

# FREE

## CONTINUING EDUCATION LESSON



APPROVED FOR  
1.25 CEUs

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### LEARNING OBJECTIVES

Upon successfully completing this lesson, the pharmacist will be able to:

1. Describe the prevalence of tobacco use in the general Canadian population and in psychiatric populations.
2. Describe the disease burden associated with tobacco use.
3. Describe the therapeutic options for smoking cessation in terms of dose, duration of treatment, adverse effects, drug interactions and efficacy.
4. Understand the role of the pharmacist in monitoring and counselling individuals with mental illness in their process to quit smoking.

### INSTRUCTIONS

1. After carefully reading this lesson, study each question and select the one answer you believe to be correct. Circle the appropriate letter on the attached reply card or answer online at [www.pharmacygateway.ca](http://www.pharmacygateway.ca) in the CE Online section, "More CCEP-Approved" area.
2. To pass this lesson, a grade of 70% (14 out of 20) is required. If you pass, your CEU(s) will be recorded with the relevant provincial authority(ies). (Note: some provinces require individual pharmacists to notify them.)

### ANSWERING OPTIONS

- A. For immediate results, answer online at [www.pharmacygateway.ca](http://www.pharmacygateway.ca) in the CE Online section, "More CCEP-Approved" area.
- B. Mail or fax the printed answer card to (416) 764-3937. Your reply card will be marked and you will be advised of your results within six to eight weeks in a letter from Rogers Publishing.

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# Management of Tobacco Addiction in Individuals with Mental Illness

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### INTRODUCTION

Tobacco dependence is a substance use disorder of high prevalence in the Canadian population. In 2007, approximately 19% of the Canadian population over the age of 15 reported that they were current smokers, smoking an average of 15.5 cigarettes daily.<sup>1</sup> It has been estimated that over 47,000 people in Canada die annually due to smoking related illnesses.<sup>2</sup> In addition to mortality, smoking has serious economic consequences. Morbidity associated with tobacco addiction costs the Canadian economy an estimated total of \$17 billion per annum.<sup>3</sup>

Perhaps the most staggering statistics, however, are observed in populations with mental illness where smoking rates range from 50–90%, with the highest rates being observed in individuals with psychotic disorders such as schizophrenia.<sup>4,5</sup> Not only are individuals with mental illness such as schizophrenia more likely to smoke, they also tend to smoke more heavily and are less likely to quit smoking.<sup>6</sup> In

fact, it has been estimated that almost one-half of cigarettes smoked are consumed by those with mental illness or substance abuse disorders<sup>4</sup> and that individuals with mental illness may spend up to 40% of their income on tobacco, at the sacrifice of food, housing and social activities.<sup>7</sup> Furthermore, heart and respiratory diseases are 30–60% higher in individuals with mental illness, relative to those without this condition.<sup>8</sup>

Aside from the well recognized risks associated with tobacco use, smoking may be of particular concern in individuals with mental illness because it may reduce the efficacy of antipsychotic medication (due to increased clearance of some substrates) and increase the risk of hospitalization.<sup>9</sup> Moreover, studies suggest that most smokers with mental illness are unaware or are uninformed of the actual risks of tobacco use.<sup>3</sup> By being well informed about the unique challenges and therapeutic issues related to tobacco dependence and smoking cessation in individuals with comorbid mental

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illness, pharmacists can provide an invaluable service to the mentally ill who smoke and wish to reduce or quit.

### ETIOLOGY/PATHOPHYSIOLOGY/ DIAGNOSIS

It is important to recognize that tobacco addiction or nicotine dependence is, in fact, a chronic, relapsing, mental disorder in itself, not unlike other substance dependence disorders involving alcohol, cocaine, marijuana or opioids.<sup>10</sup> Smoking is not simply a “choice” or a “bad habit.”<sup>3</sup> Neuroadaptive changes in the brain from chronic exposure to nicotine and other chemicals in tobacco smoke are consistent with criteria to support tobacco addiction as a chronic disease.<sup>3</sup> Schizophrenia, alcohol and drug dependence, attention deficit disorder, major depressive disorder, anxiety disorder, and bipolar disorder are all associated with smoking.<sup>6</sup> The reasons for high smoking rates in individuals with mental illness have not been clearly established, but it is believed that multiple mechanisms are responsible.<sup>6</sup> For example, both neurobiological and psychosocial factors are thought to contribute to the link between smoking and schizophrenia. From the neurobiological perspective, there is a neurochemical interaction between the disease and nicotine.<sup>11</sup> Nicotine is thought to increase the release of dopamine in the frontal cortex.<sup>11</sup> Low levels of dopamine in this area are responsible for the negative symptoms associated with the disease.<sup>11</sup> Thus, nicotine may have a therapeutic benefit in schizophrenia in that it may reduce negative symptoms.<sup>12</sup> Furthermore, nicotine is thought to improve acetylcholine functioning in the brain, which improves attention, concentration and memory.<sup>12</sup> In short, from the neurobiological perspective, smoking may be a means of self-medicating for individuals with schizophrenia. From the psychosocial perspective, the reward derived from smoking (e.g., feelings of relaxation, pleasure, and reduced anxiety and depression) is thought to be of greater significance in schizophrenia compared to the those without the disease, as sources of satisfaction and pleasure may be otherwise limited.<sup>11</sup>

### ASSESSMENT AND GENERAL PRINCIPLES OF MANAGEMENT

Smoking cessation is often overlooked as part of the overall treatment plan of individuals with mental illness,<sup>6</sup> as healthcare providers may have the misconception that individuals with mental illness do not have the motivation to quit smoking.<sup>13</sup> This myth, as well as a number of others that may contribute to the failure to address smoking cessation in the

**TABLE 1: Top 10 myths about tobacco cessation in the mentally ill<sup>3</sup>**

Common myth	Comments based on the scientific evidence
1. There are more important things than smoking cessation in mental healthcare.	Tobacco use is the leading preventable cause of death and disease in the mentally ill, with a 50% mortality rate, vastly surpassing suicide as a cause of death.
2. People with mental illness cannot quit smoking, nor do they want to quit.	They are indeed interested in quitting and, with the right levels of support and intervention, they can succeed, similar to non-mentally ill smokers.
3. Quitting smoking will lead to relapse to mental illness.	With sufficient support, quitting smoking is not associated with a relapse to mental illness. However, untreated and forced involuntary abstinence from tobacco may increase the potential risks for harm.
4. Varenicline is causally related to suicide and should be avoided in the mentally ill.	Untreated smoking cessation can lead to changes in mood, abnormal dreams, aggression, suicidality, irritability, plus behaviour and appetite changes. No causal relationship has been established between the use of medications for smoking cessation and suicide.
5. Facilitating access to tobacco for patients with mental illness helps to improve their quality of life.	Facilitation of access to tobacco leads to higher levels of consumption and increased difficulty in accepting smoking cessation interventions.
6. If the mentally ill do not have access to tobacco, they cannot be controlled and will become aggressive, increasing the risk of violence.	With appropriate support levels, there is no evidence to suggest increased levels of violence, patients leaving hospitals against medical advice, increased use of physical or chemical restraints, or risk of violence to health-care providers.
7. Expecting the mentally ill to quit smoking violates their human rights.	There is no constitutional right to smoke, and health-care providers are ethically obliged to routinely offer evidence-based treatment to smokers.
8. Mentally ill persons will smoke while on the nicotine patch, which will lead to heart attacks.	There is no excess cardiovascular risk associated with coadministration of pharmaceutical nicotine while using tobacco-derived nicotine (smoking).
9. Medications (e.g., nicotine replacement, varenicline, bupropion) may only be used for periods not exceeding 2-3 months.	Medications can be safely and effectively used for longer periods, if clinically indicated. Cautiously exceeding the on-label indications for the duration of some treatments appears to provide additional benefits in terms of outcomes.
10. Tobacco cessation treatment is not effective.”	In the domain of mortality prevention, smoking cessation interventions have a number needed-to-treat value of “9”, indicating a substantial level of clinical meaningfulness. Tobacco addiction is considered to be at least as treatable as most other chronic diseases.

mentally ill, are outlined in Table 1.<sup>3</sup> It should be recognized that general strategies for smoking cessation interventions can be employed in individuals with mental illness, with some modification to ensure safety and optimize outcomes.<sup>3</sup>

There are a number of factors to assess and consider in individuals with mental illness who plan to quit smoking. One such factor is the patient’s preference for treatment, for example whether to employ behavioural therapy, pharmacotherapy or both, and whether to use group therapy or individual therapy.<sup>10</sup> The number of cigarettes smoked each day and the degree of nicotine dependence are important factors to consider in

selecting the appropriate therapy and dose.<sup>10</sup> Individuals with mental illness are more likely to be nicotine dependent.<sup>14</sup> As such, they are more likely to need intensive treatment, particularly drug therapy, in order to achieve a successful outcome.<sup>14</sup> A common measure of nicotine dependence is the Fagerström Test for Nicotine Dependence (Table 2).<sup>15</sup> A score of less than three demonstrates a low level of nicotine dependence, while scores of six or more are indicative of a high degree of dependence on nicotine.<sup>10</sup> Scores on the Fagerström Test can help to predict relapse and identify patients who may benefit from high dose nicotine replacement therapy (NRT).<sup>3,10</sup> Because this population tends to

**TABLE 2: Fagerström Test for nicotine dependence<sup>15</sup>**

Question	Response options	Points
How soon after you wake up do you smoke your first cigarette?	within 5 minutes	3
	6 to 30 minutes	2
	31 to 60 minutes	1
	after 60 minutes	0
Do you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, at the library, in the cinema, etc.?	yes	1
	no	0
Which cigarette would you hate most to give up?	the first one in the morning	1
	all others	0
How many cigarettes/day do you smoke?	10 or less	0
	11 to 20	1
	21 to 30	2
	31 or more	3
Do you smoke more frequently during the first hours after waking than during the rest of the day?	yes	1
	no	0
Do you smoke even if you are so ill that you are in bed most of the day?	yes	1
	no	0
<b>Total</b>	<b>Sum of all questions</b>	
<b>0-2 very low dependence, 3-4 low dependence, 5 medium dependence, 6-7 high dependence and 8-10 very high dependence</b>		

be more dependent on nicotine, scores on the Test tend to be higher for individuals with mental illness who smoke compared to those without mental illness.<sup>3,10</sup>

A quit attempt can involve abrupt or gradual smoking cessation.<sup>10</sup> Persons with severe and persistent mental illness may find it challenging to set a quit date and, due to symptoms of the illness, may find it difficult to sustain intentional behaviour in this context. With this in mind, a quit date can still be set with the patient, but slow progress may mark this process of quitting, and ongoing engagement in the process may be required to achieve optimal outcomes. The key focus remains that of a longitudinal approach, and with persons with mental illness a flexible and open-ended approach to cessation is considered prudent. Appropriate timing of the quit attempt must be evaluated; however, the patient's psychiatric symptoms should be stable and there should not be any recent or planned changes in medications, nor any urgent problems that take precedence.<sup>10</sup> Stability of psychiatric symptoms is important as withdrawal symptoms may interfere with an accurate diagnosis and since smoking affects the metabolism of a number of medications, titrating the patient to a stable dose can be difficult during a quit attempt. Mentally ill patients do not, however, have to be completely asymptomatic in order to reduce or quit smoking.

## PHARMACOTHERAPY

When considering pharmacotherapy, the approaches to smoking cessation in individuals with psychiatric conditions do not differ from the general population, with NRT, bupropion and varenicline being the major therapeutic alternatives (Table 3). Generally, meta-analysis of clinical trials show that with NRT of any form, individuals are 1.58 times more likely to quit smoking relative to using placebo or no treatment.<sup>16</sup> Individuals with schizophrenia, tend to be highly nicotine dependent as they smoke more heavily, have generally smoked for longer and are more likely to smoke high tar cigarettes and cigarette filters (where nicotine is highly concentrated).<sup>11</sup> Bupropion is an effective treatment option for smoking cessation as well, increasing the odds of smoking cessation about two-fold over placebo.<sup>17,18</sup> Data from meta-analyses also show that individuals who take varenicline for smoking cessation are about 2.33<sup>19</sup> to 2.41<sup>18</sup> times more likely to quit smoking than those who take placebo. The efficacy of varenicline relative to bupropion has been evaluated in two meta-analyses, which found that with varenicline individuals were 1.52<sup>19</sup> to 2.18<sup>18</sup> times more likely to quit smoking than with bupropion. Varenicline is under study in the mentally ill population, and early reports suggest adequate safety and efficacy of this partial agonist in the mentally ill population. The

early reports also suggest that there is no increased neuropsychiatric adverse effects compared to bupropion and NRT, with the exception of sleep disturbance.

The adverse effects and drug interactions associated with the use of NRT, bupropion and varenicline are listed in Table 4, as are warnings about the use of bupropion and varenicline that may be of particular relevance to individuals with mental illness. Despite these warnings, there is evidence that both therapies are generally safe and efficacious in individuals with mental illness.<sup>3</sup>

Aside from the drug interactions associated with smoking cessation therapies, the polycyclic hydrocarbons contained in cigarette smoke can induce the liver enzyme CYP1A2, and possibly CYP1A1 and CYP2E1. This induction of liver enzymes can increase the metabolism of a number of medications, including antipsychotics such as clozapine and olanzapine and some antidepressants.<sup>11</sup> Smoking can lower blood levels of antipsychotics by as much as 50%.<sup>11,20</sup> Consequently, average dosages of antipsychotics required to treat individuals with schizophrenia who smoke are considerably higher than those required by individuals with schizophrenia who do not smoke.<sup>21</sup> It is good practice to document smoking status on patient profiles given that it can affect drug levels. When individuals stop smoking, enzyme induction will subside and there is a potential for dangerously high blood levels to occur in the absence of dosage adjustments. Because of the potential for drug toxicity, it is usually necessary to reduce the dose of antipsychotics when individuals who take these medications stop smoking, particularly in heavy smokers.<sup>6,11</sup> This is an important point to consider when patients are admitted to hospitals or psychiatric facilities where smoking is not permitted, as they may require dosage adjustments. It is also important to consider that dosages may need to be adjusted again (i.e., increased) if the individual begins smoking again, as drug levels may become subtherapeutic. Generally, the degree of liver enzyme induction dissipates daily after an individual stops smoking and returns to a steady state after about one week.<sup>22</sup> Therefore, for drugs with narrow therapeutic indices, it has been recommended that dosages of interacting drugs be decreased by about 10% each day for four days after quitting.<sup>22</sup> A recently published article provides a comprehensive review of drug interactions with smoking.<sup>22</sup>

In individuals with psychiatric conditions, additional consideration may need to be made with regards to pharmacotherapy. Individuals with mental illness are more likely to be nico-

**TABLE 3: Treatment options for smoking cessation<sup>3,30</sup>**

Drug	Mechanism of action	Available dosages	Recommended dose in general population
<b>nicotine replacement therapy</b>	Delivers nicotine to reduce the withdrawal symptoms associated with smoking cessation.		
<i>polacrilex gum</i>		2 mg and 4 mg	<ul style="list-style-type: none"> <li>• initial month: 10 to 12 pieces per day* (approximately 1 piece per hour for individuals who smoke 1 pack per day)</li> <li>• taper by 1 piece per day each week as withdrawal symptoms allow</li> <li>• maximum of 20 pieces per day</li> </ul>
<i>transdermal patches</i>		7 mg, 14 mg, 21 mg per 24 hours	<ul style="list-style-type: none"> <li>• 21 mg/24 hours for six weeks, 14 mg/24 hours for two weeks, 7 mg/24 hours for two weeks</li> </ul>
<i>inhaler</i>		4 mg per cartridge	<ul style="list-style-type: none"> <li>• initial therapy of at least 6 cartridges per day for the first 3–6 weeks</li> <li>• taper by gradual reduction over the next 6–12 weeks, stopping when reduced to 1–2 per day</li> <li>• maximum of 12 cartridges per day</li> </ul>
<i>lozenge</i>		2 mg and 4 mg	<ul style="list-style-type: none"> <li>• weeks 1 to 6: dissolve 1 lozenge in the mouth every 1–2 hours as needed for withdrawal symptoms</li> <li>• weeks 7–9: 1 lozenge every 2–4 hours</li> <li>• weeks 10–12: 1 lozenge every 4–8 hours</li> <li>• 1–2 lozenges/day PRN for cravings</li> <li>• maximum of 15 lozenges per day</li> </ul>
<b>bupropion</b>	The mechanism by which bupropion enhances the ability of patients to abstain from smoking is unknown, but it is presumed that this action is mediated by noradrenergic and/or dopaminergic mechanisms.	150 mg	<ul style="list-style-type: none"> <li>• 150 mg daily for the first 3 days, then 150 mg twice daily for 12 weeks (the quit date is set after 1–2 weeks of starting treatment)</li> </ul>
<b>varenicline</b>	The efficacy of varenicline in smoking cessation is believed to be a result of its partial agonist activity at the $\alpha 4\beta 2$ nicotinic acetylcholine receptor (i.e., agonist activity to a lesser degree than nicotine), while simultaneously preventing nicotine binding (i.e., antagonist activity).	0.5 mg and 1 mg	<ul style="list-style-type: none"> <li>• 0.5 mg per day on days 1–3; 0.5 mg twice daily on days 4–7; 1 mg twice daily for 11 weeks (the quit date is set between days 8 and 14)</li> <li>• for patients who have successfully stopped smoking at the end of 12 weeks, an additional course of 12 weeks of treatment may be considered</li> <li>• for those who have not stopped smoking after 12 weeks, there are no efficacy data to support an additional 12-week course of treatment</li> </ul>

\* For optimum results, the initial treatment should be based on the patient's level of nicotine dependence, which can be determined by using the Fagerström Test for Nicotine Dependence. If the score is 6 or less, 2 mg gum is recommended for use. If the score is 7 or greater, or for patients who have cravings with the use of 2 mg gum, 4 mg gum should be used.

tine-dependent.<sup>14</sup> As such, they are more likely to need intensive treatment, particularly drug therapy, in order to achieve a successful outcome.<sup>14</sup> Withdrawal symptoms may also be particularly problematic in individuals with schizophrenia as they tend to smoke particularly heavily. This patient population may not achieve adequate control of withdrawal symptoms from monograph-recommended dosages of NRT. There is evidence that suggests nicotine patches combined with either nicotine gum or an inhaler as needed is more effective than either product alone.<sup>23,24</sup> Given the fact

that there is relatively little safety data on the use of the combination of NRT, it may be best reserved for those patients who do not manage to quit smoking using one product. Bupropion may also be combined with NRT in patients who do not manage to quit smoking using one product, as bupropion and NRT have distinct mechanisms of action. There is no rationale for combination of therapies with varenicline and NRT since varenicline has partial agonist nicotinic activity.<sup>3</sup> As well, the combination of varenicline and NRT can result in adverse reactions to NRT (Table 4).

Although pharmacotherapy for smoking cessation is intended to manage symptoms of nicotine withdrawal (e.g. anxiety, irritability, restlessness, nervousness, difficulty concentrating, sleep disturbances), individuals with mental illness may still experience an exacerbation in psychiatric symptoms. If left untreated, nicotine withdrawal symptoms can mimic or exacerbate anxiety disorders; thus, it is important that these symptoms be adequately treated in this population.<sup>3</sup> Of those individuals who seek treatment for smoking cessation, 25–40% will have a

**TABLE 4: Adverse effects and drug interactions<sup>30</sup>**

Drug	Common adverse effects	Drug interactions	Psychiatric warnings
<b>nicotine replacement therapy (NRT)</b>			
<i>polacrilex gum</i>	hiccups, jaw discomfort, oral mucosal changes (e.g., gingivitis, stomatitis, throat irritation), taste distortion	<ul style="list-style-type: none"> <li>• Dosage adjustments of certain medications may be required, as smoking cessation with or without NRT can alter their pharmacokinetics.</li> <li>• Dosage increases may be required for adrenergic agonists (e.g., phenylephrine).</li> <li>• Dosage reductions may be required for anti-psychotics (e.g., olanzapine, clozapine, and haloperidol), acetaminophen, pentazocine, caffeine, imipramine, oxazepam, propranolol, theophylline, and adrenergic agonists (e.g., prazosin, labetalol).</li> </ul>	<ul style="list-style-type: none"> <li>• none identified</li> </ul>
<i>transdermal patches</i>	redness, pruritus, burning at the application site, insomnia, abnormal dreams, headache, nausea, dyspepsia		
<i>inhaler</i>	initial cough, throat irritation, and rhinitis, headache, nausea, stomach upset		
<b>bupropion</b>	insomnia, hypomania, headache, dry mouth, blurred vision, constipation, sweating, tremor, gastrointestinal distress	<ul style="list-style-type: none"> <li>• Coadministration with drugs that are metabolized by CYP2D6 isoenzyme including certain antidepressants, antipsychotics, beta-blockers, and Type 1C antiarrhythmics, should be approached with caution and should be initiated at the lower end of the dose range of the concomitant medication.</li> <li>• May cause hypertension with nicotine replacement products; monitoring is required.</li> <li>• Caution should be used with medications that lower the seizure threshold including antipsychotics, antidepressants, lithium, amantadine, theophylline, quinolone antibiotics, antimalarials, systemic steroids, diabetes treated with insulin or oral hypoglycemics or anoretics.</li> <li>• Blood levels of cyclophosphamide, ifosfamide, and orphenadrine may be increased by bupropion.</li> <li>• Carbamazepine, phenobarbital and phenytoin may induce the metabolism of bupropion.</li> <li>• Caution with co-administration with levodopa and amantadine.</li> <li>• Contraindicated with mono-amine oxidase inhibitors.</li> </ul>	<ul style="list-style-type: none"> <li>• clinical trial and postmarketing reports in both pediatrics and adults of severe agitation-type adverse events coupled with self-harm or harm to others</li> <li>• rigorous clinical monitoring for suicidal ideation or other indicators of potential for suicidal behaviour is advised in patients of all ages</li> </ul>
<b>varenicline</b>	nausea, abnormal dreams, constipation, flatulence, and vomiting	<ul style="list-style-type: none"> <li>• No clinically meaningful pharmacokinetic drug interactions have been identified, other than the potential for interaction with cimetidine in patients with severe renal impairment.</li> <li>• Increased incidence of nausea, headache, vomiting, dizziness, dyspepsia and fatigue for the combination of varenicline and NRT than for NRT alone.*</li> </ul>	<ul style="list-style-type: none"> <li>• rare post-marketing reports of serious neuropsychiatric symptoms including depressed mood, agitation, hostility, changes in behaviour, suicidal ideation and suicide, as well as worsening of pre-existing psychiatric illness (previously diagnosed or not)</li> <li>• for all patients attempting to quit smoking with varenicline, their families and caregivers should be alerted about the need to monitor for these symptoms</li> </ul>

\* It should be noted, however, that there is no rationale for this combination.

history of depression.<sup>14</sup> For these patients, restarting treatment for depression prior to a quit attempt may be warranted for those individuals who have found that a previous quit attempt has resulted in an intensification of depression or a recurrence.<sup>14</sup>

## PSYCHOSOCIAL/ BEHAVIOURAL INTERVENTIONS

Psychosocial interventions are used to help smokers develop the skills needed to stop smoking and to avoid smoking in high-risk situations.<sup>10</sup> Most of the evidence for the effectiveness of psychosocial interventions for smoking cessation does not come from psychiatric populations; however, it is clear that such interventions help with smoking cessation in the general population.<sup>3,10</sup> Individuals who undergo one-on-one behavioural counselling for smoking cessation, for example, are 1.56 times more likely to quit than those who receive a minimal level of behavioural counselling (usual care to up to 10 minutes of advice).<sup>25</sup> Generally, more intensive behavioural therapies are more effective than those of low intensity.<sup>10</sup> Importantly, behavioural therapies are effective strategies to use in conjunction with pharmacotherapy as they can significantly improve the quit rate relative to pharmacotherapy alone.<sup>10</sup> Individual, group, and telephone counselling are all effective alternatives for delivering psychosocial interventions.<sup>3</sup>

In terms of behavioural approaches, a number of strategies can be taught to help individuals achieve success with smoking cessation, including removing oneself from high-risk situations, substituting other behaviours such as walking or exercising instead of smoking, or using skills to manage triggers.<sup>10</sup> Counselling patients to help them overcome perceived barriers to smoking cessation can also be useful. Fear of weight gain, relapse, withdrawal and exacerbation of psychiatric symptoms are common barriers to smoking cessation.<sup>10</sup> In individuals with schizophrenia or depression who are stable, an exacerbation of symptoms is not all that common and this can be reinforced to the patient.<sup>10</sup> As well, fear of withdrawal can be dealt with by reiterating that pharmacotherapy will reduce these symptoms and that development of behavioural strategies will also help cope with symptoms.

Social support can also increase the likelihood of success with a quit attempt and can be provided from a spouse, partner, or another person also trying to quit smoking.<sup>10</sup> However, it is important to note that individuals with mental illness may not have access to such support systems.<sup>12</sup>

Brief advice from physicians has been shown to increase motivation and double the success rate of quitting.<sup>3</sup> It is important that smokers hear the same advice from other healthcare providers, such as their pharmacist, as receiving the same message from multiple sources increases the motivation to quit.<sup>10</sup> Self-help materials can also increase the motivation to quit smoking and teach smoking cessation skills.<sup>10</sup>

## THE ROLE OF THE PHARMACIST

A systematic review of the literature concluded that community pharmacists who undergo additional training in smoking cessation can have a positive effect on smoking cessation rates by providing counselling and support for their customers.<sup>26</sup> Pharmacists frequently come into contact with individuals with psychiatric conditions and can play an important role in assessing smoking status and readiness to stop smoking in these individuals. Documenting smoking status on patient profiles can remind pharmacists to discuss this issue with their patients when they visit the pharmacy. For those not prepared to stop smoking, pharmacists can relay reinforcing messages about smoking. For those individuals who wish to quit smoking, pharmacists can play an important role in partnering with physicians to determine if the timing is right in terms of psychiatric symptoms, educating patients about products, monitoring the progress in terms of symptoms of nicotine withdrawal, assisting in the development of coping strategies, educating the patient about signs of medication toxicity and monitoring for symptoms of medication toxicity. Furthermore, pharmacists can make use of tools, such as the Fagerström Test, to help assess the level of nicotine dependence and aid in the selection of pharmacotherapy. Educating physicians about the need for dosage reductions, drug interactions, and advising about drug levels is also an important role of the pharmacist. It is good practice to document smoking status on patient profiles as smoking can affect drug levels; having this information readily available provides pharmacists with an opportunity to discuss the issue with the individual.

### Monitoring

Guidelines from the American Psychiatric Association suggest close monitoring and follow-up when individuals with psychiatric conditions attempt to quit smoking.<sup>10</sup> It is recommended that the patient be seen or called within 1–3 days of quitting, and that a psychiatric assessment of symptoms occurs

one to two weeks later.<sup>10</sup> Thus, when helping patients with mental illness attempt to quit smoking, it is important to individualize treatment and for pharmacists to liaise closely with the attending psychiatrist to ensure that the appropriate follow-up and treatment is coordinated. Pharmacists can help monitor the extent to which patients experience symptoms of withdrawal. As well, pharmacists should monitor patients for emergent adverse effects of medications, since smoking can buffer the adverse effects associated with some drugs. It is also important to consider the impact of smoking cessation on medication levels. Dosage decreases of some medications may be warranted. Monitoring for signs of medication toxicity is important, but it is also important to monitor for efficacy in the presence of a dosage decrease. For some medications (e.g., clozapine and olanzapine), therapeutic drug monitoring may be possible to determine if patients are within the therapeutic range.<sup>27</sup> Although routine therapeutic drug monitoring of drugs, such as clozapine, is not recommended, obtaining these levels may be of use when toxicity is suspected, when concurrent use of nicotine changes, and when clinical response is poor.<sup>28</sup>

### Counselling and Support

The probability of having a successful quit attempt can be enhanced through correct use of pharmacotherapy and through positive reinforcement.<sup>14</sup> There are a number of important points that pharmacists can convey to patients that may help them in their quit attempt. First, they should emphasize that most smokers try to quit multiple times (five to seven) before they finally succeed, but with persistence, half of all smokers quit.<sup>10</sup> As well, it is important to inform patients that it is common to relapse early on in a quit attempt; however, three months of abstinence from smoking significantly reduces the risk of relapse.<sup>10</sup> As well, pharmacists can point out that withdrawal symptoms generally last four weeks or longer, but can be relieved with pharmacotherapy. Pharmacists can also inform patients of the symptoms of nicotine withdrawal (depressed mood, insomnia, irritability, frustration or anger, anxiety, difficulty concentrating, restlessness, decreased heart rate, increased appetite, or weight gain) so that they are better prepared to deal with these symptoms and recognize a need for adjustment in pharmacotherapy. For those who are interested in specific techniques for positive reinforcement, more information on motivational interviewing can be found at [www.motivationalinterviewing.org](http://www.motivationalinterviewing.org).

## SUMMARY

Smoking rates in populations with mental illness are approximately double that of the general population and contribute to premature mortality in this age group. Individuals with mental illness may find it more difficult to quit smoking when they attempt to do so compared to the general population.<sup>6,11,29</sup> While the treatment options used in individuals with depression or schizophrenia do not differ significantly from individuals without these conditions, there are a number of additional considerations that pharmacists should keep in mind when advising these individuals, their caregivers and physicians on smoking cessation.

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## QUESTIONS - Answer online at [www.pharmacygateway.ca](http://www.pharmacygateway.ca), CE section, "More CCCEP-approved" dept.

### 1. What percentage of the Canadian population over the age of 15 are smokers?

- a) 15%
- b) 19%
- c) 25%
- d) 50%

### 2. Which of the following statements is correct regarding smoking in individuals with mental illnesses?

- a) Individuals with psychoses such as schizophrenia have lower smoking rates than individuals with other mental illness.
- b) The likelihood of successfully quitting smoking is higher in individuals with mental illnesses than in the general population without mental illness.
- c) Individuals with mental illnesses are more likely to die from tobacco related illnesses than the general population without mental illness.

### 3. Which of the following statements is correct regarding tobacco addiction?

- a) Tobacco dependence is not a true addiction; rather it is simply a bad habit.
- b) Attention deficit disorder is associated with smoking.
- c) Tobacco dependence is not a chronic disease.

### 4. Most smokers with mental illness are well aware of the actual risks of tobacco, but choose to ignore this information.

- a) true
- b) false

### 5. In general, people with mental illness do not have the motivation to quit smoking.

- a) true
- b) false

### 6. Which of the following is correct regarding smoking cessation strategies in individuals with mental illness?

- a) General strategies for smoking cessation interventions are ineffective in this population.
- b) Individuals with mental illness are less likely to be nicotine dependent and, as

such, are unlikely to benefit from nicotine replacement therapy.

- c) The patient's preference for treatment is an important consideration in determining which strategy to use.

### 7. Which of the following is correct regarding psychosocial interventions for smoking cessation?

- a) Adequate levels of social support may not be an accessible psychosocial intervention for individuals with mental illness.
- b) Psychosocial interventions should only be employed if pharmacotherapy fails.
- c) Psychosocial interventions for smoking cessation tend to be ineffective for the most part.

### 8. Which of the following is correct regarding tobacco smoke?

- a) Polycyclic hydrocarbons contained in cigarette smoke can inhibit liver enzymes.
- b) Inhibition of liver enzymes by polycyclic hydrocarbons can increase blood levels of clozapine.

c) It may be necessary to reduce the dose of clozapine in individuals who stop smoking.

**9. Which of the following is correct regarding smoking in individuals with schizophrenia?**

- a) Nicotine dependence in this population tends to be low.
- b) This patient population may not achieve adequate control of withdrawal symptoms from manufacturer recommended dosages of nicotine replacement therapy.
- c) The average dosage of antipsychotics required to treat an individual with schizophrenia who smokes is lower than those who do not smoke.

**10. Most smokers require five to seven attempts to be successful with smoking cessation.**

- a) true
- b) false

**11. Symptoms of nicotine withdrawal include which of the following?**

- a) depressed mood
- b) difficulty concentrating
- c) decreased heart rate
- d) all of the above

**12. Which of the following is correct regarding nicotine withdrawal?**

- a) Symptoms of nicotine withdrawal may be difficult to control in individuals with schizophrenia.
- b) Symptoms usually last about one week.
- c) Symptoms of nicotine withdrawal in individuals with schizophrenia are generally well controlled with low dose nicotine replacement therapy.

**13. Which of the following is correct regarding varenicline?**

- a) A quit date should be set on the third

- day after starting varenicline.
- b) Varenicline is more efficacious when combined with nicotine replacement therapy.
- c) An additional 12 week course of treatment may be considered for patients who have successfully stopped smoking at the end of 12 weeks with varenicline.

**14. Which of the following is correct regarding bupropion?**

- a) Bupropion should be initiated at a dose of 150 mg twice daily.
- b) Bupropion may lower the seizure threshold.
- c) No clinically meaningful pharmacokinetic drug interactions have been identified between bupropion and other medications.

**15. Which of the following is correct regarding nicotine replacement therapy?**

- a) Combinations of different types of nicotine replacement therapy should never be used.
- b) Taste disturbance can occur with nicotine gum.
- c) Nicotine replacement therapy should be continued for about six months, then tapered.

**16. Which of the following is correct regarding varenicline?**

- a) Varenicline is only recommended for a maximum of 12 weeks.
- b) Nausea is a common adverse effect with varenicline.
- c) Varenicline has a large number of clinically important drug interactions.

**17. Which of the following is correct regarding smoking cessation in schizophrenia?**

- a) A combination of nicotine replacement

therapies may be needed as individuals with schizophrenia tend to be highly nicotine dependent.

- b) Withdrawal symptoms are less problematic in individuals with schizophrenia as they tend to smoke particularly heavily.
- c) Individuals with schizophrenia are generally successful in smoking cessation even without pharmacotherapy.

**18. Which of the following is an important counselling point for individuals with mental illness who are attempting to quit smoking?**

- a) Most people are successful in smoking cessation within their first two attempts.
- b) Symptoms of withdrawal should subside in one week.
- c) Follow-up with their psychiatrist is recommended within one to two weeks after quitting.

**19. Which of the following should be monitored during a quit attempt?**

- a) clozapine levels, if toxicity is suspected in an individual attempting to quit smoking
- b) exacerbation of psychiatric symptoms
- c) severity of psychiatric conditions
- d) all of the above

**20. Which of the following statements is correct?**

- a) Quit rates with pharmacotherapy can be enhanced with psychosocial interventions.
- b) Individuals with mental illness tend to be more successful with smoking cessation as they have more social support and specialized psychiatric care.
- c) Perceived barriers to smoking cessation do not interfere with quit attempts.

**FACULTY:** Management of Tobacco Addiction in Individuals with Mental Illness

**About the author**

Ron Pohar provides clinical pharmacy services to patients with a variety of psychiatric conditions and runs a smoking cessation program for these individuals. Ron has had additional training in addictions and smoking cessation, has authored articles and presented educational sessions on smoking cessation, and has also served as an expert reviewer on this topic.

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**Reviewers**

All lessons are reviewed by pharmacists for accuracy, currency and relevance to current pharmacy practice.

This lesson is valid until February 9, 2012. Information about tobacco addiction in individuals with mental illness may change over the course of this time. Readers are responsible for determining the most current aspects of this topic.

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