Smoking cessation: helping your patients kick the habit

by Susan Halasi, MScPhm, RPh

Learning objectives

Upon completion of this lesson, the pharmacy technician will understand the following:

1. The impact of smoking on various population groups
2. The stages of readiness to gauge a person’s willingness to stop smoking
3. The pharmacologic interventions proven helpful in cessation programs
4. The nonpharmacologic interventions available
5. The role of the technician to support patients either contemplating quitting or attempting to quit smoking

Background

In 2012, the Canadian Tobacco Use Monitoring Survey (CTUMS) estimated that 4.6 million Canadians aged 15 years and older smoked cigarettes. Encouragingly, the prevalence rate, or number of people smoking at a given time, has declined significantly since the questionnaire was initiated in 2001, when 25% of those 15 years and older (approximately 6.1 million people) claimed to be smokers. In 2012, this figure dropped to 16%, the lowest smoking rate recorded since the inception of the survey. The Public Health Agency of Canada, via the Federal Tobacco Control Strategy along with other government agencies, is working to reduce the number of Canadians who smoke. The Canadian Tobacco Use Monitoring Survey is conducted annually and is the main source of national data on smoking patterns and trends among Canadians.

The Saskatchewan Health Evaluation Centre (SHEC) is a coordinating centre for population-based health data in Saskatchewan. SHEC is a resource for researchers, the health community, and the public. Through research, training, and sharing health data, SHEC helps inform and improve the health of Saskatchewan’s population.

SHEC is a leading source of information and data on health and health care. SHEC provides services to researchers, the health community, and the public, helping to inform and improve the health of Saskatchewan’s population.
(FTCS), has focused its attention on reducing tobacco-related deaths. To that end, more than $1.6 million has been allocated for a National Smoking Cessation Program. The University of Ottawa Heart Institute will expand the Quit Smoking Program in cardiac clinics to respiratory and diabetes clinics located in Ontario, British Columbia and New Brunswick. Funding is available through provincial health ministries to support professionals who wish to offer smoking cessation counselling. Reimbursement for certification classes, patient contact and documentation time, and provision of cessation therapy aids are available by applying to individual provincial programs.\(^2\)

This continuing education lesson will focus on how smoking affects individual and public health, pharmacologic and nonpharmacologic strategies for patients who wish to quit and the role of the pharmacy technician in smoking cessation.

**Impact of smoking**

The harm caused by cigarette smoking is well documented. Cigarette smoking is the main risk factor for lung cancer, as well as a variety of other cancers. On average, smokers die 13 to 14 years earlier than non-smokers; one-third of youth who continue to smoke into adulthood will die prematurely from smoking. People who smoke are 2–4 times more likely to suffer a heart attack than non-smokers. Smokers are at greater risk of developing chronic obstructive lung disease. Women who smoke while breastfeeding produce less milk than non-smokers, affecting infant body weight.\(^3\)

Smoking is also harmful to others. The Canadian Cancer Society estimates that 1000 people die annually from inhaling second-hand smoke. Non-smokers exposed to second-hand smoke increase their lung cancer risk by 20% to 30%. Their risk of heart disease is increased by a similar percentage. One in every five babies born to mothers who smoked while pregnant has a low birth weight (a leading cause of infant death). As well, second-hand smoke in the home is associated with an increased risk of sudden infant death syndrome (SIDS). Babies and children who breathe second-hand smoke often suffer from shortness of breath, and become ill with bronchitis, asthma and pneumonia. Children living in homes where a parent smokes are more likely to suffer middle ear infections.\(^3,4\)

**Readiness to quit: assessment**

The Ontario Ministry of Health and Long-Term Care is supportive of pharmacists wishing to help their patients stop smoking. Effective September 2011, community pharmacists are able to bill the Drug Benefit Program for a readiness assessment, a first consultation and a number of follow-up counselling sessions over a one-year period.\(^5\) The Model for Change, a validated tool as elaborated by Prochaska and DiClemente, can be used as the basis for assessment, and is detailed in Table 1.\(^6\) Where appropriate, pharmacists may supply cessation medication, or engage the patient’s primary prescriber to order prescription therapy as needed.\(^5\) Comparable programs are available in other jurisdictions throughout Canada under the blueprint for change, enacted by the FTCS.\(^2\)

**Pharmacologic interventions in smoking cessation**

There are numerous pharmacological interventions available to suit an individual’s preference and lifestyle. An overview of these products is found in Table 2.\(^7-15\)

Nicotine replacement therapy (NRT), bupropion sustained release and varenicline are first-line drug interventions for smoking cessation in Canada. Clonidine and antidepressants have had limited success and are considered second-line agents.\(^7,9\) Currently, a nicotine vaccine and the drug cytisine are under investigation outside of Canada for the treatment of addiction to nicotine.\(^13\) Complementary remedies such as lobeline and St. John’s wort have been investigated, with little success.\(^11,12\)

Many studies have established that greater success in total abstinence is achieved when patients use a combination of treatments, including mixing pharmacologic and non-drug measures. One of the most effective non-drug interventions is advice from a healthcare professional, be it a doctor, respiratory therapist, nurse or pharmacist—cessation should be encouraged by multiple professionals.\(^16\)

**TABLE 1 - Stages of readiness for change\(^6\)**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Characteristics</th>
<th>Interactive techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>Precontemplation</td>
<td>Not ready or intending to take any action in the next six months</td>
<td>Explain and personalize risk</td>
</tr>
<tr>
<td>Contemplation</td>
<td>Thinking about change but not within the next month</td>
<td>Encourage “pros and cons” thinking</td>
</tr>
<tr>
<td>Preparation</td>
<td>Ready to change and planning to act within one month</td>
<td>Personalize “pros and cons” thinking Encourage small initial steps</td>
</tr>
<tr>
<td>Action</td>
<td>Modification of behaviour occurred more than six months ago</td>
<td>Help individual deal with obstacles Restructure social cues Combat feelings of loss or frustration</td>
</tr>
<tr>
<td>Maintenance</td>
<td>A focus on maintaining changes and preventing relapse</td>
<td>Aim for follow-up support Reinforce positive effects of change</td>
</tr>
<tr>
<td>Relapse</td>
<td>Regression to a previous stage</td>
<td>Reassess motivation Evaluate triggers for relapse Discuss barriers Plan stronger coping strategies</td>
</tr>
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</table>

With an understanding of these stages, pharmacists are able to determine where patients are in the change process and begin the process of motivating them towards change. Pharmacists are able to help patients understand the stages of change and the role they play in the process.

**Interactive techniques**

- Explain and personalize risk
- Encourage “pros and cons” thinking
- Personalize “pros and cons” thinking
- Help individual deal with obstacles
- Restructure social cues
- Combat feelings of loss or frustration
- Aim for follow-up support
- Reinforce positive effects of change
- Reassess motivation
- Evaluate triggers for relapse
- Discuss barriers
- Plan stronger coping strategies
### TABLE 2 - Pharmacologic interventions in smoking cessation\(^{(7-15)}\)

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Mechanism of action</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td><strong>First-line therapy</strong></td>
<td></td>
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</tr>
<tr>
<td>Nicotine replacement therapy (NRT)</td>
<td>Reduces severity of withdrawal symptoms, lessens effects of inhaled tobacco-delivered nicotine</td>
<td>Status: unscheduled Intervention success: all forms of NRT effective, insufficient evidence to recommend one form over another. NRT increases quit rate by 50% to 70% compared with controls. Suitable for use during pregnancy. Side effects: minimal; may cause irritation to mouth and skin, heartburn</td>
</tr>
<tr>
<td>Bupropion</td>
<td>Blocks re-uptake of dopamine (eases cravings), norepinephrine (helps with nicotine withdrawal)</td>
<td>Status: schedule F* Intervention success: doubles chance of cessation versus placebo; third trimester use has resulted in complications after birth Side effects: insomnia, dry mouth, nausea, allergic reactions, contraindicated in seizure disorders</td>
</tr>
<tr>
<td>Varenicline</td>
<td>Partially blocks nicotine binding to receptors (reducing cravings and withdrawal symptoms)</td>
<td>Status: schedule F* Intervention success: 1.5 times more likely to be abstinent compared with treatment with bupropion; no adequate safety information in pregnancy. Side effects: onset/exacerbation of psychiatric illnesses, nausea, insomnia, headaches</td>
</tr>
<tr>
<td><strong>Second-line therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Antidepressants (nortriptyline, fluoxetine, paroxetine, sertraline, moclobemide, selegiline, venlafaxine)</td>
<td>Postulated to blunt the effects of nicotine by simulating its action</td>
<td>Status: schedule F* Intervention success: more effective when combined with NRT than NRT alone; superior to placebo. Side effects: as seen in the treatment of depression</td>
</tr>
<tr>
<td>Anxiolytic agents (buspirone, beta-blockers, diazepam)</td>
<td>Substitution of anxiolytics for smoking (which is said to ease anxiety)</td>
<td>Status: product specific Intervention success: insufficient evidence to use products first-line Side effects: sedation, risk of dependence</td>
</tr>
<tr>
<td>Clonidine</td>
<td>Acts on the CNS to reduce withdrawal symptoms in addictive behaviour</td>
<td>Status: schedule F* Intervention success: 9% increase in likelihood to quit over placebo Side effects: postural hypotension, sedation</td>
</tr>
<tr>
<td>Opioid antagonists (naltrexone, naloxone)</td>
<td>May block rewarding effects of nicotine addiction</td>
<td>Status: schedule F* Intervention success: no significant increase in abstinence noted over placebo, with or without NRT supplementation. Side effects: as seen in the treatment of alcohol or narcotic addiction</td>
</tr>
<tr>
<td><strong>Investigational therapy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cytisine</td>
<td>Similar to varenicline, reduces cravings and withdrawal symptoms</td>
<td>Intervention success: limited, further study required; currently available only in Eastern Europe Side effects: dyspepsia, nausea, headache</td>
</tr>
<tr>
<td>Nicotine vaccine</td>
<td>Blocks nicotine access to the brain, less satisfaction derived from smoking</td>
<td>Intervention success: significant result early in trials compared with placebo, but not at 52-weeks; vaccine not licensed anywhere in the world. Side effects: generally well tolerated, “flu-like” symptoms</td>
</tr>
<tr>
<td>Rimonabant</td>
<td>May restore balance to receptors affected by nicotine</td>
<td>Intervention success: no significant benefit seen compared with placebo; product is under investigation outside Canada Side effects: nausea, upper respiratory tract infections</td>
</tr>
<tr>
<td><strong>Complementary therapy</strong></td>
<td></td>
<td></td>
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<tr>
<td>Lobeline</td>
<td>Partial nicotine agonist, relief of withdrawal symptoms</td>
<td>Intervention success: failure to detect a benefit compared with placebo Side effects: dizziness, nausea, vomiting, throat irritation</td>
</tr>
<tr>
<td>Nicobrevin</td>
<td>Sensory replacement of smoking sensation</td>
<td>Intervention success: no advantage noted over placebo; proprietary with product containing quinine, methyl valerate, camphor and eucalyptus Side effects: withdrawn from the market, risk of use outweighed benefits</td>
</tr>
<tr>
<td>Silver acetate</td>
<td>Aversion therapy, unpleasant metallic taste when a cigarette is smoked</td>
<td>Intervention success: no significant difference noted over NRT products or placebo Side effects: unpleasant taste, gastrointestinal disturbances</td>
</tr>
<tr>
<td>St. John’s wort</td>
<td>Unknown, may be similar to antidepressant agents</td>
<td>Intervention success: active treatment did not increase duration of smoking abstinence compared with placebo Side effects: no major adverse effects noted</td>
</tr>
</tbody>
</table>

*Schedule F (in the Food and Drug Regulations) is a list of drugs that require a prescription. However, note that effective December 19, 2013 Schedule F was repealed and replaced by the Prescription Drug List. This list is found at [http://www.hc-sc.gc.ca/dhp-mps/prodpharma/pdf-ord/index-eng.php](http://www.hc-sc.gc.ca/dhp-mps/prodpharma/pdf-ord/index-eng.php).*
Meta-analysis did not demonstrate increased rate of health improvements (better health, increased disposable income) (7,17).

Pharmacy technicians should rapidly address any concerns about tobacco use and assist in the process of quitting. Several sessions on the ear and/or other body areas can be helpful in assessing readiness to quit. Should an individual be ready for change, the technician can refer the patient to the pharmacist for enrollment in the smoking cessation program.

Role of the pharmacy technician
Pharmacy technicians have a vital role in helping people addicted to cigarettes. They have the opportunity to identify smokers who have tried to quit or refill a prescription, and ask questions about the smoking habit. The act of stopping smoking can go a long way toward improving outcomes. Pharmacy technicians should document smoking status, and changes to smoking status in the patient profile. This notation will prevent unintended exposure to drugs, and can improve adherence.

Electronic cigarettes or e-cigarettes are another option to help patients quit smoking. This option is less harmful than standard cigarettes, and may be used to improve adherence to smoking cessation programs. The electronic cigarette is usually a battery-powered delivery system that vaporizes an aromatic liquid mixture containing propylene glycol, glycerin and artificial flavors. A single study reported in The Lancet suggested that e-cigarettes might help smokers quit—in this randomized, placebo-controlled trial, the electronic device was only modestly effective, with results comparable to those seen with nicotine patches. Investigators stressed that more research is needed before concluding that this treatment modality is safe and effective.

Nonpharmacologic interventions in smoking cessation

Patients who desire an alternative to pharmacologic interventions may ask about non-drug measures to tackle smoking. These clients have a variety of options, which are described in Table 3.(7,17)

Many patients may ask about electronic cigarettes or e-cigarettes. Health Canada has warned against the use of devices containing nicotine as part of the inhalation solution. It is no longer legal to import, advertise or sell such items in Canada. Despite warnings issued by Health Canada, purchase of such products is possible over the Internet.(13)

E-cigarettes or cigars look like their counterparts, even including a tip that glows when the atomizer is switched on. A non-nicotine electronic cigarette is available at select pharmacies. The kit consists of a battery-powered delivery system, which vaporizes an aromatic liquid mixture containing propylene glycol, glycerin and artificial flavors.(16) A single study reported in The Lancet suggested that e-cigarettes might help smokers quit—in this randomized, placebo-controlled trial, the

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| Behavioural intercession | Use of the 5 A's:  
• Ask about tobacco use  
• Advise to quit  
• Assess readiness to quit  
• Assist in the process  
• Arrange follow-up  
Undertaken by a variety of healthcare professionals in group sessions, by phone or in person | Trials demonstrated simple contact increased abstinence rate compared with controls  
To enhance motivation, healthcare professionals should employ the 5 R's:  
• Relevance (improvement in disease conditions)  
• Risk (health concerns)  
• Rewards (better health, increased disposable income)  
• Road blocks (withdrawal symptoms, weight gain)  
• Repetition (helpful in failed quit attempts) |
| Hypnotherapy         | Suggestions used by therapist include weakening individuals’ desire to smoke, strengthening their desire to quit and helping them concentrate on their quit program | No additional benefit of this modality over control groups; however, challenges mentioned in validating this treatment included small sample size of most trials, and separating time spent with healthcare worker versus the process |
| Aversive therapy     | Rapid puffing or excessive smoking, smoke holding and electric shock while inhaling | Used before the advent of more successful therapies linking a negative sensation to smoking  
Insufficient evidence to support this form of therapy |
| Acupuncture          | Several sessions on the ear and/or other body areas                         | Past analyses did not demonstrate benefit over counselling; recent study results showed 15.8% quit rate at 52 weeks |
| Exercise             | “Commit to Quit” aerobic program                                             | Meta-analysis did not demonstrate increased rate of smoking cessation |

To be better prepared to advise patients on the options available to quit smoking. Once a patient is enrolled in a smoking cessation program, pharmacy technicians can assist them with follow-up and support. Simply inquiring about how patients are dealing with quitting helps improve their success in maintaining abstinence. In addition, questioning patients about any untoward side effects or difficulties they may be experiencing with the medications associated with the program can improve adherence.(7,18)

Particular attention can be paid to those patients with prescriptions for heart conditions, diabetes and respiratory illnesses. With these ailments, the simple act of stopping smoking can go a long way toward improving outcomes. Pharmacy technicians should document smoking status, and changes to smoking status in the patient profile. This notation will prevent interactions, as smoking status can affect the metabolism of certain drugs.

If a patient is pregnant and smoking, this may be a chance to reinforce a message delivered by another healthcare worker who is concerned for the unborn child. In such cases, the pharmacy technician can ask about a desire to quit, assess the stage of readiness to quit and refer the patient when appropriate. Finally, in order for the pharmacist to be

TABLE 3 - Nonpharmacologic interventions in smoking cessation(7,17)
Continuing Education

Cigarette smoking is a highly addictive habit. It has been estimated that close to half a million deaths annually in the United States can be attributed to this addiction. In Canada, tobacco is a leading preventable cause of death, responsible for more than 37,000 deaths annually. In addition, there are adverse consequences for those exposed to second-hand smoke. Pharmacy technicians can encourage people who might be considering a smoking cessation program, and can actively assist those mid-program in maintaining abstinence.

REFERENCES

QUESTIONS

1. Which of the following statements is FALSE:
   a) The 2012 Canadian Tobacco Use Monitoring Survey found that 25% of Canadians 15 years of age and older claimed to be smokers
   b) The Public Health Agency of Canada aims to reduce smoking-related deaths by funding provincial cessation programs
   c) Cigarette smoking is the main risk factor for lung cancers
   d) Smoking has been connected with premature death in adults and adolescents who persist in the habit

2. Second-hand smoke has been connected to
   a) Middle ear infection in infants and children living in a home where people smoke
   b) Higher infant mortality as the result of mothers smoking during pregnancy
   c) Increased hospitalization for infants and children suffering from respiratory illness
   d) All of the above

3. You take the following action(s):
   a) Suggest he buy a nicotine replacement product instead of reaching for a cigarette
   b) Ask Matthew if he has thought about the impact of smoking on his health
   c) Suggest Matthew act now to effect changes to quit smoking
   d) a and b

4. Matthew says he might think about cessation therapy in the near future, but right now he is stressed at work and doesn’t think he would be very successful. Matthew is at the precontemplation stage in the readiness to change model.
   a) True
   b) False

5. Past attempts to quit by using nicotine replacement therapy (NRT) exclusively have failed in Matthew’s case. He would like to try an alternative over-the-counter product to help stop smoking. You suggest
   a) A combination of counselling and NRT
   b) St John’s wort, a herbal medication that has shown some benefit
   c) Speaking to a pharmacist about his options
   d) a and c

6. A week later, Matthew returns to the pharmacy, slowly recovering from his infection. He has more interest in finding out about possible smoking cessation options. His options include the following:
   a) Pharmacotherapy with over-the-counter nicotine replacement or prescription drugs
   b) Non-drug measures (behavioural intervention)
   c) Booking an appointment with the pharmacist, who will review his options in more detail
   d) All of the above

7. Reduction of cravings for nicotine is the proposed mechanism of action for
   a) Varenicline
   b) Nortriptyline

Please select the best answer for each question or answer online at www.CanadianHealthcareNetwork.ca for instant results.
Wendy wants to cut back on smoking, but the Christmas holidays are just a week away and she knows she will be tempted to smoke. If she waits till after New Year’s, quitting might be easier. Wendy is at the contemplative stage in the readiness to change model.

1. Wendy is pregnant, she should be concerned about:
   a) The increased risk of sudden death in her newborn due to second hand smoke
   b) The potential for low birth weight of the baby from second hand smoke
   c) The potential for reduced breast milk production when the baby arrives
   d) All of the above

9. Wendy has heard about the e-cigarette. You tell her the following:
   a) The product without nicotine is legal in Canada, but not available at this pharmacy
   b) The sale of the product without nicotine is illegal in Canada
   c) Studies have found it to be more effective than other treatments, but expensive
   d) a and c

10. If Wendy is pregnant, she should be concerned about:
    a) The increased risk of sudden death in her newborn due to second hand smoke
    b) The potential for low birth weight of the baby from second hand smoke
    c) The potential for reduced breast milk production when the baby arrives
    d) All of the above

11. Wendy has heard about the e-cigarette. You tell her the following:
    a) The product without nicotine is legal in Canada, but not available at this pharmacy
    b) The sale of the product without nicotine is illegal in Canada
    c) Studies have found it to be more effective than other treatments, but expensive
    d) a and c

12. Wendy wants to cut back on smoking, but the Christmas holidays are just a week away and she knows she will be tempted to smoke. If she waits till after New Year’s, quitting might be easier. Wendy is at the contemplative stage in the readiness to change model.

8. Of all the complementary therapies available in Canada, only St. John’s wort is found to be more effective than placebo.
   a) True
   b) False

9. If a patient relapses and starts smoking again, you can help them get back on track by:
   a) Discussing health issues relevant to their situation
   b) Mentioning the rewards of smoking cessation
   c) Suggesting coping strategies
   d) All of the above

Questions 10 through 13 apply to the following situation. Wendy is in her early twenties and comes to the pharmacy for a pregnancy test kit. She says she suffers from epilepsy and a heart murmur, and admits to smoking one pack of cigarettes daily to keep her weight down.

10. Wendy wants to cut back on smoking, but the Christmas holidays are just a week away and she knows she will be tempted to smoke. If she waits till after New Year’s, quitting might be easier. Wendy is at the contemplative stage in the readiness to change model.

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    d) All of the above

12. Wendy has heard about the e-cigarette. You tell her the following:
    a) The product without nicotine is legal in Canada, but not available at this pharmacy
    b) The sale of the product without nicotine is illegal in Canada
    c) Studies have found it to be more effective than other treatments, but expensive
    d) a and c

13. Wendy would find acupuncture or exercise better than using an over-the-counter treatment to stop smoking.
   a) True
   b) False

14. Varenicline is a suitable choice for patients:
   a) With a past history of psychiatric illness
   b) Who have frequent headaches
   c) Who have difficulty sleeping
   d) None of the above

15. The role of the pharmacy technician in assisting with smoking cessation involves:
   a) Recruiting individuals using readiness to quit techniques
   b) Compiling files and submitting correct billing codes to the funding agency
   c) Following up with patients to maintain abstinence over the long run
   d) All of the above

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