Best practices for smoking cessation interventions in primary care

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BACKGROUND: In Canada, smoking is the leading preventable cause of premature death. Family physicians and nurse practitioners are uniquely positioned to initiate smoking cessation. Because smoking is a chronic addiction, repeated, opportunity-based interventions are most effective in addressing physical dependence and modifying deeply ingrained patterns of beliefs and behaviour. However, only a small minority of family physicians provide thorough smoking cessation counselling and less than one-half offer adjunct support to patients.

OBJECTIVE: To identify the key steps family physicians and nurse practitioners can take to strengthen effective smoking cessation interventions for their patients.

METHODS: A multidisciplinary panel of health care practitioners involved with smoking cessation from across Canada was convened to discuss best practices derived from international guidelines, including those from the United States, Europe, and Australia, and other relevant literature. The panelists subsequently refined their findings in the form of the present article.

RESULTS: The present paper outlines best practices for brief and effective counselling for, and treatment of, tobacco addiction. By adopting a simple series of questions, taking 30 s to 3 min to complete, health care professionals can initiate smoking cessation interventions. Integrating these strategies into daily practice provides opportunities to significantly improve the quality and duration of patients’ lives.

CONCLUSION: Tobacco addiction is the most important preventable cause of morbidity and mortality in Canada. Family physicians, nurse practitioners and other front-line health care professionals are well positioned to influence and assist their patients in quitting, thereby reducing the burden on both personal health and the public health care system.

Key Words: Behavioural intervention; Smoking cessation; Tobacco

Encouraging smoking cessation is the most effective intervention family physicians and nurse practitioners can make to improve their patients’ quality of life and increase their lifespan (1,2). In as little as 30 s, Canadian family physicians can help their patients double or triple their chances of quitting (3). This can significantly improve patients’ current and future health, as well as the sustainability of public health in Canada.

Currently, more than 4.9 million (18.6%) adult Canadians smoke (4). Rates vary by province, with the highest in Saskatchewan (23.7%), and lowest in British Columbia (16.4%) and Ontario (16.6%) (Figure 1). More Canadian men than women are current smokers, but this gap is closing because more men are quitting whereas quit rates among women have plateaued. Overall, smoking prevalence has decreased significantly in the past decade. This is likely due to an increase in tobacco prices, public education about the dangers of smoking, the existence of smoking bans in public places from coast to coast, changes in the public’s and the media’s attitudes toward smoking, and the availability of new and more efficacious treatments for tobacco dependence.

Busy practitioners sometimes miss the opportunity for providing smoking cessation interventions because of competing health priorities, lack of confidence and the significant

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Can Respir J Vol 16 No 4 July/August 2009 ©2009 Pulsus Group Inc. All rights reserved
difficulties patients have in quitting, even in the face of serious smoking-related illnesses (5). Moreover, certain myths persist that prevent some health care providers from following through with smoking cessation advice (Table 1). This helps explain why a survey (6) of family physicians in Montreal, Quebec, found that only 10.5% provided ‘thorough’ smoking cessation counselling, and less than one-half offered adjunct support to patients. In contrast, a recent survey (7) found that more than one-half of smokers would be interested in nicotine replacement therapy if it were offered free of charge.

Smoking kills one in two smokers (8), and the sequelae of tobacco dependence kill approximately 10% of adults worldwide (9). No other product exists that causes the premature death of 50% of those who use it exactly as intended. Tobacco use is a risk factor for six of the eight leading causes of death worldwide, including ischemic heart disease, cerebrovascular disease, lower respiratory infections, chronic obstructive pulmonary disease, tuberculosis, and cancers of the trachea, bronchus and lung (10). Moreover, recent data from the Nurses’ Health Study (11) indicate that current smokers have nearly three times the risk of premature death compared with nonsmokers. The data also show that smokers have more than seven times the risk of developing smoking-related cancers. Another study (12) indicated that when heavy smokers reduced their daily cigarette smoking by as much as 50% without going on to quit, their risk for premature death is not significantly lowered.

In Canada, smoking is the leading preventable cause of premature death (13). It is estimated that 515,608 years of life were lost prematurely in Canada in 2002 – 316,417 years in men and 199,191 years in women (14). Family physicians and nurse practitioners are uniquely positioned to initiate smoking cessation because they see their patients more frequently and for longer periods of time than do specialists, and often develop a strong rapport with their patients. Because smoking is a chronic addiction, repeated, opportunity-based interventions are most effective in addressing physical dependence and modifying deeply ingrained patterns of beliefs and behaviour. Simple counselling advice, support and appropriate pharmacotherapy can be effective in many cases (1,2). The present article identifies current international best practices that family physicians and nurse practitioners can use to help their patients stop smoking and discusses them into the context of therapies available in Canada.

**METHODS**

To better understand effective best practices for family physicians, nurse practitioners and other health care professionals, an expert multidisciplinary panel was convened in March 2008 in Toronto, Ontario. The panel represented the fields of respirology, family practice, nursing, psychology (behaviour and addiction) and nongovernmental association representatives.

The panel reviewed published literature, clinical evidence and established international guidelines from the United States (1,2), Europe (15) and Australia (16), and discussed approaches from these sources proven to aid health care professionals in executing successful smoking cessation interventions. The best practices described in the present article are the result of these discussions.

The authors’ intent was not to create new guidelines for smoking cessation, but instead to interpret existing guidelines for front-line clinicians in Canada. Our objective was to identify the key steps Canadian family physicians and nurse practitioners can take to strengthen effective smoking cessation interventions for their patients. Because the existing guidelines have thoroughly analyzed thousands of relevant studies, they serve as the primary source material for the present review but are supplemented by key recent studies that were suggested by the writing group to highlight key points in the guidelines and to underscore clinical best practices based on the authors’ clinical experience.

**RESULTS**

Initiating smoking cessation behavioural interventions

Encouraging smoking cessation has been recognized for many years as one of the most effective and least time-consuming methods in which physicians can improve personal and public health. Recent American (1,2), European (15) and Australian
To guide clinicians in using a motivational-based intervention most efficiently and effectively in the little time they have available, we have created an intervention algorithm as a flashcard for use during patient encounters (Figure 3). It can be used with all individuals regardless of whether they are prepared to quit smoking immediately.

According to the American guidelines, more intensive support is more effective and can be delivered by treatment specialists. Such support may include intensive counselling, culture-specific counselling, visits to more than one consulting physician, intratreatment social support, group counselling sessions and other areas of support that are beyond what a single clinician may be able to offer (2). In addition, the guidelines emphasize that unless contraindicated, pharmacological aids should be offered to every patient who smokes because these aids approximately double cessation rates (also referred to as ‘quit rates’) (1,2). When smokers are ready to quit and request help to do so, the best results occur from combining pharmacotherapy with a comprehensive behavioural change program. Thus, patients who would like to quit – or who have recently quit and could benefit from support in maintaining abstinence – should be encouraged to visit a smoking cessation centre if one exists in their area or access a help line. These centres and helplines specialize in helping patients move toward change using state-of-the-art motivational and behavioural approaches.

Clinicians should also keep in mind that they can enhance quit rates by encouraging all of their patients to change to a healthy lifestyle, which includes regular exercise, eating more fruits and vegetables, and limiting alcohol consumption (20).

The key intervention is one in which physicians should ask all patients whether they smoke at each appropriate opportunity and, if they are current smokers, encourage them to quit. This simple intervention can double or triple quit rates (3), and is endorsed by the Canadian Cancer Society (21) and the Canadian Medical Association (22). Physicians should consider it their medical responsibility to intervene and offer treatment to their patients who smoke. The family physician visit...
TABLE 2

Smoking cessation resources/Web sites for family physicians and patients

National Clearinghouse on Tobacco and Health, www.ctca.ca/ncf
Smokers helpline, Web site www.smokershelpline.ca
Canadian Council for Tobacco Control, www.cctc.ca
Conseil québécois sur le tabac et la santé: www.cqts.qc.ca/
Cancer Care Ontario, www.cancercare.on.ca/english/pcs/prevention/tobacco/. Frequently asked questions regarding smoking cessation, as well as a free service that sends motivational e-mails or voice mails to patients
For training physicians, nurse practitioners and pharmacists in smoking cessation
All Provinces: Call your local public health department

British Columbia
BC Lung Association, 2675 Oak Street, Vancouver, British Columbia V6H 2K2. Telephone 604-731-LUNG (5864) or toll free 1-800-665-LUNG (5864), fax 604-731-5810, e-mail info@bc.lung.ca (The BC Lung Association offers professional training in smoking cessation)

Ontario
Clinical Tobacco Intervention (CTI) Program, Ontario Medical Association, 525 University Avenue, Suite 200, Toronto, Ontario M5G 2K7. Telephone 416-599-2580 ext 3229 or toll free 1-800-268-7215 ext 3229, fax 416-340-2238, e-mail cti@oma.org, Web site www.ctca.org/ (CTI provides an evidence-based approach and is a cooperative effort of the Ontario Medical Association, Ontario Pharmacists’ Association and Ontario Dental Association)
The Training Enhancement in Applied Cessation Counselling and Health (TEACH) Project, 175 College Street, 3rd Floor, Toronto, Ontario M5T 1P7. Telephone 416-535-8501 ext 1600, fax 416-599-3802, e-mail teach@camh.net, Web site www.teachproject.ca (The TEACH project is geared toward training health care professionals in the public, private and nonprofit sectors who provide counselling services to people who use tobacco)
Registered Nurses’ Association of Ontario (RNAO), 158 Pearl Street, Toronto, Ontario M5H 1L3, Telephone 416-599-1925 or toll free 1-800-268-7199, fax 416-599-1926, e-mail info@rano.org, Web site www.rnao.org (The RNAO has created best practice guidelines for smoking cessation that are followed by many local boards of health in Ontario)

Quebec
Fédération des médecins omnipraticiens du Québec, 1440, rue Sainte-Catherine Ouest, bureau 1000, Montréal, Quebec H3G 1R8, Téléphone 514-878-1911 Interurbain sans frais : 1-800-361-8499, Télécopieur : 514-878-4455, e-mail : info@fmoq.org (They published an intervention guideline ‘Medical Support for Quitting Smoking’) In collaboration with the Quebec Lung Association, PsyMontreal Inc provides the ‘Freedom From Smoking’ training. PsyMontreal Inc, telephone/fax 514-337-2473 ext 1, e-mail formation@psymontreal.com, Web site www.PsyMontreal.com

This list may not be exhaustive. For training physicians and nurse practitioners in motivational interviewing, worldwide trainings in several languages are given by the Motivational Interviewing Network of Trainers <www.motivationalinterview.org/>

Nicotine replacement therapy, bupropion and varenicline were all more efficacious than placebo in promoting smoking cessation.

Nicotine gum is recommended for smokers motivated to quit smoking:

- Nicotine replacement therapy:
  - Nicotine patch;
  - Nicotine gum;
  - Nicotine inhaler; or
  - Nicotine sublingual lozenge
- Sustained-release bupropion hydrochloride
- Varenicline

A recent Canadian meta-analysis of 69 placebo-controlled randomized clinical trials (23) concluded that nicotine replacement therapy, bupropion and varenicline were all more efficacious than placebo in promoting smoking cessation.

Nicotine gum is recommended for smokers motivated to reduce the amount they smoke.

The ‘Reduce to Quit’ program (24) tailors nicotine-gum use and gradual reduction in the number of cigarettes smoked per day to the individual smoker’s habits, aiming at smoking cessation in eight to 12 weeks.

Additional pharmacotherapy

The combination of bupropion and nicotine replacement can be considered if bupropion alone is ineffective (1,15,20). Long-term treatment with all forms of pharmacotherapy are gaining increasing acceptance in clinical tobacco dependency treatment, and various combinations of treatments – particularly those involving nicotine replacement therapy – are earning a place in relapse prevention (1,2). Relapse is defined in the American guidelines as “a return to regular smoking by someone who has quit” (2).

The 2008 American guidelines point to the need to titrate nicotine replacement therapy in some patients using combinations of therapy such as a daily nicotine patch plus the use of an inhaler as needed, gum or lozenge, or the use of two patches in patients smoking more than one pack of cigarettes per day (1,2). Many statements from patients such as “the patch doesn’t work
at all”, reflect the fact that their personalized nicotine needs are not being met, rather than a lack of efficacy of the treatments.

Recommended follow-up during pharmacotherapy treatment

Because of the potential side effects from all medications, the sometimes severe withdrawal symptoms experienced by recent ex-smokers, and the high risk of early relapse, patients should be seen again by the physician or a nurse practitioner within approximately two weeks after the patient’s quit date (ie, the date scheduled for the start of their smoking cessation) for brief relapse-prevention treatment or be instructed to contact the office if they are having difficulties (20). This follow-up has been particularly emphasized in warnings issued by Health Canada regarding the use of varenicline in patients with a neuropsychiatric history (25), but it is prudent in all treatment regimens to ensure adequate medication to control withdrawal and to address and support cessation efforts.

Most alternative therapies such as laser treatment, acupuncture and hypnosis have not been found to be effective for smoking cessation, although they do not cause harm and may have a positive placebo effect (1,15,20,26).

CONCLUSION

The promotion of smoking cessation must be a top priority for clinicians and for governments. The Canadian government has contributed to the declining prevalence of smoking by means of high taxation on tobacco products, a greater number of smoke-free environments and advertising bans. However, much remains to be accomplished. The family physician is central to reaching as many smokers as possible and helping them quit. The combination of brief, empathetic and appropriate interventions, support and pharmacological therapies can help encourage smokers to quit and give them their best chance to live smoke-free.

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CONFLICTS OF INTEREST: Dr Assaad has received honoraria for speaking engagements on motivational interviewing and for smoking cessation from Johnson & Johnson, GlaxoSmithKline, and Teva Neuroscience. Dr Brosky has received honoraria for speaking engagements and advisory boards and research grants from GlaxoSmithKline, sanofi-aventis and Novartis. Mr Kayser has received honoraria for speaking engagements on motivational interviewing and for smoking cessation from Johnson & Johnson, Pfizer, GlaxoSmithKline and Teva Neuroscience. Dr Khara has received financial support for research, speaking and the purchase of pharmaceutical products from the following: Genpharm, Johnson & Johnson, Pfizer and Roche. Dr McIvor has received honoraria for speaking engagements on chronic

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### TABLE 3
Pharmacological aids for smoking cessation currently available in Canada

<table>
<thead>
<tr>
<th>Therapy/Drug</th>
<th>Dose</th>
<th>Duration of treatment</th>
<th>Contraindications</th>
<th>Adverse effects*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine replacement</td>
<td>Dose is adjusted to level of nicotine</td>
<td>8 to 12 weeks, can be longer (up to</td>
<td>Patch: allergy to constituent of nicotine</td>
<td>Patch: Skin irritation, sleep disturbance</td>
</tr>
<tr>
<td>therapy</td>
<td>dependence and is decreased progressively over the treatment period</td>
<td>1 year) for the prevention of relapse</td>
<td>patch nicotine patch</td>
<td>Gum or lozenge: Mouth irritation, sore jaw, dyspepsia, hiccups</td>
</tr>
<tr>
<td></td>
<td>Patch: 21 mg/day to 42 mg/day initially</td>
<td></td>
<td></td>
<td>Inhaler: Mouth and throat irritation, cough</td>
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<tr>
<td></td>
<td>Gum: 8 to 10 pieces (2 mg or 4 mg each)/day</td>
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<tr>
<td></td>
<td>Inhaler: 4 to 6 puffs/day</td>
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<tr>
<td></td>
<td>Lozenges: 9 to 20 lozenges/day</td>
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<tr>
<td>Nicotine gum</td>
<td>Rate of reduction of number of cigarettes smoked/day and replacement with gum tailored to the individual smoker’s smoking habits</td>
<td>8 to 12 weeks</td>
<td>None</td>
<td>Abnormal dreams, diarrhea, poor sleep, dry mouth, joint pain, muscle pain, nervousness, redness, itching or burning at the application site; sweating, weakness</td>
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<tr>
<td>‘Reduce-to-Quit’</td>
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<tr>
<td>program</td>
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<tr>
<td>Bupropion</td>
<td>150 mg/day for first 3 days, then 300 mg/day</td>
<td>8 weeks; can be longer (up to 1 year) for the prevention of relapse</td>
<td>Seizure, central nervous system tumour, bipolar disorder, alcohol withdrawal, benzodiazepine withdrawal, use of monoamine oxidase inhibitor, anorexia, bulimia and liver disease</td>
<td>Insomnia, seizures, gastrointestinal disturbance, jitteriness</td>
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<tr>
<td>hydrochloride,</td>
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<tr>
<td>sustained release</td>
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<tr>
<td>Varenicline</td>
<td>0.5 mg/day for first 3 days, then 0.5 mg twice daily for the next 4 days and 1 mg twice daily thereafter</td>
<td>12 weeks; can be longer (up to 24 weeks) for the prevention of relapse</td>
<td>None</td>
<td>Nausea, vomiting, constipation, flatulence, bad taste in the mouth, abnormal dreams, sleep disturbance, depressed mood, agitation, changes in behaviour, suicidal ideation and suicide</td>
</tr>
</tbody>
</table>

*Most frequent adverse events. Data adapted from reference 20 and supplemented by data from reference 25
obstructive pulmonary disease and smoking cessation from several pharmaceutical companies including AstraZeneca, Abbott, Bayer, Boehringer Ingelheim, Johnson & Johnson, GlaxoSmithKline, Nycomed and Pfizer. Dr Weinberg has received honoraria from Johnson & Johnson and Pfizer for speaking engagements and media campaigns.

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