Agence de la santé et des services sociaux de Montréal

Health Professionals Taking Action to Treat Tobacco Use and Dependence

Québec

Produced by the Prevention in Clinical Settings Sector

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A message from the Director

Smoking is the leading modifiable cause of premature morbidity and mortality in America. About 70% of smokers want to quit smoking and many go to various points of service available through the health system to consult for a variety of health problems. Each visit represents an opportunity for health professionals to offer smokers help to quit smoking.

Health professionals should determine the smoking status of all their patients 9 years of age and over, and provide help to smokers to motivate them to quit.

The fact that knowledge and practices related to smoking have evolved since the document entitled *Health Professionals Taking Action Against Smoking* was published in 2003 have made it necessary to substantially edit the document.

Health Professionals Taking Action to Treat Tobacco Use and Dependence will help you integrate effective counselling interventions into your daily practice.

Director of Public Health

Richard Lessard, M.D.

Tobacco use in Quebec

- Smoking prevalence of 19%[1] (2008) among individuals aged 15 and over:
  - About 1.2 million smokers in Quebec;
  - Quebec ranks 4th among Canadian provinces for prevalence of smoking.
- Smoking prevalence of 17%[1] (2008) among individuals aged 15 to 19.
- Smoking prevalence of 31%[1] (2008) among young adults aged 20 to 24.
- Prevalence of 14.9%[2] (2006) among high-school youth in Quebec:
  - 8.4% of young people currently smoke (have smoked > 100 cigarettes in their lifetime and have smoked in the past 30 days) – 5.7% smoke every day and 2.7% smoke occasionally;
  - 6.5% of young people are beginner smokers (have smoked < 100 cigarettes in their lifetime and have smoked in the past 30 days);
  - on average, youth smoke their first cigarette at age 13;
  - 21.6% of young people have smoked a cigar or cigarillo in the preceding 30 days, and 14.9% a cigarette.
- The direct and indirect annual costs associated with tobacco use in 2002 were $3.9 billion[3].

Smoking and health

- One out of two regular smokers dies from a tobacco-related disease:
  - One out of two smokers who dies from a smoking-related disease is in the 35- to 69-year old age group[4].
- On average, a smoker lives 10 years less than a non-smoker[4].
- Approximately 37 000 Canadians die each year from smoking-related diseases[5]; in 2002, 10 414 Quebecers died from these diseases[6].
- The following diseases have been attributed to smoking[7,8]:
  - 85% of lung cancers;
  - 85% of cases of chronic obstructive pulmonary disease;
  - 30% of all cancers;
  - 25% to 30% of cardiovascular diseases;
  - and a list of several other diseases that is growing.

Second-hand smoke and health

- Smoke from a lit cigarette contains 4000 different chemicals, including 50 carcinogenic compounds[9].
- Exposure to second-hand smoke (SHS) is associated with an increased risk[9] for
  - death due to ischemic heart disease;
  - lung cancer;
  - lower respiratory tract infections (bronchitis, pneumonia) and repeated otitis among children aged 2 years or less;
  - the development of asthma and more frequent exacerbations among children under 6 years of age;
  - sudden infant death syndrome.
- Twelve per cent of Québec children under 12 years old were exposed to SHS at home (2009), twice the Canadian average for the same time frame[1].

Second-hand smoke lingers everywhere. The only way not to expose others is to smoke outdoors.

Benefits of smoking cessation

Smoking cessation provides immediate health benefits to men and women of all ages[4].

Benefits of smoking cessation[4]	
Age at cessation (years)	**Increase in life expectancy (years)**
60	+ 3
50	+ 6
40	+ 9
30	+ 10

Regardless of age, the mortality rate for ex-smokers is lower than that for smokers of the same age. Overall, the risk of developing a smoking-related disease decreases as soon as tobacco use is stopped, and continues to decline over time:

- relative risk of lung cancer[7, 8]:
  - among people who have never smoked: RR = 1;
  - among smokers: RR = 16;
  - among ex-smokers who have not smoked for 15 years: RR = 2–3
- relative risk of myocardial infarction[7, 8, 10]:
  - among people who have never smoked: RR = 1;
  - among smokers: RR = 3–4
  - among ex-smokers who have not smoked for 5 to 10 years: RR = 1.2
- relative risk of stroke[10]:
  - among people who have never smoked: RR = 1;
  - among smokers: RR = 3–4
  - among ex-smokers who have not smoked for 5 to 10 years: RR = 1.4
- relative risk of having a low birth weight baby (< 2 500 g)[11]:
  - among pregnant women who do not smoke: RR = 1;
  - among pregnant women who smoke: RR = 2;
  - among pregnant women who stop smoking before the 16th week of pregnancy: RR = 1.

Tobacco dependence[12, 13-17]

Smoking is now considered a chronic disease characterized by loss of control over the use of a psychoactive substance: nicotine. This substance reaches the brain's neurons about 10 seconds after inhaling cigarette smoke; this is two to three times faster than when a drug is administered intravenously. It binds to the $\alpha 4\beta 2$ subtype of nicotinic acetylcholine receptors (nAChR) in the central nervous mesolimbic dopamine system and activates the $\alpha 4\beta 2$ nicotinic receptors (pentameric structures composed of two $\alpha 4$ and three $\beta 2$ subunits) in the ventrotegmental area (VTA), provoking immediate dopamine release in the nucleus accumbens (NA). It is thought that dopamine release is a key link to the reward mechanism associated with smoking[12,13].

Positive reinforcement associated with inhalation of cigarette smoke is the ideal administration method to create dependence. Someone who smokes a pack of cigarettes a day repeats the "hand-to-mouth" gesture associated with this brain stimulation some 90 000 times a year. With a half-life of approximately two hours, nicotine levels in the blood fall quickly, producing an unpleasant sensation (withdrawal symptoms). Such negative reinforcement incites the person to smoke again.

Substance dependence (nicotine 305.10) is defined in the DSM-IV as the presence of 3 or more of the 7 following criteria[15]:

DSM-IV definition of substance dependence

- Tolerance (disappearance of symptoms: nausea, dizziness, etc.)
- Loss of control over amounts of a substance taken or duration of use
- Persistent desire for the substance or an inability to reduce or control its use
- Spending much time on activities linked to substance use
- Social activities given up because of smoking
- Persistent use despite physical or psychological problems
- Withdrawal symptoms during periods of abstinence

Studies on pharmacological aids for smoking cessation frequently use the Fagerström Test for Nicotine Dependence, the latest version of which is presented here[16]. Most points are assigned to the two questions related to time at which the first cigarette is smoked after waking up and number of cigarettes smoked a day on average; they account for 6 of the 10 points on the Fagerström scale. These two questions are the most relevant from a clinical perspective. Moreover, time of first cigarette after waking up is often used as a dependency index in various epidemiological investigations.

Fagerström Test

1. How soon after you wake up do you smoke your first cigarette?
   - Within 5 minutes ❑ 3
   - 6-30 minutes ❑ 2
   - 31-60 minutes ❑ 1
   - After 60 minutes ❑ 0
2. Do you find it difficult to refrain from smoking in places where it is forbidden? (e.g. cinemas, libraries)
   - Yes ❑ 1
   - No ❑ 0
3. Which cigarette would you hate most to give up?
   - The first one in the morning ❑ 1
   - Any other ❑ 0
4. How many cigarettes a day do you smoke, on average?
   - 10 or less ❑ 0
   - 11-20 ❑ 1
   - 21-30 ❑ 2
   - 31 or more ❑ 3
5. Do you smoke more frequently during the first hours after waking than during the rest of the day?
   - Yes ❑ 1
   - No ❑ 0
6. Do you smoke if you are so ill that you are in bed most of the day?
   - Yes ❑ 1
   - No ❑ 0

Interpretation : 0-2 not dependent;
3-6 dependent;
7-10 very dependent;

FAGERSTRÖM TEST, 1998

Nicotine withdrawal symptoms[17]

Various studies use different withdrawal symptom scales for patient follow-up. Symptoms are linked to relapses and gradually diminish. The following table shows the incidence and duration of withdrawal symptoms.

Nicotine withdrawal symptoms

Symptoms	Incidence (%)	Duration
Irritability/ agressivity	50	< 4 weeks
Depression	60	< 4 weeks
Agitation	60	< 4 weeks
Difficulty concentrating	60	< 2 weeks
Increased appetite	70	< 10 weeks
Light-headedness/ dizziness	10	< 48 hours
Sleep disturbances	25	< 1 week
Strong urges to smoke	70	< 2 weeks

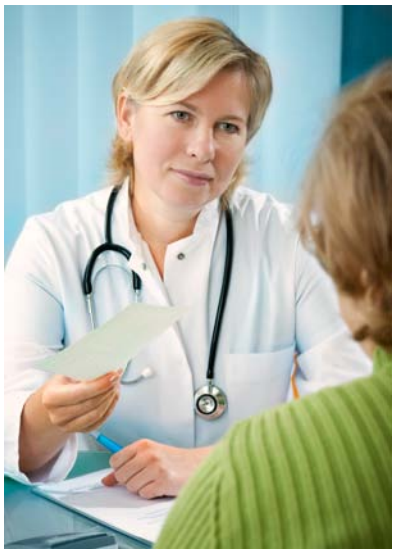
Brief cessation counselling[12, 18-20]

The first stage of counselling is to identify the smoking status of any patient aged 9 years or over, and to enter it into his or her file. It indicates use or non use of tobacco, more specifically

- ► non-smoker (person who has never smoked)
- ► ex-smoker (important to ask since when)
- ► daily smoker (important to ask how many cigarettes a day)
- ► occasional smoker (important to ask how many cigarettes a week or month)

This information helps determine the type of support the patient will need (see Algorithm on page 11).

In the case of smokers or ex-smokers, the stage of change has to be determined.



Determine the smoker's stage of change and the corresponding objective of the intervention		
Does the patient want to quit smoking?	**Stage of change**	**Objective of the intervention**
■ No, not in the next six months	Pre-contemplation	Conduct a motivational interview to - encourage the smoker to think about the importance of quitting soon to strengthen conviction; - help the smoker resolve ambivalence by encouraging him or her to explore the benefits and disadvantages associated with smoking and quitting smoking; use the decisional balance (see page 9); - help the smoker reflect on concerns related to quitting to boost his or her confidence.
■ Yes, in the next six months	Contemplation	
■ Yes, in the next month	Preparation	Help the patient prepare to quit smoking. Encourage the patient to use the smoker's diary (see page 12).
■ Quit less than six months ago	Action	Help the patient remain a non-smoker. Help prevent relapses.
■ Quit 6 months ago or more	Maintenance	Help the patient remain a non-smoker.
■ Started smoking again lately	Relapse	Help the smoker get rid of guilt and encourage him or her to try to stop smoking again soon.

Use motivational interviewing to foster change

Most smokers seen by health professionals are at the pre-contemplation or contemplation stage. Moreover, even people who are further on in the smoking cessation process are likely to hesitate at some time, and to question their decision. This is called ambivalence; it is normal and is part of change.

In such situations, motivational interviewing is particularly useful. This intervention approach was developed by Miller and Rolnick in the early 1980s to encourage change among their patients with substance addictions. It is defined as a client-centred, directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence[20].

Decisional balance

One strategy that helps resolve ambivalence is to explore decisional balance with the patient, that is, discuss the benefits and disadvantages linked to smoking and to cessation. This exercise results in acknowledgement of both the inconveniences of the status quo and the benefits of change.

Evaluation of importance and confidence

The importance of smoking cessation and the person's confidence in his or her capacity to quit are key elements in the process of change. To strengthen the 'change discourse' and the feelings linked to personal effectiveness voiced by a patient, importance and confidence scales can be used.

Importance scale

The patient can be asked about the importance of change using open-ended questions, or assessed quantitatively: "On a scale of 0 to 10, where 0 is 'not important at all' and 10 'extremely important', how important is it for you to quit smoking?"

To obtain more details, ask, "Why is it that you picked this level (e.g. 5) and not one or two numbers lower (e.g. 3)?" The person can then list the personal benefits of quitting smoking and motivations to view change positively (that is, the 'change discourse'). You can thus learn not only how important this person thinks it is to quit smoking but also why it is important for him or her.

You should remember to avoid asking only "why" the person chose this number since there is a risk that the person will argue against change.

Confidence scale

The same questions can be asked regarding confidence in one's ability to change (self-efficacy).

"On a scale of 0 to 10, where 0 is 'not at all confident' and 10 'extremely confident', how confident do you think you are in relation to quitting smoking?"

"Why is it that you picked this level (e.g. 5) and not one or two numbers lower (e.g. 3)?"

This question encourages people to talk about what would help them quit, and thus become aware of their strengths and resources.

People who smoke can need different kinds of help, depending on how they rate themselves on these two scales. Asking these questions will encourage the person to see quitting smoking in a different light: actual personal benefits, and personal strengths.

Finally, when someone is ready to take action, it can be useful to identify obstacles to change, using questions such as "What would help you pick a higher level?" or "How can I help you get to a higher level on this scale?".

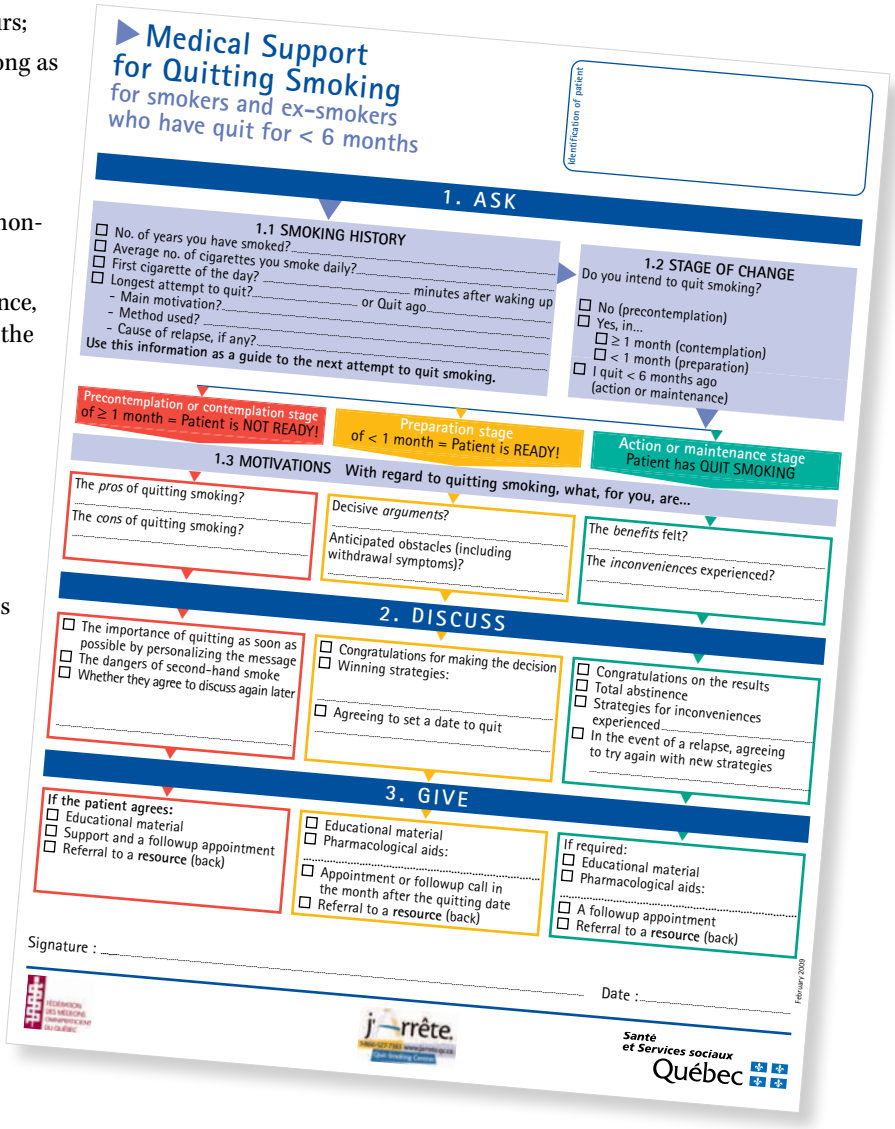
Key elements for effective smoking cessation counselling[20]

- Start counselling intervention with open questions, since this
  - establishes a climate of trust between the health professional and the smoker;
  - allows to explore feelings about smoking;
  - allows to identify the reasons to quit smoking;
  - allows to identify strategies for success.
- Adapt the intervention to the patient's stage of change. This will help him or her become a non-smoker more rapidly.
- Express empathy and respect for patients who smoke because it is extremely difficult to stop smoking:
  - most smokers have been smoking since adolescence;
  - smoking is part of their personal identity;
  - smoking is a deeply anchored physical habit;
  - smoking provides emotional support: a cigarette is like a friend who is always there;
  - smoking is linked to a series of social behaviours;
  - nicotine creates a physical dependence as strong as the one caused by alcohol, cocaine, or heroin.
- Avoid arguments and confrontations that
  - usually provoke resistance;
  - hinder a patient's progression to the status of non-smoker.
- Use communication techniques that reduce resistance, encourage constructive discussion, and motivate the patient to stop smoking:
  - active listening;
  - reflection/reformulation;
  - summarizing;
  - reframing;
  - emphasizing the freedom to choose.
  - valuing: highlight and value the patient's efforts
  - and resources.

Physician remuneration for providing smoking cessation support

Since January 1, 2007, a procedure code allows general practitioners to submit bills for providing smoking cessation support.

- Procedure code 15161
- Remuneration once a year per patient
- Patients targeted: smokers or ex-smokers who have quit for less than 6 months
- Smoking cessation support can be billed in addition to another examination (except supportive therapy)
- The *Medical Support for Quitting Smoking* form produced by the FMOQ and the MSSS can be used as a note in the file (available on the FMOQ Web site)[23].
- If the *Medical Support for Quitting Smoking* form is not used, the note in the file should mention the smoking status, stage of change (motivation to quit) and suggested steps to take.



Brief cessation counselling[12, 18-20]? Do you smoke?

Yes

___ cigarettes/day
Has been smoking for ___ years
Has quit (>24 hr) ___ times

No

Has never smoked

Has quit for ≥ 6 months

Offer congratulations

No

Has quit for < 6 months

Has started again

Started again ___ weeks ago

Are you thinking about quitting during the next month?

No: motivate

Yes: help the patient get ready

Ask

- ❑ What do you like about smoking?
- ❑ What do you dislike about smoking?
- ❑ What would appeal to you about becoming a non-smoker?
- ❑ What worries you about quitting smoking?

Discuss

- ❑ your concerns about smoking, in relation to your patient's history and risk factors
- ❑ the advantages of quitting smoking and the fact that the person should think about quitting in the near future
- ❑ the various choices available to help people quit smoking:
  - medications
  - your support
  - the help of friends
  - Quit-Smoking Centres
  - telephone help lines
  - cessation groups
  - brochures
- ❑ the importance of not smoking in the house or the car

Give

- ❑ smoking cessation material such as "Freedom"[21]
- ❑ cessation resources:
  - iQuitNow help line 1-866-jarrete (527-7383)
  - list of Quit-Smoking Centres[22]
  - Web site www.jarrete.qc.ca[22]
- ❑ a follow-up appointment, as needed

Ask

- ❑ On what date are you thinking of quitting?
- ❑ Do you have any concerns or questions about quitting smoking?
- ❑ What is motivating you to quit?

Discuss

- ❑ the concerns and questions raised
- ❑ the importance for the person to think about what makes him or her want to smoke and what he or she can do instead (this can be related to previous attempts to quit)
- ❑ withdrawal symptoms
- ❑ smoking cessation medications
- ❑ stress management
- ❑ weight gain
- ❑ support that family and friends can provide
- ❑ the importance of not smoking in the house or the car

Give

- ❑ smoker's diary to fill out
- ❑ a prescription for a smoking cessation medication, if there are no contraindications
- ❑ smoking cessation material such as "Freedom" (see page 12)
- ❑ cessation resources:
  - iQuitNow help line 1-866-jarrete (527-7383)
  - list of Quit-Smoking Centres (CAT)
  - Web site: www.jarrete.qc.ca
- ❑ an appointment one to two weeks following the anticipated quit date
- ❑ a referral, as needed

Ask

- ❑ What do you like about having quit smoking?
- ❑ Are you having any specific problems?
- ❑ Do you smoke once in a while?

Discuss

- ❑ the problems raised
- ❑ the importance of avoiding the occasional cigarette
- ❑ the urge to smoke, which can last a very long time, requiring the person to remain vigilant
- ❑ rewards as congratulations for not smoking

Give

- ❑ encouragement and congratulations
- ❑ a prescription for a smoking cessation medication, or adjust pharmacotherapy as necessary
- ❑ a follow-up appointment, as needed

Ask

- ❑ What made you start smoking again?
- ❑ What were the reasons that had motivated you to quit smoking?

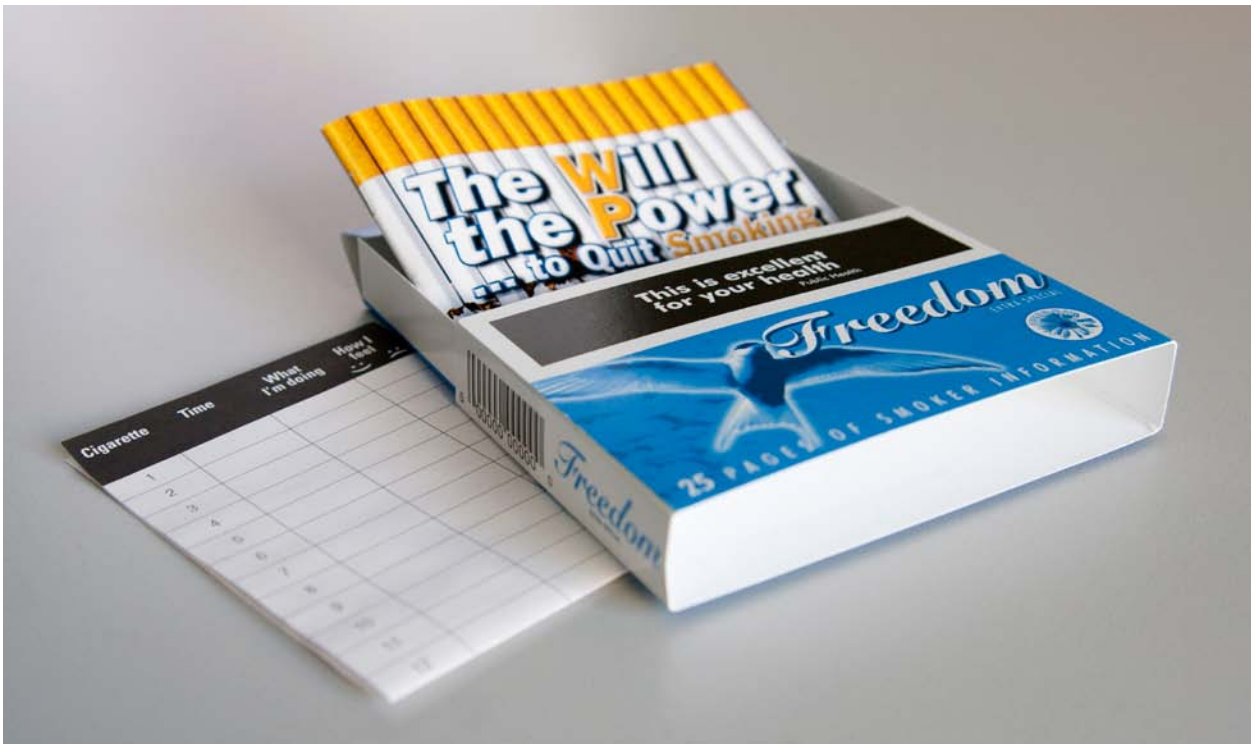
Discuss

- ❑ the fact that most smokers have to try several times before they succeed in quitting for good
- ❑ the importance of quitting again soon
- ❑ possible strategies to resist the urge to smoke, in relation to the reasons that led to relapse

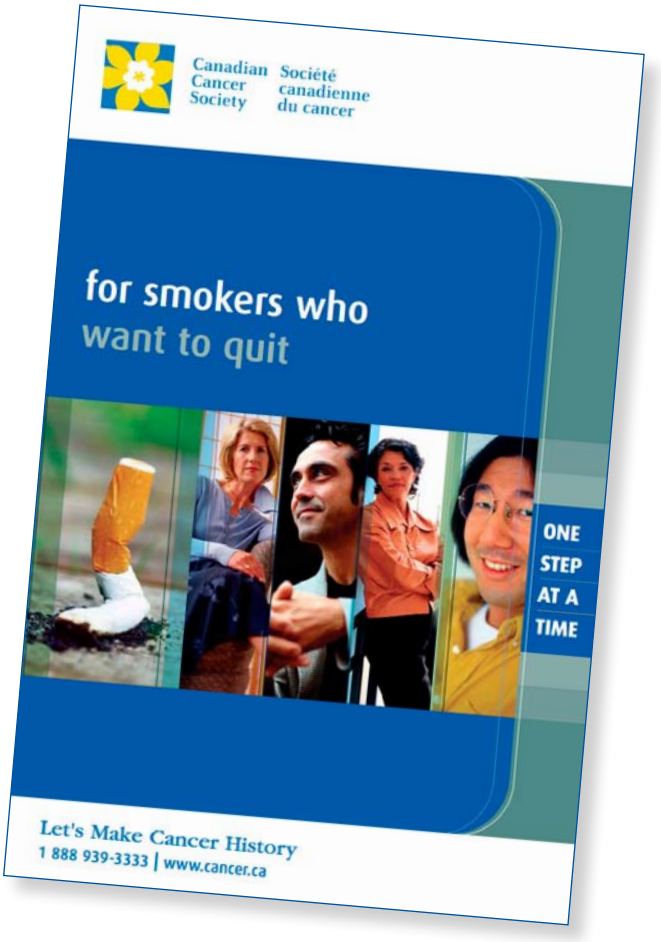
Give

- ❑ a prescription for a smoking cessation medication if the person wants to quit soon and if there are no contraindications
- ❑ smoking cessation material such as "Freedom"
- ❑ cessation resources:
  - iQuitNow help line 1-866-jarrete (527-7383)
  - list of Quit-Smoking Centres
  - Web site: www.jarrete.qc.ca
- ❑ an appointment, as needed
- ❑ a referral, as needed

Smoking cessation material



Smoker's Diary							
# of cigarettes	**Time**	**Need (1–5)**	**What I am doing**	**Reason for smoking**	**My mood**		
					☺	😐	☹
1	7:45 a.m.	++++	After having a coffee	To wake up		✓	
2	8:15 a.m.	+++	Driving	To deal with the traffic			✓
3	12 noon	++	Coffee break	Pleasurable	✓		
4	1:30 p.m.						
5							
...25							



Smoking cessation pharmacotherapy[12, 24-30]

- The efficacy of smoking cessation medications, such as nicotine replacement therapy (NRT: patches and gum) and bupropion or varenicline has been well documented.
- Smokers who use pharmacological aids to quit smoking can more than triple their chances of success.
- Smoking cessation medications should be used by all smokers who want to quit smoking and for whom there are no contraindications.
- The main factors that should guide the choice of medication are contraindications to certain medications, a patient's preference, the patient's past experience with some drugs, and the patient's personal characteristics.
- The dosages suggested in this document are taken from the 2008 Update of the American guidelines, unless otherwise noted in the text[12].

Reimbursement of smoking cessation pharmacological aids

- Upon presentation of a doctor's prescription (individual or collective), Quebec's Public Prescription Drug Insurance Plan and private insurance plans will reimburse the costs of smoking cessation pharmacological aids.
- At this time, nicotine replacement therapies, bupropion (Zyban) and varenicline (Champix) are reimbursed.
- Among NRT, only patches and gums are currently covered (Nicoderm, Habitrol, Nicorette, Thrive). Generic brands are not reimbursed.
- Each class of medication (NRT, bupropion, varenicline) is covered for a period of 12 consecutive weeks, once a year.
- Simultaneous use of nicotine patches and gum is covered if both medications are prescribed at onset of treatment and if the patient purchases both medications when starting the treatment.

Collective prescription for nicotine replacement therapies

- Since September 2006, smokers in Montreal can get a collective prescription for NRT signed by the Director of public health of the Agence de la santé et des services sociaux de Montréal. Since October 2009, smokers can go directly to a local pharmacy to obtain this prescription. They can then be referred to a Quit-Smoking Centre in the Montréal area or to the iQuitNow help line; both resources can provide psychobehavioural support, thus increasing the chances of success.

Nicotine replacement therapy (NRT)

- Contraindicated in the following cases:
  - allergy to adhesive bandage (for patches)
  - generalized skin disease (for patches)
  - severe dental problems (for gum)
- Contraindications listed in product monographs but being challenged by many experts:[25-27]:
  - myocardial infarction during the 2 preceding weeks
  - unstable or severe angina
  - severe arrhythmia
  - recent stroke
  - pregnancy or breastfeeding
  - under age 18
- For these contraindications, the following facts should be considered:
  - It has been clearly demonstrated that the use of nicotine patches or gum does not increase cardiovascular risks.
  - Nicotine can be harmful for the foetus, whether it comes from nicotine patches, nicotine gum or cigarettes. Pregnant or breastfeeding women should be given significant support to help them quit smoking without medications. Women who are unable to stop smoking should be encouraged to use patches or gum since they do not contain the toxic elements found in cigarettes and facilitate cessation. However, it is very important to ensure that a woman's nicotine intake is not higher than when she smoked. To do so,
    - insist on the importance of not smoking
    - personalize the treatment by reminding her that during pregnancy, use of tobacco should be stopped as soon as possible, ideally during the first trimester
    - recommend nicotine gum over other treatments; if patches are used, however, they should be removed at night.
- Smoking cessation medications are not recommended for people under 18 years of age because they have not been shown to be effective in this population.
- However, patches or gum can be recommended to adolescents who wish to quit smoking but are unable to because of their addiction to nicotine.

Recommendations

In May 2008, the *Treating Tobacco Use and Dependence: 2008 Update* published by the U.S. Department of Health and Human Services stipulated that pharmacological aids should not be recommended for certain groups of smokers due to the lack of conclusive evidence regarding their effectiveness. These groups are pregnant women, smokeless tobacco users, individuals who smoke fewer than 10 cigarettes a day, and adolescents[12].

However, in 2005 in the United Kingdom, licensing arrangements for NRT were changed to widen access to these therapies, and these contraindications were removed[25]. NRT can be used by smokers

- with cardiovascular diseases;
- aged 12 to 17 years;
- who are pregnant;
- who use more than one therapy simultaneously;
- up to 9 months, if necessary;
- who still smoke, but to reduce consumption while preparing to stop completely.

In Canada in 2008, a working group of the Ontario Medical Association recommended that use of stop-smoking medications should be broadened. The working group stated that NRT is safe and can be used by people with cardiovascular disease, pregnant women and adolescents. It recommended that NRT be used to reduce cigarette consumption as an interim towards becoming tobacco-free, and to continue treatment as long as needed to maintain abstinence[26].

Nicotine patches (Habitrol, Nicoderm, generic brands)

- Suggested use for people who smoke 10 cigarettes or more a day:

Brand	Treatment	Duration
Habitrol or Nicoderm	21 mg/24 hours	4 to 6 weeks
	14 mg/24 hours	2 to 4 weeks
	7 mg/24 hours	2 to 4 weeks

- Nicotine patch manufacturers recommend treatment lasting 8 to 12 weeks. Clinical trials have shown that an 8-week treatment to be as efficacious as one lasting 12 weeks. However, if patients wish to continue the treatment, there is no danger in using the patches beyond 12 weeks.
- If people who smoke less than 10 cigarettes a day want to use patches, it is preferable that they start treatment with a lower dose patch.

- The patch should be applied every morning, on a hairless part of the body between the neck and the waist;
- Patients who have trouble sleeping might have to remove the patch before going to bed and apply a new one when they wake up in the morning;
- The most commonly reported side effect related to patch use is a skin rash at the site of the patch. The rash usually disappears within 48 hours when the patch is placed at a different site every day. If the rash persists, local treatment with hydrocortisone creme is usually sufficient.

Nicotine gum (Nicorette, Thrive)

- Nicotine extraction varies and depends on how the gum is chewed. 2 mg nicotine gum releases up to 50% of the nicotine content, while 4 mg gum releases up to 70%.
- People who smoke fewer than 25 cigarettes a day should use 2 mg gum, whereas those smoking 25 cigarettes or more a day should use 4 mg gum.
- To maintain optimal nicotine levels, it is preferable to follow a regular schedule, for example, use a piece of gum every hour, for a maximum of 24 pieces a day;
- Treatment lasts at least 1 to 3 months; 15% to 20 % of patients are still using it after a year, which is less risky than smoking;
- It is important to explain clearly how to use the gum. Nicotine gum must be chewed a few times and then placed between the cheek and the gums for one minute to allow absorption of the nicotine through the mucous membrane of the mouth. The process must be repeated for 30 minutes. The patient must not eat or drink anything 15 minutes before and during mastication in order not to interfere with nicotine absorption.
- Common side effects include mouth irritation, hiccups, dyspepsia, and mandibular pain. They usually disappear when the person adopts a good chewing technique.

Smoking reduction

A qualitative study review of smoking reduction leading to definitive cessation shows that this strategy favours smoking cessation[28]. Health Canada has approved the use of NicoretteMD gum to help smokers progressively reduce the number of cigarettes smoked before quitting completely[24].

- During the first 6 weeks, smokers determine how many cigarettes a day they want to eliminate, and set a quit date. Nicotine gum is used as needed during the cutting down period.
- Between the 6th week and the 4th month, smokers reduce daily cigarette consumption by 50 per cent, and continue to cut down until they feel ready to quit completely.
- Between the 4th and the 6th month, smokers quit completely and use nicotine gum as needed, for up to three months.

Lozenges (Thrive, Nicorette)

- Lozenges release almost 100% of the nicotine they contain: a 1 mg lozenge is equal to a 2 mg gum, and a 2 mg lozenge is equal to a 4 mg gum.
- Thrive lozenges available in Canada in 1 mg and 2 mg doses have not yet been recommended in the American guidelines. Nicorette lozenges are available in 2 mg and 4 mg formats.
- Individuals who smoke fewer than 20 cigarettes a day or who have their first cigarette more than 30 minutes after waking up are advised to use 1 mg Thrive or 2 mg Nicorette lozenges. People who smoke 20 cigarettes or more a day or who have their first cigarette within 30 minutes of waking up should use 2 mg Thrive or 4 mg Nicorette lozenges.
- The lozenge is placed the mouth and allowed to slowly dissolve until a taste is noticed; it is then kept between the cheek and the gums until the taste has disappeared. This step must be repeated for about 30 minutes. Drinking or eating should be avoided for 15 minutes before and while using the lozenge to prevent interfering with nicotine absorption.
- Adverse effects are the same as for nicotine gum.

Inhaler (Nicorette)

- Although this product is called an inhaler, the nicotine it contains is absorbed though the mucous membrane of the mouth. A 10 mg cartridge releases 4 mg of nicotine into the mouth, the equivalent of a 4 mg gum.
- Drinking or eating should be avoided for 15 minutes before and while using the inhaler to prevent interfering with nicotine absorption.
- A cartridge should be inhaled over a period of about 20 minutes.
- It is recommended to use 6 to 16 cartridges a day for a period of 12 weeks or more, if needed, and then to progressively reduce their use.
- The adverse effects that are often reported include irritation of the mouth or throat, cough and rhinitis.
- Contraindications: hypersensitivity to menthol.
- Warning of possible bronchospasm if asthma or COPD.

Bupropion (Zyban)

This medication is thought to help smoking cessation by inhibiting dopamine re-uptake and altering norepinephrine levels.

Contraindications[24]

- Seizure disorders
- Bupropion taken as an antidepressant (Wellbutrin)
- Taking a monoamine-oxidase inhibitor antidepressant or the antipsychotic drug thioridazine within 14 days
- Abrupt withdrawal from alcohol
- Abrupt withdrawal from benzodiazepines or other sedatives
- Current or prior diagnosis of bulimia or anorexia nervosa
- Allergy to bupropion

Caution

The risk of seizures is dose-related. The rate of seizures is about 0.1% when the dose does not exceed 300 mg/day.

The following conditions increase the risk of seizures, and extreme caution is required:

- History of head trauma or seizures
- Central nervous system tumour
- Serious liver damage: if bupropion is administered, proceed with extreme caution and prescribe a reduced dose not exceeding 150 mg every 2 days
- Alcohol abuse, addiction to opiates, cocaine or stimulants
- Concomitant use of medications that lower the seizure threshold such as antipsychotics, antidepressants, lithium, amantadine, theophylline, systemic steroids, quinolone antibiotics, and antimalarial drugs
- Use of over-the-counter stimulants or appetite suppressants
- Use of St. John's wort
- Diabetes treated with insulin or oral hypoglycaemics

Precautions

Caution is recommended in the presence of the following factors:

- Pregnancy: enroll pregnant women taking bupropion in the registry monitoring the evolution of exposed foetuses: 1-800-387-7374
- Breastfeeding: stop bupropion administration
- Under 18 years old: bupropion can be recommended to young people who wish to quit but are not successful because of their nicotine addiction
- Recent history of myocardial infarction or unstable heart disease
- Combination of bupropion and nicotine gum or patch: monitor blood pressure
- Concomitant use of betablockers or type 1C antiarrhythmic agents consider reducing dosage of these medications
- Concomitant use of levodopa: use low-dose bupropion at first then gradually increase dosage
- Renal impairment: consider reducing dosage frequency

Drug interactions

- Monoamine-oxidase inhibitors (MAOI) are contraindicated
- Drugs metabolized by cytochrome P-450 enzyme
  - the substrates CYP2B6 (stimulation with carbamazepine, phenobarbitol and phenytoin induces the metabolism of bupropion) and
  - CYP2D6 (bupropion inhibits the metabolism of SSRI antidepressants, antipsychotics, betablockers and antiarrhythmics): consider reducing the dose of these medications. Increased neuropsychiatric effects with use of levodopa and amantadine.

Adverse effects

The most common adverse effects are insomnia and dry mouth. To reduce the risk of insomnia, the patient should take the second dose of bupropion a few hours before bedtime while maintaining an 8-hour interval between the two doses. If insomnia persists, the dose can be reduced to 150 mg/day.

The adverse effects that most often cause people to stop treatment are tremors and skin rashes.

Schedule

- bupropion 150 mg/day for the first three days
- bupropion 150 mg twice/day for 7–12 weeks, with a minimum interval of 8 hours between doses
- the patient should stop smoking during the second week of treatment
- dose tapering is not required when discontinuing treatment
- use of bupropion approved by Health Canada for up to 52 weeks for smokers prone to mood changes or who continue to have strong urges to smoke

Medication combination

It is now recommended to consider from the start the concomitant use of different quit-smoking medications[12, 25-27]:

- use of the 21 mg patch combined with nicotine gum, lozenges or inhaler when strong urges to smoke arise;
- bupropion treatment and patches: start with bupropion, add 21 mg patches when the patient stops smoking, reduce the dose of the patch to 14 mg at week 8, and to 7 mg at week 9. It is important to monitor the patients' blood pressure when they take this combination of medications since a slight increase in cases of high blood pressure has been noted in a comparative study with a placebo group. High blood pressure disappears when medication is stopped.

Varenicline (Champix)

Varenicline (Champix) targets α4β2 nicotinic acetylcholine receptor (nAChR) in the ventral tegmental area of the brain. When it acts as a partial agonist, it causes the release of dopamine from the axons to the nucleus accumbens, believed to be the reward area for several drugs, and thus relieves nicotine withdrawal symptoms and attenuates urges to smoke. It also acts as a partial antagonist by preventing nicotine from binding to these receptors and producing biological effects.[29, 30]

Contraindications[24, 29, 30]

- Under 18 years old
- Pregnant or breastfeeding
- End-stage renal disease
- Allergy

Caution

- Warnings if presence of depression or other mental health problems
- No studies:
  - epilepsy
  - irritable bowel and other gastrointestinal problems
  - chemotherapy
  - heart diseases, COPD
- Negligible effect on cytochrome P450
  - low probability of drug interaction
  - severe renal impairment: avoid OCT2 inhibitors (trimethoprim, ranitidine, cimetidine, levofloxacin)
- Efficacy with other pharmacological aids not established: NRT and varenicline "could increase" adverse effects

Adverse effects

Generally occur in the first weeks of treatment: nausea, vomiting, sleep disturbances, headache, strange and vivid dreams but low risk of nightmares, constipation, gas. When attempting to quit, the following effects are also possible[30]:

- Risk of deterioration of psychiatric illness, especially in patients who are already affected.
- Symptoms of agitation, depression, suicidal ideation have been reported in people who have quit smoking with or without the use of Champix. It is not known whether these effects can be caused by Champix. Ask patients and their families to report these symptoms, should they occur.
- Risk of dizziness and somnolence; patients should ensure they are not affected by these symptoms before driving motor vehicles or operating hazardous machinery.
- Effects of other medications (insulin, theophylline, warfarin) altered.

Schedule

Increase to 1 mg BID	
Days 1-3	0.5 mg die
Days 4-7	0.5 mg BID
Day 8 – end of treatment	1.0 mg BID
Duration of treatment	12 weeks

- Stop smoking 8 to 14 days after beginning treatment
- Consider 12 additional weeks for individuals who have succeeded
- Severe renal impairment (creatinine clearance < 30 mL/min): maximum dose of 0.5 mg BID
- Monitor renal function in elderly people

Free community resources

The Ministère de la Santé et des Services sociaux's smoking-cessation plan, the *Plan québécois d'abandon du tabagisme* (PQAT) aims to reduce the number of smokers in Quebec by implementing various intervention strategies for cessation.

The following resources[22, 31] are available for Montrealers who smoke:

- 13 Quit-Smoking Centres offer free individual help to smokers. 12 centres are located in CSSS and the other at the Centre hospitalier de l'Université de Montréal. The Montreal Children's Hospital offers support for adolescents who want to quit smoking.
- iQuitNow, a telephone referral and help line: 1-866-Jarrete (527-7383) free for smokers from Monday to Friday, 8:00 A.M. to 9:00 P.M.

j'Arrête.
1 866 jarrête www.jarrete.qc.ca
centres d'abandon du tabagisme

- Web site offering free referrals and support www.jarrete.qc.ca.
- About 15 smoking cessation groups offered each year in different parts of Montréal and at the Jewish General Hospital.
- A maintenance group for ex-smokers offered year-round.

You can consult a list of resources on the Direction de santé publique Web site at

http://www.santepub-mtl.qc.ca/tabagie/index.html or the iQuitNow Web site at http://www.jarrete.qc.ca/en/default.html.

Conclusion

Because of the numerous harmful effects associated with smoking, it is important that health professionals identify the smoking status of all their patients aged 9 years and over, and help smokers quit. We know that when a clinician intervenes with smokers, it helps them quit. Health professionals should realize that if they do not discuss smoking with smokers, the latter may believe that they are not personally exposed to the harmful effects of tobacco. The recommendation to smoke outdoors to protect their loved ones from second-hand smoke is often a first step and allows the person to reflect on smoking. Having various health professionals involved in treatment for cessation can result in significantly lower prevalence of smoking in the population and, consequently, in marked improvements to the health and well-being of smokers.

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