral assessments.

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- (b) Innovative use of knowledge service components such as extensions of existing dental indices surveys for children and seniors, and calibration techniques, to underpin ongoing support for performance monitoring of all scaling and root planing by dental hygienists, self-initiated or not.
- (c) Knowledge service continually updated for front-line dental hygiene practitioners.
- (d) Knowledge service continually updated for the patients of front-line dental hygiene practitioners, and for other healthcare professionals.
- (e) Organization of collective research among dental hygienists who would use data, collected in a manner that protects patients' security and privacy, to help build the currently inadequate evidence base for oral preventive healthcare and to support the updating of the protocols and knowledge service used in dental hygiene practice.

I see self-initiation of scaling and root planing by dental hygienists as an important means for promoting patient choice, also an interest of the Ministry.

Patient choice creates market forces focused on costs, convenience and comfort of services, on patients' becoming more involved in their healthcare decisions, and on their taking more responsibility for their own health—all of which are well aligned with modern public healthcare policy.

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by

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### **Terms of Reference**

I am retained by the College of Dental Hygienists of Ontario to provide a detailed, authoritative, and independent opinion on the *'Report of an Expert Panel on the education of dental hygienists for self initiation of the controlled acts of scaling and root planing in Ontario'* dated October 10, 2006 (Expert Panel Report).

### **About the Author**

My multidisciplinary background, which includes university physics and engineering as well as medical faculties, with tenured positions up to and including chair, provides me with relevant experience for offering commentary on educational matters. In my two medical specialties, occupational medicine and public health, risk and safety represent an especially important focus. My current involvements in knowledge service and information technology for healthcare are germane to *knowledge service*, which I recommend as the approach of choice in responding to the concerns raised in the Expert Panel Report. My outline biography with information on my organization, Greyhead Associates, is presented at Appendix A.

### **The Expert Panel and its Report**

The Ontario Dental Hygienists' Association and the Ontario Dental Association, following discussions between December 2005 and May 2006, established a Memorandum of Understanding, dated May 12, 2006, which suggested that an Expert Panel be jointly sponsored by the Associations and the Regulatory Colleges. The Expert Panel was formed in July 2006, and reported on October 10, 2006.

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The Expert Panel reported that

The most prominent and difficult issue discussed by the associations was self-initiation by dental hygienists of the controlled acts of scaling and root planing.

## Focus of opinion

From various perspectives, I examine the enhancement to the health of Ontarians that could result from the stimulation of dental hygiene services that would follow if dental hygienists were permitted by legislation to self-initiate scaling and root planing.

## Privacy and confidentiality

1. In accordance with the protocols of marketing research, journalism and some academic research, the responses of all respondents were treated as non-attributable. Respondents' names and affiliations are not listed in this document.
2. In some instances, the interviews were recorded electronically with prior permission of the respondent following assurances from me that the recording was solely for my convenience and accuracy in note-taking.

## Style

1. Throughout the document I make use of the first-person singular to make clear when I am describing an action by me, or when I am providing an interpretation or observation that is my own.
2. I footnote references as far as is practicable.

## Limitations

1. My interviews with respondents were strictly qualitative in that they report the opinions of informed and experienced individuals.
2. Because of constraints on time, I made no attempt to quantify the degree or extent to which the opinions of the individuals were shared among defined populations of informed persons.

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## **Acknowledgements**

I am grateful to the many individuals and organizations for their willing cooperation with my research and inquiries.

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## Methodology

I employed the following methods, though not necessarily in the order given below.

1. Obtain from the Ontario Ministry of Health and Long-Term Care an authoritative and current summary of its perspectives on self-initiation by dental hygienists of scaling and root planing, and related matters.
2. Infer from the summary the Ministry's requirements.
3. Use the Ministry's requirements as inferred by me to structure my analysis of the Expert Panel Report.
4. Analyze components of the Expert Panel Report pertaining to the Ministry's requirements, and consider sub-topics identified by me.
5. Relative to the components, seek perspectives derived from literature review and interviews with individual respondents, chiefly individuals selected for their
  - (a) clinical expertise
  - (b) day-to-day involvement in oral healthcare and clinical medicine
  - (c) activities in the organization and administration of relevant programs of care through regional public health authorities
  - (d) role in the planning of Local Health Integration Networks
  - (e) familiarity with ministry-level planning priorities
  - (f) mandates to speak for oral healthcare organizations.
6. Add my observations to the salient points that emerge from the analysis.
7. Indicate matters in need of further attention.
8. Suggest an approach to concerns raised in the Expert Panel Report.
9. Collate the observations and compile them into a summary and a statement of opinion.
10. Highlight matters that I believe should be considered in the public interest.

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## Ontario's health Ministry's summary

Following an emailed request, John Letherby<sup>1</sup>, Ontario Ministry of Health and Long-Term Care (January 3, 2007), responded

"This is the gist of what was announced in December as part of the Health System Improvement Bill as relates to dental hygienists:

The Ministry believes that the proposed amendments to the Dental Hygiene Act, 1991 will enhance access to preventative oral health care for patients and promote patient choice in health care providers, while maintaining a high standard of quality of care and safety.

Further work is being done by the College of Dental Hygienists of Ontario and other oral health care stakeholders to determine standards of practice and other conditions under which it would be appropriate for dental hygienists to provide these services independently."

## Ministry requirements I inferred from the gist above

1. Enhance access to preventive oral healthcare for patients
2. Promote patient choice in health care providers
3. Maintain a high standard of quality of care and safety.

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<sup>1</sup> Letherby, John (MOH) [John.Letherby@moh.gov.on.ca]

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## **Analysis of the Expert Panel Report**

My analysis is structured by the Ministry's requirements as inferred by me and as supplemented by sub-topics added by me.

### **Enhance access to preventive oral healthcare for patients**

The Expert Panel referenced the Memorandum of Understanding between The Ontario Dental Hygienists' Association and The Ontario Dental Association dated May 15, 2006, in which the two Associations agreed that

1. further improving access to oral health care for underserved groups will require a multi-pronged approach requiring leadership by the provincial government
2. information [is required] about underserved groups.

### **Socially aware framework**

To describe and quantify the oral healthcare needs of underserved Ontarians, a socially aware framework is required. A socially aware framework recognizes that risks and benefits exist in the social as well as the health domain, and that these all have to be considered in the larger scheme of healthcare things.

The Expert Panel did not provide a socially aware framework.

The social factors expressed within the socially aware framework arise from the overarching challenge to Ontario's public healthcare system: affordability.

- Affordability preoccupies government as the healthcare portion of the provincial operating budget nears half, with an annual growth rate at least twice that of inflation.
- Affordability worries Ontarians collectively as they see government struggling with healthcare's costs continuing to be driven upward by population growth and aging, medication and technology expenditures, and other major factors such as human resource shortages.

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- Affordability concerns individual Ontarians who can obtain certain healthcare services only by paying for them out of their own pockets.
- The foreseeable future apparently holds little hope of the government's substantially increasing publicly funded services for oral healthcare by, for example, bringing more such services within the purview of the Ontario Health Insurance Plan or other publicly funded programs.

The affordability challenge in healthcare comprises—or creates—a set of questions of social justice.

- On what grounds is it reasonable and fair to deny a healthcare service, widely accepted as beneficial to health, to people who cannot afford to pay out of their own pockets, who are not enrolled in private insurance plans, or who do not qualify for publicly funded programs that support such services?
- If for reasons of lack of affordability some Ontarians cannot afford the full services of a dentist, does this mean that under existing arrangements they are denied access to the services of dental hygienists?
- As a matter of social justice, do the arrangements need changing?
- How is the social case for extending dental hygiene services to be reconciled with concerns about the actual or presumed healthcare risks of extensions of such services?

The affordability challenge, with its impact on social justice, is by no means unique to Ontario. Harvard philosopher, Norman Daniels, and his physician colleague, James Sabin, in their seminal work *Setting Limits Fairly*<sup>2</sup> hold that no society, regardless of political structure or economic development, can afford to meet all the demands that its citizens place on its system of healthcare. They conclude that rationing<sup>3</sup> of healthcare—which they prefer to term *setting limits*—is inescapable.

Manifestations of rationing of healthcare with implications for social justice in contemporary Ontario include:

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<sup>2</sup> Daniels, N., & Sabin, J. (2002) *Setting limits fairly: can we learn to share medical resources?* New York: Oxford

<sup>3</sup> Despite its negative connotation, rationing has an honourable history in ensuring that scarce resources, such as food, are shared fairly at times of shortage, emergency or danger

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- Wait lists that may invoke responses by which resources are allocated to arbitrary priorities and as a result consume resources that would otherwise be devoted to other needs.
- Removal of the *medically necessary*<sup>4</sup> designation from services so that these no longer qualify for reimbursement under the Ontario Health Insurance Plan.
- Decisions not to designate new or rearranged patterns of service as *medically necessary*.

In all three instances, the decisions may result in deferral or denial of service for some but not all patients. Those who can afford to pay for such services directly, or indirectly through insurance, can obtain them in a timely manner.

Arguing for fair process in deciding what services should be available to whom and under what conditions, Daniels and Sabin propose *Accountability for Reasonableness*. This expresses the idea that the reasons (a) for important limit-setting decisions should be publicly available, and (b) must be ones that fair-minded people can agree are relevant to the pursuit of appropriate patient care under necessary resource constraint. To increase the precision of accountability for reasonableness, they deduce four conditions.

1. **Publicity condition:** Decisions regarding direct and indirect limits to care and their rationales must be publicly accessible.
2. **Relevance condition:** The rationales for limit-setting decisions should be reasonable because these appeal to evidence, reasons, and principles that are accepted as relevant by fair-minded people disposed to finding mutually justifiable terms of cooperation.
3. **Revision and appeals condition:** Mechanisms must exist for challenge and dispute resolution relative to limit-setting decisions, and provide opportunities for revision and improvement of policies in the light of new evidence or arguments.
4. **Regulative Condition:** There is either voluntary or public regulation of the process overall to ensure that conditions 1 -3 are met.

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<sup>4</sup> In this context, *medically necessary* refers to *insured health services*, which the Canada Health Act defines as “hospital services, physician services and surgical-dental services provided to insured persons, but does not include any health services that a person is entitled to and eligible for under any other Act of Parliament or under any Act of the legislature of a province that relates to workers' or workmen's compensation”. For a discussion of how medically necessary and insured health services relate to each other for the purposes of healthcare in Ontario see Baker, D and Bhabha, F (2004) ‘Universality and Medical Necessity: Statutory and Charter Remedies to Individual Claims to Ontario Health Insurance Funding’, *Health Law Review*, Volume 13, Number 1

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## My observations

*Accountability for reasonableness has been successfully applied in Canada by Sunnybrook & Women's College Hospital<sup>5</sup>, for example, in its special planning process, Strategic Focusing, for which I was a researcher-writer.*

*The Sunnybrook experience convinces me that accountability for reasonableness points to social justice as the focal consideration for addressing the question of improving access to oral healthcare services through self-initiated scaling and root planing by dental hygienists.*

*The Ministry's requirement positions self-initiated scaling and root planing as preventive service.*

*Preventive services, as public policy increasingly emphasizes, are in principle preferable to and less expensive than late-stage restorative or curative services.*

*Sources familiar with government thinking about public healthcare's affordability challenge hold out little hope in the foreseeable future of major or perhaps any increases in public funding for oral healthcare. Given, then, the unavailability of limits to government-funded oral healthcare, social justice calls for efforts to optimize existing services that lie within and outside the scope of publicly funded programs, with the intention of meeting more preventive needs in oral health.*

## Optimization

Optimization involves organizing or reorganizing services with a view to holding down or reducing costs while maintaining quality and safety. Because optimization is an instrument of social justice, accountability for reasonableness is appropriate for the decision-making involved.

Given the apparently low probability of substantial expansion of the Ontario Health Insurance Plan's coverage of oral healthcare services for underserved groups, a reasonable assumption is that relevant actions on the part of government will be limited. On this assumption, social pressures on the oral healthcare professions will increase. Optimization of their services following legislative enablement of self-initiated scaling and root planing would be an effective response in the interests not only of social justice, but also of the oral healthcare professions and their members.

The focal points for optimization are chiefly as follows.

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<sup>5</sup> Now renamed, following reorganization, as Sunnybrook Health Sciences Centre

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1. Services
  - a. Arrangements of services with the aim of holding or reducing costs
  - b. Arrangements of services to enhance access by patients
2. Roles and skill sets of particular categories of healthcare professionals within the arrangements of services.

## **My observations**

*Decisions about optimization should be acceptable to fair-minded people disposed to finding mutually justifiable terms of cooperation relevant to the pursuit of appropriate preventive oral healthcare under necessary resource constraint.*

## **Information required**

To preface a discussion on healthcare needs within the framework of social justice, the importance is self-evident of rigorous epidemiological information—that is, trustworthy data—pertaining to oral healthcare needs segmented on geographic, demographic and socio-economic lines.

The Expert Panel did not provide information that the Memorandum of Understanding identified as required for progress in providing for the oral healthcare needs of Ontarians. Nor, apparently, had significant progress been made by the end of 2006 in assembling such information.

Accordingly, I attempted to review relevant data available from the principal authoritative primary sources of the information required

The Canadian Institute for Health Information  
Ontario's Institute for Clinical and Evaluative Sciences.

My lengthy search of the websites of both organizations produced no data of the nature I sought.

I contacted both organizations directly. They confirmed my impression that this data is unavailable because it is not being collected.

As secondary sources, I also explored the websites of

The Ontario Ministry of Health and Long-Term Care  
The Canadian Public Health Agency.

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Neither of these searches yielded the data I sought. But that of the Canadian Public Health Agency website did reveal information of interest, though it also disclosed a technical problem, see Appendix B, associated with an absence of efficient taxonomy for classifying and organizing diverse information resources in oral healthcare, a topic highlighted in the section on knowledge service, discussed later in this document.

I approached the organizations of Ontario dentistry with a request for interview

Ontario Dental Association  
Royal College of Dental Surgeons of Ontario.

On request, I supplied to both the *discussion outline* for the matters I wished to address, see Appendix C. Both declined interview.

## **My observations**

*I cannot avoid the disappointing impression that oral healthcare is insufficiently supported by research that generates epidemiological data pertaining to oral health needs segmented on geographic, demographic and socio-economic lines within Ontario.*

My next step in the search for information comprised interviews with respondents involved with Local Health Integration Networks and various public-sector programs delivered by public health departments.

From the respondents it is clear that the geographic distribution of the population-specific needs is uneven. It is also apparent that each population group has its own story, so to speak, indicative of insufficiencies in oral health services, preventive or otherwise.

Respondents spoke of immigrants from countries lacking a tradition or culture of dental care who may never have seen a dentist, let alone a dental hygienist, whether in their countries of origin or in Ontario—until some serious dental disorder perhaps of an urgent nature forces them to seek care.

Studies of dental health knowledge in various parts of Asia and the Middle East indicate significant gaps even among university-based populations. For example, Al-Hussaini et al<sup>6</sup>, who studied dental health knowledge, attitudes and behaviour among students at the Kuwait University Health Sciences Centre, found that, although most of the students seemed to be

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<sup>6</sup> Al-Hussaini, R. Al-Kandari, M. Hamadi, T. Al-Mutawa, A. Honkala, S. Memon, A. *Dental health knowledge, attitudes and behaviour among students at the Kuwait University Health Sciences Centre*. Medical Principles & Practice. 12(4):260-5, 2003 Oct-Dec

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satisfied with their dental health, they did not have correct knowledge about the causes and prevention of dental diseases.

Such studies, especially those of less fortunate populations, serve as early warnings of the need for preventive oral healthcare for immigrants to Ontario.

Respondents emphasized the affordability challenge to immigrants. They are commonly out of range of oral healthcare that they must pay for out of their own pockets. They may not be in employment accompanied by dental benefit plans. They may not qualify for existing publicly funded programs.

As a result, many immigrants—it is believed—receive little or no preventive oral healthcare. While data are lacking, it is reasonable to suppose that some, perhaps many, sooner or later present with a health or oral health condition that falls within the scope of the Ontario Health Insurance Plan and which therefore becomes a cost to the public purse, a cost that preventive oral healthcare might have avoided or reduced.

Respondents were aware that, aside from matters of cost, a question of social justice exists already and looms larger as Ontario comes increasingly to depend on immigration for its economic wellbeing.

Seniors resident in long-term care facilities require well-organized preventive oral healthcare. They fare better, commented a respondent, than their compatriots in the community at large with the exception of those supported by life-long dental plans, as for example is the case for some senior public-sector retirees, or they are relatively wealthy.

Respondents stressed that affordability challenges the working poor—“both the adults work at a fast-food outlet”—who, despite the social merit attached to employment, may also fail to qualify for help with oral healthcare, preventive or otherwise.

Some programs offered to children, respondents pointed out, are mandatory. On the whole, these seem to be functioning reasonably well. Some respondents observed, however, that the treatment offered to children through the Children in Need of Treatment (“CINOT”) program may be less extensive than that available to children of parents supported by Ontario Works.

Methadone patients attend methadone maintenance clinics in a program overseen by the Ontario College of Physicians and Surgeons of Ontario. Since taking over from Health Canada in 1996, the College’s program has grown to involve more than 14,000 registered patients and 182 trained physicians.

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Originally designed for people addicted to heroin, the methadone program now also serves increasing numbers of people addicted to prescription opiates.

Methadone allows the patient to function normally without withdrawal symptoms and euphoria. Physicians specializing in methadone treatment compare methadone for opiate addiction to insulin treatment for diabetes.

Addiction illness is seen as putting a major burden on the health-care system. Part of that burden is poor oral health. A physician respondent who runs a methadone clinic said that the clinic population is at significant risk of “dental problems”, which often progress to abscesses. She added that, after stabilization, which is achieved with 80-90 per cent of the methadone-receiving population, most of the patients mention dental problems. The causes of these problems are rooted in complex and unstable interactions of addiction, poverty and methadone itself and its oral administration.

Other programs promote oral health in pregnancy, in connection with diabetes and related factors, and for persons with disabilities, HIV/AIDS, or mental health problems, among other health-related needs.

A respondent with senior planning responsibilities for a Local Health Integration Network acknowledged that its integrated service plan, which all the Networks are required to produce, made no explicit mention of preventive oral healthcare. He commented that, in the just-completed phase of extensive public and provider consultations, oral healthcare needs had not been raised strongly or even at all. Although dentistry is excluded from the scope of the Local Health Integration Networks, he nevertheless perceived preventive oral healthcare as a topic that falls within his Network’s purview. It should, he thought, consider preventive oral healthcare for seniors, palliative care, children, and immigrants. The suggestion that health needs are not being fully met for parts of his Network’s community would, he concluded, create resonances in its decision-making processes.

## **My observations**

*Under existing and foreseeable circumstances, a key to access to preventive oral healthcare is affordability—affordability for individuals, for private insurance plans and public funding sources.*

*If affordability is improved, access will be enhanced.*

*If dental hygienists are enabled by regulation to self-initiate scaling and root planing and if quality of care and safety can be maintained, then considerations of social justice argue for regulatory change to enable self-initiation which, in any case, is a matter already jointly agreed by the Ontario Dental Association and the Ontario Dental Hygienists’ Association. They differ only in some of their stipulations for maintaining quality of care and safety.*

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*The spectrum of need for preventive oral healthcare, as understood by individuals with first-hand knowledge and significant program experience, is such that, even without detailed data, it is reasonable to argue that*

- 1. a move to hold down or reduce costs of preventive oral healthcare through self-initiation by dental hygienists would constitute an advance in social justice*
- 2. any objections to such a move must be sound enough to satisfy the precepts of accountability for reasonableness.*

*Stipulations that are unnecessarily restrictive could well inhibit dental hygienists from seeking to qualify themselves for self-initiation. The effect would be to frustrate the Ministry's requirement for enhancing accessibility to preventive oral healthcare.*

*The key to progress lies in the framing of effective and efficient stipulations for maintaining the quality of care and safety, matters which are examined in some detail later in this document.*

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## Promote patient choice in health care providers

Patient choice is an important consideration because

1. it defies regimentation which, in any sphere of healthcare, is unappealing to patients and providers alike; regimentation may even lead to strained relations among patients, providers and payors
2. it creates market forces pertaining to cost, convenience and comfort
3. it is reflected in report cards, wait-list accountabilities, and similar performance-related disclosures increasingly favoured in healthcare.

Individual respondents agreed that that, in the event of self-initiation for dental hygienists, market forces would help optimize the mix of services dentists and dental hygienists deliver jointly and separately.

### My observations

*Choice for patients relative to dental hygiene services reflects a precept much encouraged in modern healthcare: patients' taking charge of the healthcare-related decisions that affect them individually.*

*Market forces combined with self-initiation seem promising as a way of reducing or holding down the costs of scaling and root planing. Because cost control provides a means to enhance access to preventive oral healthcare, the combination of market forces with self-initiation should be viewed as an appropriate instrument of social justice.*

*A respondent commented that a unit of scaling in Ontario is about \$48.15 compared to \$27.40 in British Columbia, where dental hygienists are permitted by legislation to self-initiate scaling and root planing. It seems that an explanation of the difference is to be found in the British Columbia Dental Association's holding back of increases in fees.*

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## Maintain a high standard of quality of care and safety

### Quality of care

The Expert Panel was required by the Associations and the Regulatory Colleges to assist them in coming to

a common understanding of the current dental hygiene programs for dental hygiene education and to assess whether there is a gap between the current curricula and what would be appropriate in *today's health care environment* related to self-initiation of scaling and root planing [italics added].

Preliminary to analysis of quality of care and safety as well as educational requirements is an overview of today's healthcare environment.

Aside from the pervasive challenge of affordability, today's healthcare environment evidences accelerating change. While aspects of the change reflect government responses to the affordability challenge, other forces also operate powerfully. These include

1. evidence-based care and best practices
2. health promotion, preventive healthcare and public health
3. collaborative care and service integration
4. emphasis on the value of experience in building and maintaining clinical skills.

### Evidence-based care and best practices

Among the most powerful of the forces pressuring change on healthcare is the importance attached to evidence-based care and best practices in the delivery of care. 'Evidence' is usually taken to mean rigorous, independent studies published in indexed, refereed journals.

Increasingly, such evidence is seen as crucial in guiding public policy as well as clinical practice.

Once the evidence base is built and the best practices are defined, performance monitoring follows.

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## **My observations**

*An example of performance monitoring is seen in long-term care. This draws on non-public as well as public funding, which supports preventive oral healthcare, among many other things.*

*The Ministry carries oversight responsibilities for long-term care facilities. It relies increasingly on a technique of knowledge service, the 'Minimum Data Set Resident Assessment Instrument', which the facilities are required to compile and submit to the Ministry.*

*Dental hygienists engaged in self-initiation of scaling and root planing and supported by knowledge service could assist long-term care facilities in complying with the Ministry's care and reporting requirements relative to preventive oral health.*

## **Preventive healthcare, health promotion and public health**

Preventive healthcare, health promotion and public health emphasize that healthiness can be enhanced through appropriate and focused services, and that prevention of disease and minimization of disability can be achieved with interventions triggered by early detection.

Preventive healthcare, health promotion and public health embrace clinical activities, such as examination and self-examination, immunization, laboratory testing and diagnostic imaging, all aimed at significant diseases whose prognosis can be improved or whose risks to other persons can be mitigated if the diseases are detected early enough.

Scaling and root planing is a clinical activity which respondents aligned with the preventive sphere of healthcare.

## **My observations**

*Dental hygienists offering self-initiation of scaling and root planing could provide a cost-efficient stage of early detection and triage as well as prevention, provided that they are supported by knowledge service, discussed in a later section of this document.*

*Strengthening the orientation of dental hygienists in preventive healthcare, health promotion and public health requires appropriate education and training in knowledge service.*

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## **Collaborative care and service integration**

“Collaborative care” describes team-work in clinical activities. It is a high policy priority because, in part, the government sees it as the arrangement most conducive to effectiveness and efficiency in healthcare delivery. Notwithstanding the criticisms of one respondent—that it does not always work as well in practice as the theory predicts and that it requires a collaborative mindset on the part of administrators and participating clinicians—it seems likely to become the principal organizational structure for community-based healthcare in Ontario.

Integration of healthcare services, another high priority for the government, is manifested in Ontario’s Local Health Integration Networks, among other important initiatives.

### **My observations**

*Collaborative care reflects a professional culture that has the greatest chance of thriving if*

1. *the organizations of the professions explicitly nurture it*
2. *its challenges are understood and respected by administrators*
3. *market forces are encouraged to operate among professionals practicing in the community.*

## **Emphasis on the value of experience in building and maintaining clinical skills**

Convincing evidence exists in various spheres of healthcare that safety *and* effectiveness *and* efficiency correlate closely with the frequency with which a healthcare professional performs a procedure that calls for dexterity, experience-based pattern recognition and judgment, as well as continually updated subject-area knowledge.

### **My observations**

*A strong case exists for positioning dental hygienists as practitioners highly skilled in scaling and root planing by virtue of specialization and frequency of performance. Doing so would help focus the standards of practice required of dental hygienists.*

*This positioning highlights the importance of progressive, experienced-based professional development of dental hygienists founded on education pervaded by the*

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*concept of skilled practitioner akin to that of technician<sup>7</sup> in certain non-healthcare sectors.*

*Within and exterior to healthcare, increasing reliance is placed on technicians trained and practiced in work requiring experience, dexterity, pattern recognition, focused understanding of procedures and practices, continuous updating of knowledge, and consistency and reliability.*

*'Practitioner with advanced practical skills' is an appropriate conceptual basis for*

- 1. assuring safety, efficiency and effectiveness in performing self-initiated scaling and root planing*
- 2. informing the education and training of dental hygienists for self-initiated scaling.*

## Safety

The Expert Panel

agreed that scaling and root planing involve inherent risk; and that the risk is patient specific and increases with increased orodental disease and other medical factors.

Though the Expert Panel Report makes much of *risk*, it does not offer a definition, with the result that *safety*, on which it also relies for foundational positions, is implicitly rather than explicitly understood and, more important, insufficiently related to the broader sweeps of risk and safety in healthcare.

Over the past century, healthcare evolved three core principles for approaching risk, which abounds in healthcare. These principles hold that, from its earliest inklings, a risk should be *researched, acknowledged* and *confronted*.

The principles speak to the continuing requirement of healthcare to gain and maintain trust on the part of the public and therefore patients.

The principles reflect healthcare's understanding, at times hard-won, that inattention, prevarication and inaction jeopardize public, patient and provider trust, healthcare's most important asset.

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<sup>7</sup> Technician as a calling, status and role has a proud history not only within, but also exterior to healthcare. In aviation, for example, from the earliest times, a pilot was and continues to be required to visually inspect the exterior of the aircraft before flying it. This applies to even the largest of today's passenger aircraft. Also involved from the earliest days in the crucial work of pre-flight inspection, checks and adjustments are personnel in the technician role. The pilot and the technician hold each other in high respect, especially in professional and military flying, for their practical skills.

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Appendix D presents two topical examples of risk in healthcare, *radioactivity* and *electronic health records*, each with pointers for contemporary preventive oral healthcare.

As foundation for its position on safety, the Expert Panel explored requirements for

prescribing the requirements setting out the *contraindications* in which members may not perform or continue to perform the procedures of scaling teeth and root planing including curetting surrounding tissue on a self-initiation basis [italics added].

The Expert Panel Report presents a list of contraindications, shown at Appendix E.

The Expert Panel Report relies on the contraindications as placeholders or proxies for operational definitions of safety. The contraindications consist chiefly of catch-alls and non-specific requirements. As such, the requirements possess the potential for confusion. Some of the calls for clinical judgment may fall outside the scope of practice of dentists as well as dental hygienists.

The Expert Panel Report acknowledges that the list is preliminary and that it requires further investigation and validation before it could be widely accepted. As may also have been recognized by the Expert Panel, it illustrates the policy disadvantage of lists enshrined in legislation.

The consequence, however unintentional, of legislative enshrinement is that only those things listed are definite and explicit contraindications with the corollary that things unlisted are not or may not be contraindications, a perceptual problem for which catch-alls may fail to provide an adequate solution.

Lists embedded in legislation and documentation linked to the lists are subject to update cycles which may be too slow for fast-developing situations in healthcare, such as infectious disease in a phase of rapid spreading<sup>8</sup>.

A particular example of the disadvantage of enshrinement is the omission from the Expert Panel Report's list of *the post-operative phase of joint replacement*, during which orthopaedic surgical guidelines and dental guidelines call for antibiotic cover for scaling and root planing<sup>9</sup>. Appendix F sets out guidelines in the form of advice to patients.

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<sup>8</sup> In a pandemic, dental hygienists would be drawn into healthcare's front-lines and would require effective knowledge service, along with all the other front-line healthcare workers

<sup>9</sup> The current, authoritative reference is Orthopedic Knowledge Update, Hip and Knee Reconstruction, 3, American Academy of Orthopedic Surgeons, Rosemont IL, 2006, at p 213

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Dated 2002, these were jointly prepared by the American Dental Association and the American Academy of Orthopaedic Surgeons, and were reflected in Canada<sup>10</sup>.

While in theory the orthopaedic safety requirement could be captured by the catch-all contraindication 1 (b) ‘*any other condition for which antibiotic prophylaxis is recommended or required*’, see Appendix E, this could in the orthopaedic context be criticized as too imprecise. The omission could also create doubts among dental hygienists who, as respondents, demonstrated at interview sound knowledge of the importance of getting appropriate, specialist advice about the post-operative phase of joint replacement.

One respondent, a gerontologist, commented that patients are admitted to hospital for surgery to make them more mobile and not to see them confined to a hospital bed “writhing in agony”.

An alternative exists to the approach of contraindications. I discuss it in the section on knowledge service for dental hygienists.

## Educational Requirements

Educational requirements for dental hygienists divide as follows.

1. Education and training
  - a. Generally
  - b. Specifically for qualifying for self-initiation of scaling and root planing
2. Maintaining quality of care and safety.

### The Expert Panel

focused much of its review and discussion on the knowledge and skills required of a dental hygienist in order for the dental hygienist to assess a patient’s general and oral health prior to initiating scaling and root planing.

In its summary of the Briefs presented to it, the Expert Panel stated as principles that

- (a) [Scaling and root planing] is an invasive procedure that has risk. There is some risk for all but the level of risk increases as a reflection of the patient’s medical and dental status. There are definite and relative contraindications to [scaling and root planing].

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<sup>10</sup> For example, “New ADA Advisory Statement on Antibiotic Prophylaxis for Dental Patients with Total Joint Replacements”, Royal College of Dental Surgeons of Ontario, Dispatch, Vol. 18, No. 1, January/February 2004

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- (b) Dental education is based on the comprehensive care principle. This process, modified as needed, most frequently relies on a full oral examination, history, diagnosis, treatment plan and informed consent. Dentists are obligated to present this treatment plan with all available options regardless whether the patient agrees to the details of the plan.
- (c) Patients must be able to provide full informed consent and must be apprised of the risk and benefit of [scaling and root planing] as it relates to their complete oral and general health through the consent process, and of other available treatment options.
- (d) Patient evaluation and, in particular evaluation of undiagnosed patients, is a matter of both knowledge and judgment. Currently [dental hygienists] lack the foundation science and experience to be primary care contacts.
- (e) Vocational training, as opposed to professional education in a University, is unable to provide the intensity of foundation science, in-depth clinical judgment and interdisciplinary experience needed to be responsible for primary care.
- (f) The credentials of [dental hygiene] educators may be sufficient for vocational training. They have in general insufficient training and discipline-specific expertise to provide the foundation science and judgment necessary for self-initiation.
- (g) An innovative model for advanced training is required.

## My observations

*The additional educational requirements identified in the Report as necessary preparation for dental hygienists to self-initiate scaling and root planing seem overly demanding from several perspectives and may thus act as an unreasonable and unnecessary obstacle to the expansion of access to preventive oral healthcare provided by self-initiating dental hygienists and thereby, however unintentionally, obstruct social justice and impede the Ministry's requirement.*

*Acceptance of principle (g), an innovative model for advanced training, would provide an opportunity to position dental hygienists as practitioners of a practical skill. If 'vocational' can be taken to imply the principal characteristics of the practitioner of a practical skill, then principles (a) through (f) above remain internally consistent.*

*Given consistency within the principles, an innovative model for an appropriate program for education, training and experience-building for dental hygienists could be informed by and infused with the concept of practitioner with advanced practical skills.*

*Among several advantages would be a more focused and possibly safer approach to the education of dental hygienists. The approach would emphasize (a) the progressive*

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*development of dental hygienists as skilled practitioners and (b) the use of knowledge service to keep them up to date on what they need to know and to be able to recognize.*

*The educational objective of the clinical safety component of dental hygiene education would be to enable dental hygienists to recognize deviations which reach beyond their scope of practice. To recognize such deviations, the fundamental skill is to be able to reliably recognize circumstances which fall within the scope of practice.*

*On recognition of a deviation, the dental hygienist would encourage the patient to consult with an appropriate healthcare professional. This of course speaks to the standard of practice expected across the breadth and throughout the depth of healthcare.*

*The dental hygienist's education and training would be focused on giving him/her a continuously reliable comfort level beyond which s/he recognizes that further advice is required for the patient.*

*Recognizing that the advice is required by first intention for the patient is consistent with the modern concepts of patient-centered care and of patients' taking greater responsibility for their own healthcare decisions. It is also consistent with the professional responsibility to know when to refer to more specialized practitioners. And it is not inconsistent with the need for effective communication among healthcare professionals involved in a circle of care.*

## **Competencies**

The Expert Panel explored nine competencies of which the following eight speak to activities of a clinical nature.

- 1. Collect and interpret medical and oral health histories data for the purpose of identifying those patients for whom the initiation or continuation of scaling and root planing is contraindicated.**

### **My observations**

*Account is required of the complexities that may be involved in the interpretation of medical histories with a view to guiding dental hygienists relative to the degree of detail of the information that they are expected to collect, and relative to the extent to which they are required to interpret it.*

*Knowledge service would enable and facilitate this competence.*

- 2. Consult a physician or dentist to discuss findings of the medical or oral histories or clinical examinations when the appropriateness of self-initiating or continuing scaling/root planing is in question.**

### **My observations**

*With the increasing concerns about privacy, confidentiality and security of personal health information more physicians may be unwilling to discuss the*

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*patient's medical history with a dental hygienist without formal, informed consent by the patient.*

*Account must be taken of the considerable time pressures on primary care and all physicians in Ontario.*

- 3. Assess extraoral and intraoral soft and hard tissues to identify presence of oral diseases/pathology requiring consultation or referral to a dentist.**

## **My observations**

*Knowledge service would enable and facilitate this competence.*

- 4. Identify clients at risk for medical emergencies and employ strategies to prevent such emergencies.**
- 5. Respond to medical emergencies appropriately.**

## **My observations**

*Much depends on what is meant by 'medical emergencies' and 'strategies'. Any professional practice outside a multidisciplinary environment calls for competence in what is commonly referred to as first aid. For example, would self-initiating dental hygienists be expected to possess competence in, keep up to date on, and be equipped for CPR, defibrillation and other advanced emergency procedures and equipment?*

- 6. Obtain informed consent for the dental hygiene care plan.**
- 7. Revise the dental hygiene care plan when necessary (e.g. based on changes to the medical history, input of client, relevant others, or information gained during implementation or evaluation).**

## **My observations**

*Examination is required of the assumptions embodied in requirements to interpret medical histories: in how much detail is the dental hygienist expected to explore medical and oral health history and to draw conclusions from it?*

*Knowledge service would enable and facilitate this competence.*

- 8. Evaluate outcomes of scaling and root planing and plan for additional treatment or referral to dentist or periodontist, as required.**

## **My observations**

*Knowledge service would enable and facilitate this competence.*

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## ***Research***

A competence not considered in the Expert Panel Report is research. As shown above, Ontario lacks the rigorous preventive oral healthcare data needed to support the evolution of clinical practice, for policy making, for formulation of best practices and evidence-based care, and for monitoring of performance.

Gathering reliable data requires not only personnel trained in research, but also sources of empirical data, qualitative and quantitative, as the raw material of research.

Dental hygienists need, at the very least, basic education and training in methods of clinical data-gathering and mitigation of its risks to the security and privacy of patients.

An example of a successful research initiative involving practicing dental hygienists is reported by Lawlor<sup>11</sup>. Titled *A practice reality survey*, it was conducted by *Ontario Voices For Oral Health* in 2006. It involved questionnaires distributed to the Hamilton & District Dental Hygienists' Society Professional Development Seminar, in Hamilton, with 152 respondents, and to the Halton-Peel Dental Hygienists' Society meeting, in Mississauga, with 74 respondents, and an e-mail survey of members of the Ottawa Dental Hygienists' Society, with 39 respondents.

## **My observations**

*Given the need to encourage the growth of research in preventive oral healthcare, another application of research should be encouraged as a focus for dental hygienists: the opportunity to obtain post-graduate degrees through research, as one means of enhancing the research competence and therefore the status of the profession as a whole.*

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<sup>11</sup> Lawlor, Sandy (2007) Personal communication

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## Knowledge service for dental hygienists

Knowledge service already supports dental hygiene. To reflect trends in healthcare generally, dental hygiene's use and reliance on it should be developed further with a particular focus on maintaining and enhancing quality and safety of dental hygienists' services.

What is knowledge service?

In *Blink*, Malcolm Gladwell<sup>12</sup> describes *thin slicing*, whereby the brain rapidly assembles first impressions. When supported by experience and training, thin slicing can produce remarkably accurate assessments of people, things, and situations. Thick slicing—detailed and painstaking examination of everything that is known about something—doesn't necessarily improve assessment and may even create error. Citing as examples emergency-room cardiologists' assessments of suspected myocardial infarction, he stresses *information frugality*—providing the four or five pieces of crucial knowledge on which decisions critically depend.

Information frugality benefits all front-line healthcare professionals who—as even governments now recognize—cannot be expected to carry in their heads all they need to know to safely and effectively provide the services expected of them, let alone keep abreast of rapidly developing knowledge<sup>13</sup>. Through effective use of technology, knowledge service supports information frugality for the front-line healthcare professionals' imperative: *give me now what I now need to know*. And it benefits patients, too, by meeting their knowledge needs, which also can be pressing.

Knowledge-service technology presents two vertical columns to the screen. The thinner, left one holds an index, much like the index of a book. Clicking a title in the index brings the document to the right-hand column. Or not a document but another index for clicking into.

This mode of presentation emphasizes the simplicity of point-and-click: *show it me exactly, right now*. It replaces the complexities of search strings, keywords, and Boolean operators, the stuff of literary databases which serve so well the imperative of the researcher: *get me everything and leave me to judge the relevance*.

The value of knowledge service depends on the organization of the index. But indexing done automatically by the computer doesn't suffice. What's needed is something more advanced: taxonomy.

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<sup>12</sup> Gladwell, Malcolm. (2005) *Blink: the power of thinking without thinking*. New York: Little, Brown and Company

<sup>13</sup> Soon, Ontario physicians may face quinquennial revalidation of their knowledge

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Designing taxonomy involves human intelligence, experience, and expertise focused on *user need, context, and content*. One day, neural nets and other advanced computing concepts may have advanced sufficiently to be assigned this work. Until then, taxonomy design will remain a challenge for human intelligence and therefore for oral healthcare professionals.

The principal or perhaps only exceptions to the need for knowledge service based on information-frugal taxonomy occur when students are learning the art and science of organization of knowledge and when researchers are exploring unorganized information resources. In most if not all other circumstances, information-frugal knowledge service is fundamental to the maintenance and enhancement of quality and safety in dental hygiene and, for that matter, healthcare as a whole. The table shows a preliminary framework for the development and application of knowledge service in dental hygiene.

**Table: Framework for Knowledge Service**

1. Supporting education and training for
  - a. Newcomers to the profession
  - b. Practicing members of the profession
2. Maintaining and enhancing quality and safety of services by
  - a. Continuous updating of practicing professionals on practice-relevant matters
  - b. Periodic updating of education and training programs
  - c. Supporting distance learning and related educational methods and technologies
  - d. Disseminating practice-relevant knowledge
    - i. From research
    - ii. On best practices
    - iii. Arising from law and policy
      1. Safety-oriented legislation, policy, procedures and guidelines
      2. Practice-oriented legislation, policy, procedures and guidelines
    - iv. For patients and colleague professionals
  - e. Collecting data for evidence-seeking research for development of
    - i. Best practices
    - ii. Protocols, decision trees and algorithms
    - iii. Indices surveys, such as those for
      1. Children
      2. Seniors
    - iv. Calibration as a technique for standardizing skills of professionals
3. Strengthening provisions governing quality and safety of services
  - a. Validation and revalidation of professionals
  - b. Calibration of professionals
  - c. Safety-oriented legislation, policy, procedures and guidelines
4. Employing specialized techniques assisted by computers, such as
  - a. e-Learning
  - b. e-Reporting
  - c. Anonymous resolution of data collected in computer-based, on-going studies designed to protect the privacy and safeguard security of patient data

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Full discussion of knowledge service through all its applications, techniques and technologies would be out of place in the present document. Instead, I enlarge on components of particular relevance to the maintenance of quality and safety of scaling and root planing provided by dental hygienists, as follows.

1. Protocols to inform dental hygienists' oral and general health assessments.
2. Innovative use of knowledge-service components such as extensions of existing dental indices surveys for children and seniors, and calibration techniques.
3. Knowledge service continually updated for front-line dental hygiene practitioners.
4. Knowledge service continually updated for the patients of front-line dental hygiene practitioners and for other healthcare professionals.
5. Organization of collective research among dental hygienists.

## Protocols

The three terms, protocols, decision trees and algorithms<sup>14</sup>, often refer to the same thing: a type of questionnaire structured to lead the user to an end point, such as an item of advice or an instruction for action.

One example of the established use of protocols is telehealth which, according to a respondent, already see some use in dental hygiene.

Telehealth is provided by an Ontario government service, Telehealth Ontario, a confidential telephone service which provides telephone callers with health advice or general health information from a registered nurse.

The Ministry's description of the service states that the nurse

can assess your symptoms and help you decide your best first step. We can help you decide whether to care for yourself, make an appointment with your doctor, go to a clinic, contact a community service or go to a hospital emergency room.

Because the communication is solely by telephone call, the nurse is reliant on answers provided by the caller in response to questions s/he poses.

Telehealth Ontario, as is the practice for nurse call-lines generally, uses a protocol approach.

The intent is to enable the nurse to pursue with the patient a line of inquiry determined by the sequence of responses from the patient. S/he follows the line of questioning until the stream

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<sup>14</sup> Akin in principle to *treeview* and *if/then* of computer programming

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of questions and answers leads to a recommendation for further action or specific advice. The line of questioning is equivalent to taking a structured medical history.

Because the protocol is computer-based and supported by modern methods of information management, it can be updated in short order so the nurse is always working with the most up-to-date version of relevant knowledge in structured form.

A continually updated protocol or set of protocols, which would be continuously available from a secure dental hygiene website, offers a useful model for dental hygiene because the patient's history, which must always be taken, will often be the primary source of significant information for the dental hygienist.

## **Innovative use of knowledge service components such as extensions of existing dental indices surveys for children and seniors, and calibration techniques**

Respondents described the effective way dental indices surveys are used by dental hygienists for assessing children in connection with the Children in Need of Treatment (CINOT) program. In one public health department, the method was adapted for use by dental hygienists in assessing seniors.

Through a process known as calibration, dental hygienists are assessed in groups for their consistency in making observations and recording them in dental indices surveys.

Dental indices surveys and calibration, which support and assess dental hygienists' capabilities for recognizing deviations in oral health could be developed, according to the picture obtained from respondents, for use with and by dental hygienists who are in practice or who are undertaking professional development for self-initiated scaling and root planing.

## **Knowledge service continually updated for front-line dental hygiene practitioners**

While healthcare has always depended on knowledge and information, the role of these two interlinked constructs is now growing in prominence and promise because the knowledge on which healthcare must rely expands with accelerating rapidity, and because information technology is increasingly useful for serving the knowledge needs of front-line healthcare professionals.

Knowledge service is used in healthcare to organize and structure information to make it accessible to users of information, to support knowledge needs of professionals and their education and training, and to underpin and disseminate research. It embraces technologies such as knowledge bases, which are widely used in information technology and computing, and for e-learning and distance educational and training tools.

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Knowledge service brings to subject-area specializations the capabilities of computer science to assist subject-area specialists in the organization of information. An outstanding example is SNOMED, the Standardized Nomenclature of Medicine, developed by the College of American Pathologists<sup>15</sup>. Used principally to provide structure to clinical data, qualitative and quantitative, it employs advanced constructs such as multi-axial classification.

An example of the knowledge service concept in support of practicing healthcare professionals and patients is the UK's National electronic Library for Health<sup>16</sup>, which is working to develop a 'digital library' for National Health Service staff, patients and the public.

The digital library is founded on the eminently reasonable assertion that, in today's healthcare, no one can carry in the head everything that must be known to do his/her job safely, effectively and efficiently.

The Ontario Medical Association is attempting to provide knowledge service to member physicians through its arm, OntarioMD.ca.<sup>17</sup>

The Ontario government favours knowledge service, as is clear from the work of the Ministry of Health and Long-Term care's Health Results Team, led by Dr Adalsteinn Brown, who at the time was Information Management Lead. Under the heading, *Sharing Knowledge and Optimizing the Use of Quality and Accurate Data*, he wrote<sup>18</sup> of a new initiative to create

a repository of practices that health care providers across the system can draw on for ideas on how to improve integration, health human resources, process redesign, quality and patient safety and information management within their organizations. This Health Care Improvement Practices Registry creates a tangible mechanism to applaud, track and record the successes in health care from which we can all learn and benefit.

The Ontario Dental Hygienists' Association and the Canadian Dental Hygienists Association, among others, provide knowledge service of clinical value to their members.

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<sup>15</sup> <http://www.snomed.org/>

<sup>16</sup> <http://www.nelh.nhs.uk/>

<sup>17</sup> <http://www.ontariomd.com/en/services/ontariomd.jsp>

<sup>18</sup> Update: Health Results Team, Information Management, Ontario Ministry of Health and Long-Term Care, October 2006

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## **Knowledge service continually updated for the patients of front-line dental hygiene practitioners**

Appendix F contains advice to patients from the website of the American Academy of Orthopaedic Surgeons. Clear, explicit and structured, this advice sheet exemplifies knowledge service to patients.

An advice sheet like this, even as it stands, serves knowledge needs of healthcare professionals outside the field of orthopedic surgery. With only a little development it could become a protocol and a component of front-line knowledge service for dental hygienists. It could also provide a framework for reporting of securely anonymized patient data used for research to advance knowledge of preventive oral healthcare.

## **Organization of collective research among dental hygienists**

Project-based research, in which data collection and analysis occur over a limited period of observation and inquiry, is increasingly supplemented by on-going studies made possible by the growing use of computerized raw data. More and more, the raw data is collected in the front-lines of healthcare by healthcare's professionals from their patient encounters. The front-line professionals become the front line of research.

Computer-based, on-going studies offer significant research benefits but they also pose serious risk of intrusions on privacy, threats to security, and compromise and corruption of individual patient's data, see *Electronic Health Records*, Appendix D. As I suggested in relation to education and training, dental hygienists need at the very least basic education and training in methods of clinical data-gathering and mitigation of its risks.

The overwhelming argument for research is that the trust of the public, patients and providers in the quality and safety of care offered by the healthcare profession of dental hygiene depends on the calibre of the researchers it supports and of the research it produces into risks and benefits.

## **My observations**

Together, a protocol-based approach and knowledge service offer a continuing means for maintaining the quality and safety of scaling and root planing and of dental hygiene generally, and a preferable alternative to enshrining contraindications in legislation, provided that the following conditions are met

1. dental hygienists are trained in the skilled use of knowledge service and are required professionally to keep themselves up to date by such means

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2. the organizations of oral healthcare, using advanced methods, undertake the responsibilities for designing, implementing and keeping up to date the protocols and knowledge service required by dental hygienists
3. the organizations of oral healthcare agree to contribute the protocols and knowledge to knowledge services such as the Ontario ministry's repository of practices, among other sectors of healthcare<sup>19</sup>.

Other factors that should also be considered in relation to the development of knowledge service include those mentioned elsewhere in this document, as follows.

1. Lack of efficient taxonomy is a marker of the insufficiency of preventive oral healthcare research.
2. Knowledge service, a fundamental need in today's healthcare, depends critically on practicable, dynamic, use- and user-focused taxonomy.
3. Generating taxonomy to structure knowledge of any complexity is primarily the responsibility of subject-area specialists, though information and computer scientists also are instrumental.
4. Providing knowledge service to patients and other professionals, using structured, explicit and clear information, is a responsibility for the professions of oral health.

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<sup>19</sup> No privacy and confidential concerns arise because knowledge service involves no individually identifiable personal health information; there are, however, security concerns that would need to be addressed

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## Summary: How self-initiation supports the Ministry's requirements

<b>Ministry requirement</b>	<b>How self-initiation by dental hygienists meets the Ministry requirement</b>
Enhance access to preventive oral healthcare for patients	By increasing access by patients to scaling and root planing, a preventive service, through reduction in or holding down of costs to patients themselves, to private insurers, and to publicly funded programs
Promote patient choice in health care providers	By market forces that <ul style="list-style-type: none"><li>○ position cost, convenience and comfort as drivers for patient choice that develop when dental hygienists enter independent practice from which they offer scaling and root planing</li><li>○ encourage dentists and dental hygienists to join together in establishing practice arrangements that cater to patient choice</li><li>○ influence patients in taking charge of the healthcare-related decisions that affect them individually</li></ul>
Maintain a high standard of quality of care and safety	By innovation through <ul style="list-style-type: none"><li>○ additional, progressive, and experience-based education and training that reflects dental hygiene as the practice of practitioners skilled in scaling and root planing, among other procedures of prevention</li><li>○ support of dental hygienists with on-line knowledge service</li></ul>

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## Dr Gordon Atherley's Opinion

In my opinion:

1. The overarching consideration for preventive oral healthcare should be social justice because it
  - (a) respects the principles that underpin Canada's system of public healthcare while recognizing that innovation is required to meet in a reasonable and accountable manner the needs of underserved groups
  - (b) invites optimization of patterns of services with the intent of increasing access to oral healthcare
  - (c) recognizes that optimization must not compromise quality of care or patient or provider safety or wellbeing.
2. Optimization of the role of dental hygienists in preventive oral healthcare involves
  - (a) using their services to reduce or hold down the costs of oral healthcare services but not at the expense of quality or safety of care
  - (b) researching, acknowledging and confronting the risks of preventive oral healthcare generally, and scaling and root planing in particular
  - (c) defining, monitoring and promoting the benefits of preventive oral healthcare generally, and scaling and root planing in particular
  - (d) overcoming and discouraging the erection of unnecessarily restrictive barriers to their professional practice
  - (e) harnessing market forces in a disciplined manner
  - (f) sharing respect among self-employed dentists and dental hygienists.
3. Relative to self-initiation of scaling and planing by dental hygienists, optimization while maintaining quality and safety of patient care can be achieved through requirements for

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- (a) satisfactory completion of a progressive, evidence-based, peer-supervised program tightly linked to task-specific, role-sensitive educational and training objectives that include facility in the use of knowledge service
  - (b) periodic re-validation based on current knowledge and evidence-based practice
  - (c) as a preferred alternative to enshrining in legislation contraindications to self-initiation, authoritative direction for reliance on knowledge service as the driver for risk mitigation
  - (d) reasonable and fair performance monitoring for the purposes of accountability and maintenance of public trust.
4. The dental hygienists' role in the broader advance of preventive oral healthcare within the social justice perspective can be facilitated by
- (a) encouragement of university dental faculties to open their courses to experienced dental hygienists to enable them to change career paths
  - (b) development and continual updating of the knowledge service that will be required to support initially those dental hygienists on the path to self-initiation and eventually support all dental hygienists throughout their careers
  - (c) emphasis on rigorous research aimed at building and keeping updated the evidence base on preventive oral healthcare and the health benefits, the risks to patients, and the practice and outcomes of dental hygiene through
    - i. formal or academic research, with provision for individual efforts to lead to post-graduate qualifications
    - ii. project-based studies on particular topics, with provision for individual efforts to lead to post-graduate qualifications
    - iii. on-going monitoring of practice and outcomes, with full privacy and security protection to enable sharing of fully anonymized and aggregated data with government and quasi-government data collection agencies.

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5. The College of Dental Hygienists of Ontario should address the following web-based knowledge service developments initially with intense focus on scaling and root planing, and on the risk factors identified or implied in the contraindications listed in the Expert Panel report.
  - (a) Continually updated, evidence-based protocols to inform dental hygienists' oral assessments.
  - (b) Innovative use of knowledge service components such as extensions of existing dental indices surveys for children and seniors, and calibration techniques, to underpin ongoing support for practicing dental hygienists and performance monitoring of all scaling and root planing by dental hygienists, self-initiated or not.
  - (c) Knowledge service continually updated for front-line dental hygiene practitioners.
  - (d) Knowledge service continually updated for the patients of front-line dental hygiene practitioners, and for other healthcare professionals.
  - (e) Organization of collective research among dental hygienists who would use anonymized data collected in a manner that protects patients' data security and privacy to help build the currently inadequate evidence base for oral preventive healthcare and to support the updating of the protocols and knowledge services used in dental hygiene practice.

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## Appendix A: Background of Dr Gordon Atherley

Gordon Atherley holds the British equivalent of the Canadian PhD and MD degrees, and LLD, Honoris Causa, from Canada's Simon Fraser University. His awards include Officer (Brother) of the Most Venerable Order of The Hospital of St John of Jerusalem, and Fellow of the Royal Society of Arts, UK. His medical specialties are occupational medicine and public health. He is retired from medical practice.

Through Greyhead Associates, of which he is Principal, he provides

- (a) services as researcher-analyst focused on complex problems on the interface of healthcare, its professionals, and electronic information systems for healthcare; one such problem is identity abuse
- (b) expertise in knowledge service and systems involving knowledge bases and knowledge centres for healthcare.

He was first President and Chief Executive Officer (rank of Deputy Minister) of the Canadian Centre for Occupational Health and Safety (CCOHS), the Canadian equivalent of the US National Institute of Occupational Safety and Health (NIOSH).

CCOHS is a federal crown corporation. With its 39-member Board of Governors representing governments, employers and labour in all regions of Canada, during his ten-year tenure he led the creation of Canada's electronic information service in occupational health and safety, and negotiated a ground-breaking information exchange with NIOSH. Knowledge service from CCOHS is now used in some 40 countries.

In academia, he has held senior, tenured, full-time positions, including chair, in university faculties of physics, engineering, and medicine. In Canada, he was professor, occupational medicine, at the University of Toronto. He is the author of a textbook and has 50 referred publications in indexed journals.

He is a life member of the Canadian Medical Association and the Ontario Medical Association.

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## Appendix B: Problem, Canadian Public Health Agency's search engine

The Agency's search engine uses string-text-based searching which, even when fully functional, suffers from limitations. With the text-string search "dental care" and regardless of the *operator* chosen the agency's search engine reported:

**Your search found 31 pages.**

Word count: dental (7843), care (216581)

Such a high number of "hits" spread across 31 pages is unhelpful. The problem arises because the search engine is not combining the two words into a single phrase, "dental care".

While the explanation seems straightforward—the search engines query was unable to insert the "AND" operator between "dental" and "care"—the consequence is impediment of searches.

The same type of problem was detected with other multi-word strings, such as "dental hygiene".

The wider problem, apparent on the website, is the lack of an efficient taxonomy for classifying and organizing diverse information resources.

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## Appendix C: Discussion outline proposed for interviews with the Ontario Dental Association and the Royal College of Dental Surgeons of Ontario

- o Both organizations declined to be interviewed after seeing the discussion outline.

### Resources

1. Email from John Letherby, Ontario Ministry of Health and Long-Term Care (January 3, 2007)

“This is the gist of what was announced in December as part of the Health System Improvement Bill as relates to dental hygienists:

The Ministry believes that the proposed amendments to the Dental Hygiene Act, 1991 will enhance access to preventative oral health care for patients and promote patient choice in health care providers, while maintaining a high standard of quality of care and safety.

Further work is being done by the College of Dental Hygienists of Ontario and other oral health care stakeholders to determine standards of practice and other conditions under which it would be appropriate for dental hygienists to provide these services independently.”

2. Report of an Expert Panel on the education of dental hygienists for self-initiation of the controlled acts of scaling and root planing in Ontario (October 10, 2006)

### Questions

1. *Letherby’s summary of the OMOHLTC’s position*

The summary—Does it cover all the issues that concern [...]? If not, what’s missing?

2. *Access to preventative oral health care*

- a. Research and information gathering—The Expert Panel Report’s Appendix 1 (Memorandum of Understanding Between The Ontario Dental Hygienists’ Association and The Ontario Dental Association May 15, 2006) identifies a requirement for information about underserved groups including identification of these groups, statistical information pertaining to them, and barriers to their care. As far as [...] is aware, what research or information-gathering has been done and what in outline are the findings and outcomes to date?

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- b. Underserved groups—Which of the underserved groups do you see in the foreseeable future posing the greatest challenge to Ontario’s public healthcare system, and why? How does [...] see these needs being met and with what financial implications for public funds?

### 3. *Quality of care and safety*

- a. Contraindications—Why do the Colleges and the Associations favour the inclusion of *contraindications* within the regulatory framework, and what mechanisms are proposed for keeping these continuously aligned with developing evidence-based medicine and knowledge in relevant spheres? Is there anything significant missing from the list of contraindications given in the Expert Panel Report?

- b. Educational requirements—The Expert Panel recommends

One additional year at post-diploma level in a university-based program that emphasizes oral health sciences, such as oral medicine and oral pathology courses with dental and/or medical students, and includes a clinical component in an inter-professional collaborative setting associated with a university.

- i. Am I correctly informed that (a) the existing dental hygiene education in Ontario is very similar in key respects to that provided in British Columbia and Alberta and (b) that in both the latter two provinces, dental hygienist are permitted to self-initiate?
- ii. What are the significant deficiencies in dental hygiene education in Ontario that the additional year at post-diploma level would address?
- iii. How much importance does your College attach to experience for dental hygienists relative to self-initiation?
- iv. Are dentists required to undertake internships after graduating from dental school?

### 4. *Promotion of patient choice in health care providers*

- a. Economic Factors—It is well understood that dentists need to leverage their services through efficiency methods and through the employment of dental hygienists. Do you agree that, once they are enabled to self-initiate, individual dental hygienists are likely to engage individual dentists in discussions about

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financial arrangements that (a) suit both parties and that (b) enable patient choice?

- b. Market Forces—Do you also agree that market forces will therefore determine the mix of services the dentists and dental hygienists deliver jointly and separately?

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## Appendix D: Examples of risk in healthcare with topical resonance

### Radioactivity and health and healthcare

The history of applications of radioactivity in healthcare provides a wealth of empirical observations on the interaction of risk and benefit in healthcare technology,

Radium was isolated in 1889 by Marie and Pierre Curie. In 1896, Becquerel discovered radioactivity, which radium produces. By 1900, Giesel had published a description of the lesion on his own arm occasioned by two hours of exposure to a capsule containing radium bromide. Pierre Curie and Becquerel quickly confirmed and extended Giesel's observation by demonstrating that the initial skin reddening evolved into ulceration with exposure over a period of days.

Roentgen discovered X-rays in 1895 and in the same year recognized their potential for medical imaging. In 1900, the year of Giesel's seminal report of human harm, radiology began as a medical sub-specialty. There followed extensive risk-related research and, in parallel thereafter, vast application development. The research and development of the underlying technology, now in its second century, catalyzed the development of the application of that technology in a way that would have been impossible without an appreciation of the riskiness inherent in the technology itself.

In the 1960s, for example, Oxford epidemiologist Alice Stewart studied women who received abdominal X-rays while pregnant. She showed that a single X-ray in the first trimester of pregnancy increased the risk of childhood leukemia by 50 percent, findings confirmed by subsequent research. Consistent with the obligations for patient safety expected of healthcare facilities and the responsibilities devolved to self-regulating professions, radiological practice itself (that is, the application of the technology) quickly adapted to her findings.

In contrast, according to the Canadian Coalition for Nuclear Responsibility<sup>20</sup>, officials in the nuclear industry, who had assured people for decades that low-level radiation was harmless, questioned Stewart's results. Unlike the medical sphere of radioactivity, the nuclear industry, which was then and continues to be characterized by substantial involvement of government, has yet to fully win the trust of the public.

For medical applications of radioactivity, patient safety and the revealed riskiness of the underlying technology provided one stimulus that persistently reminded government of its

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<sup>20</sup> [http://www.ccnr.org/index\\_short.html](http://www.ccnr.org/index_short.html), accessed 2006-08-20

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regulatory responsibilities towards both the technology and its application. The health and safety of healthcare workers provided another. The two together underline the importance of viewing risk among and not only within domains.

The occupational aspect involved the Curies. In 1934, Marie Curie died of leukemia or aplastic anemia (accounts vary). Medical hindsight supports a reasonable presumption that her death related to her occupation. Her scientist daughter, Irène Joliot-Curie, died of leukemia in 1956, fifteen years after a laboratory accident in which a capsule of polonium exploded in her presence.

The year 1956 saw another death, of a Canadian worker, William Young, which in important respects echoed Irène's.

At age 34, Mr Young died from non-Hodgkin's lymphoma, a disease of the white blood cells, as is leukemia. He had been an employee of the engineering department of Eldorado Mining and Refining Ltd, a company with close historical connections to Canada's substantial contribution to nuclear science, the nuclear effort of World War II, the nuclear industry and, of course, government.

Mr Young was at work in 1954 when an old exhaust duct crashed to the floor creating substantial dust. Subsequent investigation showed that not only the dust, but also his tissues contained polonium-210, a chemical element discovered by the Curies in 1898 and much more radioactive than radium<sup>21</sup>.

Forty years of argument and counter-argument were to pass before Mr Young's death was recognized for the purposes of workers' compensation, a reminder of the challenges that sometimes arise in getting risks recognized by officialdom<sup>22</sup>.

The persistence of public trust in medical radiation despite the controversial, turbulent and at times terrifying history of things radioactive owes in whole or part to research explicitly devoted to the riskiness of the underlying technology and not only to development of applications for the technology. The research directly impacts the underpinning of a social infrastructure of safety regulation.

Healthcare cannot take public trust for granted and indeed, the public may have cause to be more aware of the risk profile associated with what are increasingly common technologies.

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<sup>21</sup> A milligram of polonium-210 emits as many alpha particles as 5 grams of radium

<sup>22</sup> The present author was an expert medical witness for Mr Young's widow at the 1998 hearing that accepted an occupational basis for his death

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Under the headline, *Gambler Sets Off Border Radiation Alarm*, The Vancouver Sun<sup>23</sup> reported in August 2006 that an 83-year-old man driving to a Washington state casino set off radiation alarms at the border crossing between Canada and the United States. He had recently suffered a heart attack. Shortly afterwards he was injected with a “dye” during a cardiac scan. “I had no idea I was radioactive”, he said after the cause of the triggering of the alarm had been identified.

The 2006 Annual Report of the Office of the Auditor General of Ontario observed:

Many referring physicians and staff at the hospitals we visited indicated that they were unaware that CTs expose patients to significantly more radiation than conventional x-rays. For example, one CT of an adult's abdomen or pelvis is equivalent to the radiation exposure of approximately 500 chest x-rays. Ontario has not established radiation dose reference levels to guide clinicians in establishing CT radiation exposure levels for patients, whereas other jurisdictions, such as Britain and the United States, have established such reference levels.

Points:

1. Research into the risks of radioactivity began at the same time as its development for diagnostic devices. The risk research and application development continue in parallel to this day.
2. Throughout, healthcare acknowledged and confronted the risks, and public, patient and provider confidence has been maintained.
3. Government was not always as forthcoming: the public remains uneasy about nuclear power.
4. Despite the century-long history new risks continue to surface.
5. Oral healthcare makes much use of x-ray imaging; dental hygienists often take the images.

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<sup>23</sup> The Vancouver Sun, August 16, 2006

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## **Electronic Health Records and Public, Patient and Provider Trust**

Many countries, Canada included, envision the electronic health records of millions of people housed in massive computer systems. The records would be accessible from almost anywhere by anyone authorized by the government or agency operating the system. To make the system work, everyone's record would have to be included: there could be no opting out.

It was over opting out that the English government's grand scheme stumbled, late in 2006, causing political harm. Following months of adverse media, a poll found that 53 percent of patients opposed it and that 52 percent of family doctors would refuse to upload data without the patient's specific consent. In an abrupt U-turn, the government granted the right to opt out. The day after, the junior health minister responsible for the project resigned.

Public trust had been undermined.

Points:

1. When public and patients lose trust in healthcare-related things they do so quickly and decisively notwithstanding the enthusiasms, imperatives and assurances of governments.
2. Loss of public trust challenges healthcare providers and their organizations.
3. Oral healthcare depends on public and patient trust.

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## Appendix E: Contraindications to self-initiated scaling and root planing

Adapted from Appendix 1, Memorandum of Understanding, included in the Expert Panel Report

1. A registrant shall not self-initiate scaling and root planing including curetting surrounding tissue, when any of the following conditions are reported or known to be present in the client unless there is a relevant physician and/or dental clearance. If there is an oral health question, the clearance must come from the dentist. If there is a medical history question the clearance may come from a dentist or a physician. Any clearance must be current and on the record.
  - (a) Any cardiac condition for which antibiotic prophylaxis is recommended in the guidelines set by the American Heart Association (AHA), unless the dental hygienist has consulted with either the client's physician, dentist, or registered nurse extended class (RN(EC) and determined that it is appropriate to proceed if the client has taken the prescribed medication per the AHA guidelines;
  - (b) any other condition for which antibiotic prophylaxis is recommended or required;
  - (c) an unstable medical or oral health condition, where the condition may affect the appropriateness or safety of scaling and root planing including curetting surrounding tissue;
  - (d) active chemotherapy or radiation therapy;
  - (e) significant immunosuppression caused by disease, medications or treatment modalities;
  - (f) any blood disorders;
  - (g) active tuberculosis;
  - (h) drug or alcohol dependency of a type or extent that it may affect the appropriateness or safety of scaling and root planing including curetting surrounding tissue;
  - (i) high-risk of infective endocarditis;
  - (j) a medical or oral health condition with which the registrant is unfamiliar or that could affect the appropriateness, efficacy or safety of the procedure;
  - (k) or a drug or a combination of drugs with which the registrant is unfamiliar or which could affect the appropriateness, efficacy or safety of the procedure.

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## Appendix F: Dental Work After Joint Replacement

Information for Patients from the American Academy of Orthopedic Surgeons<sup>24</sup>

June 2002

Everyone knows that good dental health is important. But for people with artificial joints, a visit to the dentist can be especially significant. The bacteria that cause infections in the teeth or gums can easily travel through the bloodstream and settle in the artificial joint. That can cause even more problems than a toothache.

Representatives from the American Dental Association and the American Academy of Orthopaedic Surgeons developed the following recommendations for people with joint replacements who are planning to have some dental work done. Because there is little data on this topic, these recommendations are guidelines only. Your dentist and your orthopaedic surgeon, working together, will determine an appropriate course of treatment for you.

### When do you need preventive antibiotics?

You won't need to get preventive antibiotics for most dental procedures. But because you have an artificial joint, your risk of contracting a blood-borne infection is higher than normal. So preventive treatment is advised if the dental procedure involves high levels of bacteria.

You should get preventive antibiotics before dental procedures if:

- You have an inflammatory type of arthritis such as rheumatoid arthritis or systemic lupus erythematosus.
- Your immune system has been weakened by disease, drugs, or radiation.
- You have insulin-dependent (Type I) diabetes.
- You had a joint replacement less than two years ago.
- You've had previous infections in your artificial joint.
- You are undernourished or malnourished.
- You have hemophilia.

### What procedures require preventive antibiotics?

You should get preventive antibiotics for the following dental procedures:

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<sup>24</sup> [http://orthoinfo.aaos.org/fact/thr\\_report.cfm?Thread\\_ID=364&topcategory=Joint%20Replacement](http://orthoinfo.aaos.org/fact/thr_report.cfm?Thread_ID=364&topcategory=Joint%20Replacement)

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- Dental extractions
- Periodontal (gum disease) procedures
- Dental implant placement and reimplantation of teeth that were knocked out
- Endodontic (root canal) instrumentation or surgery
- Initial placement of orthodontic bands (not brackets)
- Injection of a local anesthetic into the gums near the jaw
- Regular cleaning of teeth or implants where bleeding is anticipated

## **What kinds of antibiotics are suggested?**

The following preventive antibiotics are suggested:

- If you can take oral medications and are not allergic to penicillin, 2 grams of Amoxicillin, Cephalexin, or Cephadrine should be taken one hour before the procedure.
- If you cannot take oral medications and are not allergic to penicillin, 2 grams of Ampicillin or 1 gram of Cefazolin should be administered by injection one hour before the procedure.
- If you are allergic to penicillin, 600 milligrams of Clindamycin should be taken orally or administered by injection one hour before the procedure.

These guidelines are designed to help doctors and dentists make decisions about preventive antibiotics for dental patients with artificial joints. It is not a standard of care or a substitute for the practitioner's clinical judgment, because it is impossible to make recommendations that would cover every situation. Practitioners must exercise their own clinical judgment in determining whether or not preventive antibiotics are appropriate.