New Technologies in Health Care. Part 1: A Moral and Ethical Predicament

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SOMMAIRE

La technologie évolue rapidement et les dentistes ont de la difficulté à demeurer au courant des nouvelles informations et procédures développées dans le domaine de la dentisterie. Comment ces cliniciens peuvent-ils savoir si un nouveau produit, une nouvelle technique ou une nouvelle avancée technologique est efficace et s'ils doivent les recommander? À quel moment le clinicien a-t-il l'obligation d'informer ses patients de l'existence de nouvelles procédures corroborées par des recherches? Ce premier d'une série de 2 articles examine les aspects éthiques de ces questions et décrit certains dilemmes et certaines obligations d'ordre moral qui se posent pour les professionnels lorsque de nouveaux traitements sont offerts au public.

Pour les citations, la version définitive de cet article est la version électronique : www.cda-adc.ca/jcda/vol-74/issue-7/631.html

Since the 1960s, dentistry has made great strides in improving diagnoses and treatments for oral health disorders. Technological advances in equipment and materials, such as the air rotor and adhesive dentistry, have revolutionized the way dentists practise dentistry. But health professionals are having problems keeping pace with the exponential growth in medical knowledge of the last 20 years.[1] These medical advances have created many new challenges, as well as opportunities, for health care professionals.

Increasingly more complex ethical and moral issues arise out of the development and implementation of new technologies and new procedures.[2,3] In particular, when should clinicians, particularly dentists, inform patients about new therapies or procedures shown to be more effective than the current standard of care? Can dentists continue to provide the conventional treatments they learned in dental school without informing patients about new research-based treatment alternatives?

In this first article of a 2-part series, we discuss the type of information that dentists can confidently draw on to inform patients about new technology. We then explore the ethical and moral obligations when these health professionals are faced with the dilemma about whether to inform patients about a new technology.

This material was gathered from a literature review and interviews with experts in the fields of ethics, law and organized dentistry.

The Dilemma

With such a proliferation of new technology, how can a dentist remain current about the best and most important of these innovations? How can dentists be certain that a new product, technique or technological advance is good and should be recommended? On the other hand, what should these clinicians do when

new evidence-based dental procedures offer better care, but many barriers to their integration into practice exist, such as financial disincentives (lack of reimbursement), fear of liability, difficulty fitting the procedure into their usual office routine, perceived difficulty learning the procedure or the belief that patients might refuse the treatment because of a lack of insurance coverage or funds.[4–6] Are these adequate reasons to withhold information about new and better care? Dentists must first understand the factors that influence how they need to change or adapt their clinical practices before they try to incorporate research-based evidence into their clinical care. Without this understanding, they may not use these new evidence-based therapies.[7]

Which New Technologies Should Dentists Recommend?

Because clinical practice guidelines are not available for general dentists in Canada, they have to look for other resources to find evidence-based information about oral health issues. To know which new product, procedure or treatment they should recommend or offer to their patients, dentists have to be aware of the scientific evidence about the effectiveness of the technology so that their decisions are fully informed. This evidence can be found in the following sources:

- systematic reviews of the literature and meta-analyses that show the effectiveness of the new procedure (e.g., Cochrane Library, MEDLINE)
- articles in peer-reviewed journals (e.g., meta-analyses, randomized controlled clinical trials)
- consensus statements (e.g., NIH Consensus Development Program, http://consensus.nih.gov, 1-888-NIH-CONSENSUS)
- continuing education programs (e.g., university-based, accredited courses).

The website of the World Dental Federation (www.fdiworldental.org) is another good source of information about the effectiveness of new procedures or technologies that are appropriate for dental patients. The resources section of this website contains a database of scientific papers, publications (Cochrane reviews), meta-analyses, and review papers about oral health issues, including materials, techniques and procedures.

However, to cope with such large quantities of information, dentists need critical appraisal skills to evaluate the validity of these studies and their conclusions. In addition, they must be aware of the general standard of care, which is "what an average physician in good standing would do with the degree of skill and learning ordinarily possessed and exercised under the same or similar circumstances by other members of the profession."[1] In other words, dentists "must act consistently with the skill, knowledge and judgment that an average practising member of the profession would have," regardless of the amount of experience they have.[8] A newly graduated dentist is held to the same standard of care as the dentist who has been practising for over 20 years because the public expects a minimum standard of qualifications from all the members of the profession.[8] The standard of care today is defined by the best available evidence rather than by the pre–World War II guideline, or "locality rule," of judging the standard of care by what other practitioners in the same or similar communities would do in similar circumstances.[1,8–10] The Hall v. Hilbun decision of the Supreme Court of Mississippi replaced this locality rule with an American national standard of care, an important recognition of the influence of technology (the Internet) on the diffusion of medical knowledge.[1] According to the definition of standard of care, it is a dentist's professional duty to keep current on the latest medical developments, regardless of whether he or she is from a rural region or a capital city.[1,8]

Former Administrative Law Judge Jane B. Levin, Esq. (New York State Department of Health) believes that health professionals have a "duty to inform only if the new treatment has been clinically proven and if it is presented in a peer-reviewed journal. If a new treatment is being offered, it is even more important that conventional treatments also be offered. A treatment that is known to work cannot be withdrawn in favour of something that you think might work better." (2007, interview with Jane B. Levin) Dr. Peter Cooney, chief dental officer of Canada, believes that "you need solid evidence behind the technology and randomized clinical trials." (2007, interview with Dr. Cooney) Dr. Benoit Soucy, director of membership and professional services of the Canadian Dental Association, also explains that Canadian dentists have to be sure "if the new technology is commercially available, that it has been approved by Health Canada. Health Canada, in its regulation process, will require evidence of efficacy in terms of medical devices." (2007, interview with Dr. Soucy) According to the information on the website of Canada's Access to Medicines Regime, "manufacturers are required to submit scientific evidence of a product's safety, effectiveness and quality to Health Canada … before receiving permission to export it. Health Canada will review all products destined for export under the Regime to ensure that they meet the requirements of Canada's Food and Drugs Act and Regulations."[11] The Marketed Health Products Directorate "review[s] and analyse[s] marketed health product safety data and conduct[s] risk/benefit assessments of marketed health products."[12]

Do Dentists Have an Ethical Obligation to Recommend a New Technology?

Once clinicians feel confident about a new treatment option, do they have an ethical obligation to inform their patients about this new therapy or offer it to them? In a word, yes. Dentists must be truthful with their patients. Truthfulness is a very important part of ethical practice because the relationship between health professionals and patients is built upon trust.[13,14] According to the Code of

Table 1 Ethical guidelines dentists should follow to be ethical caregivers

Category	Guidelines
Autonomy	The patient has the right to choose, on the basis of adequate information, from alternative treatment plans that meet professional standards of care. The dentist's preferred treatment plan may or may not be the patient's chosen treatment plan.[19]
Veracity	The dentist has a duty to communicate truthfully.[17] • **Cost** Dentistry often offers treatment choices with a range of costs. Each appropriate treatment alternative must be presented with its associated costs and benefits.[19] • **Choice of treatment** The dentist must discuss treatment recommendations, including benefits, prognosis and risks, reasonable alternatives and associated costs, to allow the patient to make an informed choice. The dentist must inform the patient whether the proposed oral health care involves treatment, techniques or products that are not generally recognized or accepted by the dental profession.[19] • **Provision of information** The dentist is obligated to provide patients with fair comment and opinion about their oral health.[19]
Justice	The dentist must remember his or her duty of service to patients and therefore is responsible to provide care for all members of society. A dentist shall not exclude, as patients, members of society on the basis of discrimination, which may be contrary to applicable human rights legislation.[19]
Beneficence	The dentist has a duty to promote the patient's welfare and to do no harm (principle of nonmaleficence).[17] • **Research and development** When the results and benefits of their investigations safeguard or promote the health of the public, dentists are obligated to make them available to everyone.[17]

Medical Ethics of the American Medical Association about new medical procedures, physicians must share their skills and knowledge with patients and inform them of the results of clinical and laboratory research.[15] Jane B. Levin, Esq., explains that "ethically and morally, practitioners should inform their patients of their knowledge of alternative treatments. Ethically, [health professionals] should be obligated to advise patients that other treatments are available, even if they can't necessarily afford them." (2007 interview) Dentists are obligated to complete continuing education courses to learn about new, alternative treatments. This responsibility supports the patients' right to self-determination, which is based on being informed about a proposed procedure and about any and all reasonable alternatives to it.[16,17] Nondisclosure of medical information to patients without their knowledge or consent (therapeutic privilege)[16,18] is justified morally and ethically only when the situation is an emergency or when the information is counter-therapeutic and its disclosure could cause the patient greater physical or psychological harm than if the information were not disclosed,[16] a rare situation in dentistry.

Being aware of new advancements does not mean that dentists must actually implement all new procedures. They can choose not to and refer their patients to colleagues, but, at minimum, dentists must inform their patients about new procedures.[10] When a dentist decides to use a new technology, he or she must thoroughly understand the technology, and be prudent and competent in its use.[10]

Like any other emerging technology, new equipment and techniques in dentistry tend to cost more; some may argue that disclosing such luxury treatments to a patient can be unnecessarily cruel.[16] However, Dr. Cooney, chief dental officer of Canada, reminds us that clinicians should not take it upon themselves to deny such treatments to a patient and that it is very difficult to predict a patient's financial situation in 10 years. Dr. Cooney advises dentists to inform their patients about their options for treatment, including the more expensive alternatives, so that if, in the future, the patient is in a better financial situation, he or she will be aware of the possibilities (2007 interview). Of course, dentists must use their professional judgment about the patient's circumstances, but disclosure of information should always be favoured.[8,9]

To be ethical caregivers, dentists should be guided by ethical principles. These are listed in **Table 1**. If a patient chooses not to receive the proposed treatment, health professionals should explain the "likely consequences of not choosing the proposed diagnostic procedure or treatment...,

Box 1 Information that dentists should disclose to patients to obtain informed consent[16,21]

- ✓ Describe the prognosis, therapy and procedure.
- ✓ State the goals and means of the treatment.
- ✓ Disclose the success and failure rates of the treatments.
- ✓ Review the risks and benefits of the treatments.
- ✓ Suggest alternative therapies.
- ✓ Explain the consequences and risks of refusing the treatment.

[and] any significant long term physical, emotional, mental, social ... or other outcome which may be associated with a proposed intervention."[20]

To be informed, patients must be aware of any information that a prudent or reasonable person in the same circumstances would need to make a decision about a treatment.[16,21] To provide true informed consent, patients must formally communicate their decision about the procedure to their dentists.[21] If dentists want to know how detailed the informed consent should be, they should ask themselves "What information does this patient need to make a sensible decision, given the patient's situation (education and ability to understand medical concepts), goals, values, and needs?"[21] The information to be disclosed should include the prognosis, alternative goals and means of treatment, success and failure rates, benefits and material risks of the treatment, possible alternative treatments and consequences, and risks of refusing the treatment (**Box 1**).[16,21] When discussing the information needed to obtain informed consent, dentists must know the patient's level of understanding.[8,9,21] Better communication and higher levels of information-sharing may contribute to better patient satisfaction and reduce anxiety, and thus improve health outcomes.[18] However, informed consent is a dynamic process: even if a patient agrees to a series of given procedures, he or she can at any time withdraw his or her consent.[16]

Conclusions

Dentists have an ethical and professional obligation to inform their patients fully about all relevant therapeutic options and technologies that have been shown scientifically to be safe and effective. Providing fully informed consent is still a challenge to dentists because they must evaluate a very large number of new techniques, materials and procedures.[22] Therefore, as part of their ethical obligation to enable fully informed consent, dentists should give the same priority to the assessment of technology that they do to other aspects of their clinical practice. This will, in turn, maintain the public's trust in the profession[23] and will considerably reduce the potential for litigation.

Because of their cultural and social similarities, Canada and the United States follow similar ethical principles.[24] However, their legal systems are very different. In part 2 of this series, we discuss the legal and professional obligations of Canadian dentists involved in the transfer of knowledge about new technologies.

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Acknowledgments: *The authors would like to thank Dr. Shahrokh Esfandiari, PhD candidate, for his generous help and advice. We also thank the members of the oral health and society research unit of McGill University. The authors would also like to thank the specialists interviewed for taking the time to share their expertise on these issues: Dr. Benoit Soucy, Ms. Jane B. Levin and Dr. Peter Cooney, Ms. Kathleen Glass, Dr. Pascale Lehoux, Dr. André Phaneuf and Dr. Euan Swan. We thank Dr. Herb H. Borsuk, president of the American College of Dentists and director of endodontics at McGill University, for his very helpful comments on this manuscript.*

Sources of support: *This study was supported by the CIHR Network for Oral Research Training and Health; the CIHR Burroughs-Wellcome Program; the Network for Oral and Bone Health Research of the FRSQ; and the faculty of dentistry, McGill University.*

The authors have no declared financial interests.

This article has been peer reviewed.

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