Chapter 10
Smoking Cessation

Peter Selby, MBBS, CCFP

Tobacco use kills approximately 48,000 Canadians annually, primarily from cardiac disease, lung cancer and respiratory diseases such as COPD.\(^1\) The toxicity of cigarette smoke is due to the inhalation of about 4000 chemicals including 50–60 carcinogens.\(^2\) Cigarettes are highly addictive because of the rapid delivery of nicotine to the mesolimbic reward pathways in the brain and development of tolerance. The short half-life of nicotine (60–90 minutes) forces repeated administration to maintain nicotine levels.\(^3\) Other psychoactive compounds in smoke include MAO-A and MAO-B inhibitors.\(^4\) The polyaromatic hydrocarbons (PAHs) are inducers of CYP1A1, 1A2 and 2E1 enzymes that have clinical implications when smokers quit.\(^5\)

**Goals of Therapy**\(^6\)

- The ultimate goal is to help smokers achieve complete and sustained remission from tobacco use and nicotine dependence
- An intermediate goal is to help them achieve complete and sustained remission from cigarette smoking and/or other forms of tobacco products such as chewing tobacco
- To help smokers understand that:
  - smoking cessation is a process not a singular event; helping smokers stay engaged in the process of behaviour change is a major objective of therapy
  - the best odds of quitting are achieved when behavioural and pharmacologic interventions are used to complement each other
  - reduction in smoking by 50% in those unable or unwilling to quit is controversial because there is no long-term health benefit.\(^7\) However, reduction is associated with subsequent successful quitting\(^8\)

**Investigations**

- Figure 1 provides a general assessment questionnaire
- Measures of physical dependence include the Fagerström Test of Nicotine Dependence.\(^9\) A shorter version is the Heaviness of Smoking Index, which assesses the level of tobacco dependence based on questions such as: “How early in the day do you smoke your first cigarette?” and “How many cigarettes do you smoke per day?”\(^10\) The earlier a person smokes the first cigarette of the day and the more cigarettes smoked per day, the higher the level of dependence.
Figure 1: Tobacco-smoking History Questionnaire

1. Tobacco use history
   a. Current (past year):
      i. Quantity: number of cigarettes smoked per day ________
      ii. Frequency/pattern:
         a. weekday __________________
         b. weekend __________________
      iii. Time to first cigarette after waking up (in minutes): ________
      iv. Type(s): cigarettes: ☐ yes ☐ no;
            cigars: ☐ yes ☐ no;
            cigarette filter: ☐ yes ☐ no;
            others (☐ bidis, ☐ kretek)

   b. Past history:
      i. Age of onset of smoking (years) ________
      ii. Maximum smoked per day (lifetime) ________
      iii. Number of past quit attempts (24 hours or more of intentional cessation) ________
      iv. Past methods used to quit:

   v. Utility of method used to quit:

   vi. What led to a relapse? (check all that apply)
      withdrawal: ☐ yes ☐ no;
      negative mood: ☐ yes ☐ no;
      habit: ☐ yes ☐ no;
      being with other smokers: ☐ yes ☐ no;
      stress: ☐ yes ☐ no;
      other __________________

2. Other drug use
   a. Caffeine: ☐ yes ☐ no: cups per day ________
   b. Alcohol: ☐ yes ☐ no: drinks per day ________
   c. Marijuana: (especially if smoked) ☐ yes ☐ no: joints per day ________

3. Concurrent mental health problems
   a. Depression: ☐ yes ☐ no
   b. Anxiety: ☐ yes ☐ no
   c. Eating disorders: ☐ yes ☐ no
   d. Bipolar disease: ☐ yes ☐ no
   e. Schizophrenia: ☐ yes ☐ no

4. Environmental assessment
   a. Living with smokers: ☐ yes ☐ no
   b. Workplace smoking: ☐ yes ☐ no

5. Consequences of smoking
   a. Health — cardiac: ☐ yes ☐ no
      respiratory: ☐ yes ☐ no
      cancer: ☐ yes ☐ no
      others: ☐ yes ☐ no
   b. Social/Family — feeling ostracized, advice to stop from friends/family
   c. Financial: costs of cigarettes ________ per pack of 20 (small pack)

6. Concurrent medications
   a. Benzodiazepines: ☐ yes ☐ no
   b. Antipsychotics: ☐ yes ☐ no
   c. Antidepressants: ☐ yes ☐ no
   d. Others: __________________

7. Allergies and intolerances especially to smoking cessation medications
   ☐ yes ☐ no

8. A rapid assessment of motivation
   a. High importance and confidence, ready to quit in the next 30 days
   b. High importance low confidence, wants to quit but needs help
   c. Low importance, low confidence, doesn’t want to quit
   d. Low importance, high confidence, discounts the importance of quitting but has high self efficacy

9. Physical examination
   a. Blood pressure _________ mm Hg
   b. Height _________ metres
   c. Weight _________ kg
   c. Waist circumference _________ cm

Treatment plan for those who want to quit within 30 days:
10. Quit date
    a. ☐ yes______________; If yes offer self-help material and follow up
    b. ☐ no: If no, within 6 months? Advise to quit and follow up as needed

11. Counselling
    a. In person: ☐ yes ☐ no
    b. Telephone: ☐ yes ☐ no
    c. Internet: ☐ yes ☐ no

12. Pharmacotherapy

<table>
<thead>
<tr>
<th>Drug</th>
<th>Start date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine replacement therapy:</td>
<td></td>
</tr>
<tr>
<td>a. Patch</td>
<td></td>
</tr>
<tr>
<td>☐ 21 mg</td>
<td>☐ 14 mg</td>
</tr>
<tr>
<td>☐ 15 mg</td>
<td>☐ 10 mg</td>
</tr>
<tr>
<td>b. Gum ☐ 2 mg</td>
<td>☐ 4 mg</td>
</tr>
<tr>
<td>c. Inhaler ☐ 4 mg</td>
<td></td>
</tr>
<tr>
<td>d. Lozenge ☐ 2 mg</td>
<td>☐ 4 mg</td>
</tr>
<tr>
<td>Bupropion: dose ___________</td>
<td></td>
</tr>
<tr>
<td>Varenicline: dose ___________</td>
<td></td>
</tr>
<tr>
<td>Nortriptyline: dose ___________</td>
<td></td>
</tr>
<tr>
<td>Clonidine: dose ___________</td>
<td></td>
</tr>
</tbody>
</table>

__________________________
Signature

__________________________
Date
Motivation can be assessed along a continuum by asking the following 2 questions:

- “Given everything going on in your life right now, on a scale of 1 to 10, where 10 is the most important thing to do right now, how important is it for you to quit smoking altogether?”
- “Given everything going on in your life right now, on a scale of 1 to 10, where 10 is the most confident you have felt about anything, how confident do you feel you will be able to quit smoking altogether?”

**Therapeutic Choices**

This chapter will focus on smokers who want to quit in the next 30 days. Figure 2 provides an algorithm for smoking cessation strategies based on readiness to quit and level of nicotine dependence.

**Nonpharmacologic Choices**

Most smokers try to quit on several occasions and success rates for individual attempts are generally low. Many methods for quitting smoking have been advocated; however, few have been demonstrated to be effective. This type of evidence generally requires randomized controlled trials with a minimum follow-up assessment of self-reported quit rates at 6 months along with supportive objective evidence, e.g., measurement of exhaled carbon monoxide or cotinine levels in urine, saliva or serum. Though widely promoted, there is no evidence for the efficacy of hypnosis or acupuncture.

The 5 evidence-based steps required to successfully quit include the following:

- setting a target quit date
- getting professional help
- enlisting social support
- using medication to quit smoking
- using problem-solving methods of counselling to quit and remain smoke free.

There is a dose-response relationship between counselling and quit success. Estimated abstinence rates increase from 13.4% with minimal counselling contact time (<3 minutes) to an average of 22% with contact time >10 minutes. Optimal total contact time is 91–300 minutes, yielding abstinence rates of approximately 28%. Smokers who are attempting to quit should be counselled at least once prior to their quit date, the week following their quit date and weekly thereafter as necessary to optimize therapy and to identify and manage early relapse. Formats that have been shown to be effective include face-to-face (individual or group) counselling as well as contact by telephone, mail and Internet, e.g., www.smokershelpline.ca, www.stopsmokingcentre.net and www.pregnets.ca for pregnant smokers.
Figure 2: Management of Smoking Cessation

Ask: How many cigarettes do you smoke?

- Doesn’t smoke
  - When was your last cigarette?
    - ≥6 months ago
      - Congratulate, avoid smoke exposure and return if relapse
    - <6 months ago
      - Offer support if needed; avoid triggers and use pharmacotherapy again if needed

- Record number of cigarettes
  - Advise: As your health care provider, I am concerned about the health effects of smoking and advise you to quit smoking. Would you like my help?
    - Yes
      - Offer to discuss in the future; offer self-help booklet. Offer referral to smokers’ helpline, web-based programs, public health units, smoking cessation clinic
    - No

Assess Readiness

1. Given everything going on in your life, how important is it for you to quit smoking?
2. Given everything going on in your life, how confident do you feel you will be able to quit smoking?

- Either low importance or low confidence
  - Enhance readiness by exploring:
    - Rewards of smoking
    - Risks of smoking
    - Reflective listening
    - Roadblocks to quitting
    - Repeat as necessary till importance and confidence are high

- High importance, high confidence
  - What is your pattern of smoking?
    - >10 cigarettes daily
      - Behavioural plan plus monotherapy: nicotine replacement therapy, bupropion, varenicline, nortriptyline or clonidine
        - Partial response
          - No response after 4 wk
            - Switch to different class
        - ≤10 cigarettes daily
          - Fine-tune behavioural plan
            - Consider combination therapy i.e., nicotine patch with gum or inhaler as needed or nicotine patch plus bupropion
            - Note: No combination with varenicline

Therapeutic Choices. Copyright © 2011 Canadian Pharmacists Association. All rights reserved.
Pharmacologic Choices

The addition of pharmacotherapy increases the odds of quitting (see Table 1) and should be offered to all patients who smoke more than 10 cigarettes per day and wish to quit. Exceptions are those with a known contraindication to drug therapy or populations less likely to benefit from pharmacotherapy such as adolescents in whom pharmacotherapy has not been shown to provide additional benefit over behavioural approaches. Pharmacotherapy can be divided into first-line and second-line medications. First-line medications include all forms of nicotine replacement therapy, bupropion and varenicline (an alphaβ2 nicotinic receptor partial agonist with quit rates higher than previously existing therapies, at 2 mg/day; see Table 1). Due to reports of neuropsychiatric side effects, the varenicline product monograph includes a boxed warning advocating caution and close monitoring in all patients for the development of changes in mood or thoughts of harm to self or others. For patients with a history of past or current psychiatric illness, varenicline should be used with extreme caution, and diligent monitoring by a health professional is recommended to monitor for new or worsening symptoms. Agitation-type reactions have also been reported with antidepressants including bupropion, and monitoring is recommended for mood or behavioural changes or thoughts of harm to self or others in patients taking bupropion for smoking cessation.

Second-line pharmacotherapies have evidence of efficacy but are not officially indicated for smoking cessation. These include nortriptyline and clonidine. Nortriptyline can be used in otherwise healthy individuals with minimal risk for overdose or cardiac disease when first-line therapies are either unaffordable or have not worked. Clonidine may be used in those with coexisting hypertension, where appropriate. However, postural hypotension can be problematic and the drug must be tapered to prevent rebound hypertension.

Table 1: Estimated 6-Month Abstinence Rates

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Estimated Abstinence Rate at 6 Months(^a,b,c)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine gum</td>
<td>19%</td>
</tr>
<tr>
<td>Nicotine patch</td>
<td>23.7%</td>
</tr>
<tr>
<td>Nicotine inhaler</td>
<td>24.8%</td>
</tr>
<tr>
<td>Nicotine lozenge</td>
<td>19.9%</td>
</tr>
<tr>
<td>Bupropion</td>
<td>24.2%</td>
</tr>
<tr>
<td>Bupropion plus nicotine patch</td>
<td>28.9%</td>
</tr>
<tr>
<td>Nicotine patch plus as-needed inhaler, gum or lozenge</td>
<td>29.7% (average)</td>
</tr>
<tr>
<td>Varenicline 1 mg BID</td>
<td>33.2%</td>
</tr>
<tr>
<td>Varenicline 0.5 mg BID</td>
<td>25.4%</td>
</tr>
</tbody>
</table>

\(^a\) Average quit rates following usual course of therapy.
\(^b\) Longer duration of therapy may result in slightly higher abstinence rates.
\(^c\) Abstinence rates for placebo average around 13%.
Choice of medication should depend on patient preference and absence of contraindications (such as recent myocardial infarction or stroke for nicotine replacement therapy). Monotherapy is the norm. Combination therapy such as the nicotine patch combined with either as-needed nicotine dosage forms (gum, inhaler or lozenge) or bupropion is associated with higher 6-month abstinence rates than monotherapy. However, cost may be a limiting factor and combination therapy should be reserved for those in whom quitting immediately is essential. Varenicline has not been studied in combination with other medications and is contraindicated in combination with nicotine replacement therapy. Nicotine nasal spray and sublingual tablets are not available in Canada.

**Choices during Pregnancy and Breastfeeding**

**Smoking and Pregnancy**

Smoking before, during and after pregnancy is associated with negative outcomes for both mother and baby. Nicotine readily crosses the placenta and is concentrated on the fetal side. Moreover, carbon monoxide and other teratogens and carcinogens in cigarette smoke also cross the placenta. Adverse effects such as intrauterine growth retardation, increased risk of sudden infant death syndrome (SIDS) and potential behavioural and metabolic effects manifesting in childhood make tobacco smoke one of the most damaging teratogens, with permanent and significant morbidity and mortality. Smoking is also associated with a reduction in the amount of breast milk.

Most women who smoke will attempt to quit when they discover they are pregnant, but the majority will ultimately continue to smoke. Factors associated with successful quit attempts include: first pregnancy; first trimester; low level of tobacco dependence; sharing a household with nonsmokers; higher education; not suffering from depression. The relapse rate postpartum is about 60% at 6 months, and reflects the chronic relapsing nature of tobacco addiction.

Pregnancy is seen as a “teachable moment” in terms of smoking cessation. Quitting at anytime during pregnancy is associated with improved birth outcomes. Routine screening for tobacco use is recommended for all pregnant women, as well as interventions to help smokers quit. There are no known risks to stopping “cold turkey” while pregnant, and quitting should not be delayed until the postpartum period because the motivation to stop smoking diminishes once the pregnancy is completed. There is reluctance to use pharmacotherapy in pregnancy due to the known and unknown adverse effects of available treatment. The risk/benefit equation for smoking cessation pharmacotherapy in pregnancy depends on whether there is additional benefit over behavioural measures. With NRT it is unlikely there is any additional risk incurred from using the lowest effective dose of nicotine, considering it will be delivered via less dangerous routes. Any potential harm from using NRT must be weighed against that caused by continued smoking.

**Management Prior to Conception**

Reduction in smoking prevalence in women of childbearing age can potentially improve maternal and fetal health. Whenever feasible, both
potential parents should be given assistance to quit smoking, as women whose partners smoke are less likely to quit.

Sperm cells are rendered abnormal (altered morphology, number and motility) by tobacco smoke. DNA-adducts and benzo(a)pyrene (a carcinogen from tobacco smoke) are incorporated into the gamete, with the major contribution from sperm. Men should quit smoking for at least 3 months prior to attempted conception, to allow sufficient time for replacement of the abnormal sperm. Since smoking is a major reversible cause of infertility, all couples should be given assistance to quit smoking prior to undergoing fertility treatment. Smoking cessation pharmacotherapy can be used during this period without concern for teratogenic effects.

Management during Pregnancy and Postpartum Period

Screen all pregnant women for smoking status and exposure to second-hand smoke at the first appointment and periodically during the pregnancy. All should be advised and assisted to completely stop smoking completely as soon as possible. Behavioural treatment, either in person (individual/group) or telephone-based, is recommended. Avoid pharmacotherapy unless the woman is unable to quit using behavioural measures alone. There is no good evidence for the efficacy or safety of NRT, bupropion or varenicline in pregnancy. One underpowered RCT of the nicotine patch in pregnancy found no difference in quit rates compared to placebo, but a trend to increased birth weight in the offspring.

Given the teratogenic nature of tobacco, the practitioner and the pregnant patient face a dilemma when she is unable to quit smoking. When possible, such women should be referred to an expert in smoking cessation in pregnancy, and a teratology information centre such as Motherisk should be consulted. Offer the lowest effective dose of short-acting nicotine (gum), to eliminate exposure to smoke and minimize the amount of nicotine exposure to the fetus. This may be continued for 8–12 weeks with the goal of maintaining abstinence. There is no agreement on the maximum number of pieces per day. Reserve the transdermal patch for heavily dependent smokers and those who do not respond to the gum, and recommend removal after 16 hours, e.g., at bedtime, to reduce fetal nicotine exposure. Bupropion may be used, especially in those women with an additional diagnosis of depression, as long as there are no contraindications. Use of bupropion during pregnancy has not been associated with a higher risk of congenital malformations. Varenicline has not been studied in human pregnancy.

Smoking and Breastfeeding

Smoking reduces the production and quality of breast milk. However, the amount of nicotine exposure is minimal and overall the benefits of breastfeeding outweigh the risks of continued smoking. NRT and bupropion may be used if the benefits outweigh the potential risks. There are no published data on the safety of varenicline or its transmission to breast milk.

Continued breastfeeding is associated with delayed relapse in women who have quit smoking. If women smoke and also breastfeed, educate them about the risks to the baby from second-hand smoke, and advise them to smoke...
outdoors and not to smoke just before or during breastfeeding. Changing clothes and hand-washing also reduce the “off-gassing” of toxins after smoking a cigarette.

**Therapeutic Tips**

- Encourage smokers who have slips while on medication to continue medication for at least 4 weeks and use behavioural interventions to help them to stop smoking.\(^6\)
- If smokers using the patch complain of unmanageable cravings and smoke cigarettes, add nicotine gum, lozenge or inhaler as a breakthrough medication.\(^6\)
- It is important to monitor for low mood and emergence of depression in smokers who quit, regardless of the method used to quit.\(^37\)
- Address potential weight gain following smoking cessation before quitting, and offer practical advice to help smokers avoid gaining weight (healthy diet and exercise, avoidance of high-sugar products which patients crave when they quit smoking).\(^38,39\)
- Create a therapeutic relationship in which the patient can report back at the first signs of a relapse to abort it as soon as possible.
- Be aware of the effect of smoking on hepatic metabolism. Induction of CYP1A2 by cigarette smoking can increase the clearance and potentially necessitate higher doses of drugs such as caffeine, clozapine, diazepam, estrogens, fluvoxamine, methadone, nifedipine, olanzapine, rasagiline, theophylline, trifluoperazine or warfarin. Conversely a reduction of the dose may be required if the patient quits smoking. Patients should be made aware of the potentially increased effects (and side effects) of caffeine when they quit smoking.
- For adolescents, school-based programs that provide complex interventions with elements of cognitive behavioural therapy (CBT) matched to stages of change show promise.\(^40,41\)
Table 2: **Pharmacologic Agents Used for Smoking Cessation**

<table>
<thead>
<tr>
<th>Class</th>
<th>Drug</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Drug Interactions(^a)</th>
<th>Comments</th>
<th>Cost(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine Replacement, immediate-release</td>
<td>nicotine inhaler</td>
<td>First 6–12 wk: 1 cartridge, as needed</td>
<td>Mild local irritation (cough, throat irritation, stomatitis, rhinitis) that may decline with continued use; headache, nausea, dyspepsia.</td>
<td>No known significant drug interactions.</td>
<td>Not a true inhaler—each cartridge lasts for about 20 min of puffing and delivers 4 mg of nicotine, of which approximately 2 mg is absorbed buccally. “Hand-mouth” activity from using the inhaler is preferred by some quitters while others find it to be a trigger. Useful in those with poor oral health or dentures and in those who cannot chew gum. Cold temperatures can decrease the absorption rate. If spending time in cold environments, store inhaler in a warm place such as an inner clothing pocket.</td>
<td>$$</td>
</tr>
<tr>
<td></td>
<td>Nicorette Inhaler</td>
<td>Encourage patient to use at least 6 cartridges/day for the first 3–6 wk</td>
<td>Max. Maximum 12/day Tapering: gradual reduction in use over next 6–12 wk, stopping when reduced to 1–2/day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>nicotine bitartrate dihydrate lozenge</td>
<td>Thrive</td>
<td>Initial strength: 1 mg if &lt;20 cigarettes per day, 2 mg if ≥20 cigarettes per day Dosing frequency: see nicotine polacrilex lozenges; maximum 15/day for 2 mg strength, 25/day for 1 mg strength</td>
<td>Hiccoughs, GI disturbances, jaw pain and orodental problems.</td>
<td>Avoid use of acidic beverages and foods (coffee, fruit juices, soft drinks, alcohol) while chewing and 15 min before (decreases absorption).</td>
<td>Lozenges should be allowed to slowly dissolve and moved from one side of the mouth to the other periodically.</td>
<td>$$</td>
</tr>
</tbody>
</table>

\(^a\) reports in children, \(^b\) prices range. (cont’d)
<table>
<thead>
<tr>
<th>Class</th>
<th>Drug</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Drug Interactionsa</th>
<th>Comments</th>
<th>Costb</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>nicotine polacrilex lozenge Nicorette Lozenge</strong></td>
<td>Nicotine: Use initial strength of 2 mg if first cigarette of the day &gt;30 min after waking, 4 mg if ≤30 min Weeks 1–6: 1 lozenge Q1–2H PRN (maximum 15/day) Weeks 7–9: 1 lozenge Q2–4H PRN Weeks 10–12: 1 lozenge Q4–8H PRN Discontinue when dose has been reduced to 1–2 lozenges/day Use beyond 6 mo generally not recommended</td>
<td>See nicotine bitartrate dihydrate lozenge.</td>
<td>See nicotine bitartrate dihydrate lozenge.</td>
<td>See nicotine bitartrate dihydrate lozenge.</td>
<td></td>
<td>$$</td>
</tr>
<tr>
<td><strong>nicotine polacrilex gum Nicorette Gum, Thrive</strong></td>
<td>Stopping abruptly: 10–12 pieces/day (initial dose of 2 mg for lighter smokers, 4 mg for heavier smokers—consult individual product insert) Maximum 20 pieces/day, for up to 6 mo Stopping gradually in those not ready to quit: use lowest effective dose of gum to relieve acute cravings, to prolong interval between cigarettes. Goal is to reduce smoking by 50% within 4 mo, and quit within 6 mo. Maximum 20 pieces/day, for no more than 12 mo Tapering: 1 piece/day each wk, as withdrawal symptoms allow.</td>
<td>See nicotine bitartrate dihydrate lozenge.</td>
<td>See nicotine bitartrate dihydrate lozenge.</td>
<td>Instruct patient to bite down once or twice then park gum between the teeth and gums for about 1 min. Use 4 mg in heavily dependent smokers. May be used for temporary abstinence, e.g., to comply with smoking restrictions on airplanes.</td>
<td></td>
<td>$$</td>
</tr>
</tbody>
</table>
### Class

<table>
<thead>
<tr>
<th>Nicotine Replacement, sustained-release</th>
</tr>
</thead>
</table>

### Drug

| nicotine transdermal patch |
| Habbitol, Nicoderm, Nicorette Patch, generics |

### Dose

| Habitrol: |
| >20 cigarettes/day: 1 patch (21 mg/24 h) daily × 3–4 wk |
| ≤20 cigarettes/day: 1 patch (14 mg/24 h) daily × 3–4 wk |

| Tapering: |
| reduce strength of patch (i.e., from 21 to 14 to 7 mg/24 h) every 3–4 wk |

| Nicoderm: |
| 21 mg/24 h × 6 wk then |
| 14 mg/24 h × 2 wk then |
| 7 mg/24 h × 2 wk |

If patient has cardiovascular disease, weighs less than 45 kg or smokes <½ pack/day begin with 14 mg/24 h × 6 wk then ↓ to 7 mg/24 h × 2 wk

| Nicorette: |
| 15 mg patch daily × 6 wk. If desired, ↓ to 10 mg daily × 2 wk then 5 mg daily × 2 wk before discontinuing. Maximum 10 wk. |

### Adverse Effects

Skin sensitivity and irritation (most common); abnormal dreams; insomnia; nausea, dyspepsia.

### Drug Interactions

No known significant drug interactions.

### Comments

Start patch on the quit date. Advise not to smoke cigarettes while using the patch, though this is generally safe and does not indicate treatment failure. Educate users on the signs and symptoms of nicotine toxicity.

**Habbitol**: Takes longer to reach peak levels than Nicoderm; should not use while exercising; major supplier of the generic/store brands.

**Nicoderm**: More rapid onset and shorter time to peak effects; may be worn while exercising; although not recommended by the manufacturer, can be cut without damaging the delivery device.

**Nicorette**: Better dosing flexibility and outcomes with gum/patch combination therapy.

### Cost

| $$$$ |

(cont’d)
<table>
<thead>
<tr>
<th>Class</th>
<th>Drug</th>
<th>Dose</th>
<th>Adverse Effects</th>
<th>Drug Interactions</th>
<th>Comments</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicotine Receptor Partial Agonists</td>
<td>varenicline (Champix)</td>
<td>0.5 mg daily po for 3 days then BID for 4 days then 0.5–1 mg BID po for 12 wk. Patient should quit smoking 1–2 wk after starting varenicline. If patient is still smoking 4 wk after starting, reassess therapy; can be continued for an additional 12 wk if patient has benefited. If 1 mg BID not tolerated, can reduce to 0.5 mg BID. No tapering necessary when discontinuing</td>
<td>Nausea (30%); may be mitigated by taking on a full stomach, increasing water intake or reducing dose. May cause insomnia; take second daily dose at supper time. Neuropsychiatric side effects such as suicidal/homicidal ideation have been reported; monitor closely for changes in mood/behaviour. Close monitoring by health professional for those with preexisting psychiatric disorders.</td>
<td>Should not be combined with nicotine replacement therapy due to increased risk of adverse effects.</td>
<td>Does not induce cytochrome P450 enzymes; excreted renally unchanged. Efficacy is dose related.</td>
<td>$$$$</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>bupropion (Zyban, generics)</td>
<td>150 mg daily po × 3 days then 150 mg BID po × 7–12 wk. Begin 1–2 wk before the selected quit date</td>
<td>Usual: insomnia, dry mouth, dizziness, restlessness, difficulty concentrating. Unusual: hypersensitivity reactions, ↑ risk of seizures at higher dosages; agitation-type reactions involving mood/behavioural changes.</td>
<td>Inhibits CYP2D6; may ↓ clearance of atomoxetine, duloxetine, fluoxetine, fluvoxamine, paroxetine, risperidone, sertraline, venlafaxine; may ↓ effectiveness of codeine and tamoxifen. Do not use with MAO inhibitors (possible mania, excitation, hyperpyrexia). May be safely combined with NRT (monitor for treatment-emergent hypertension).</td>
<td>Not recommended in patients with conditions predisposing to seizures, history of seizures, current eating disorder or severe hepatic impairment. Least expensive of oral medications officially indicated for smoking cessation.</td>
<td>$$</td>
</tr>
<tr>
<td>Class</td>
<td>Drug</td>
<td>Dose</td>
<td>Adverse Effects</td>
<td>Drug Interactions(a)</td>
<td>Comments</td>
<td>Cost(b)</td>
</tr>
<tr>
<td>-----------------------</td>
<td>----------------</td>
<td>-------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Alpha₂-adrenergic</td>
<td>clonidine</td>
<td>0.1 mg BID po starting up to 3 days before or on the quit date. Increase by 0.1 mg/day po once per wk if needed. Duration of therapy ranges from 3–10 wk</td>
<td>Common: sedation, dizziness, hypotension, dry mouth. Less common: anxiety, irritability, memory problems.</td>
<td>Avoid concurrent use with tricyclic antidepressants. Additive effects with other CNS depressants such as ethanol. Additive hypertensive effect when combined with antihypertensive drugs.</td>
<td>Monitor blood pressure and heart rate during treatment initiation. Taper gradually to avoid rebound hypertension when stopping treatment.</td>
<td>$</td>
</tr>
<tr>
<td>Receptor Agonists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(a\) Cigarette smoking can increase the clearance of many drugs through mechanisms such as induction of cytochrome P450 enzymes CYP1A1, 1A2 or 2E1. Patients taking drugs such as caffeine, clozapine, diazepam, estrogens, fluvoxamine, methadone, nifedipine, olanzapine, rasagiline, theophylline, trifluoperazine or warfarin may require dosage reduction when they quit smoking.

\(b\) Cost of 100 pieces of gum or lozenges, 42 cartridges, 28 patches or 30-day supply of tablets; includes drug cost only.

\(\bullet\) Dosage adjustment may be required in renal impairment; see Appendix I.

Abbreviations: CVS = cardiovascular; NRT = nicotine replacement therapy
Legend: $ < $25  $25–50  $$$ $50–75  $$$$ $75–100  $$$$$ $100–125

### Chapter 10: Smoking Cessation

165
Suggested Readings


References


Chapter 10: Smoking Cessation