



This guide provides information for managing patients who want to quit smoking. It can also be used for vaping cessation for patients who use nicotine. This guide does not cover cessation for cannabis use.

### The scope of the problem

- Tobacco use is responsible for approximately 480,000 deaths in the United States each year
- Each cigarette smoked reduces a person's life expectancy by an average of 11 minutes
- Although long-term health data on vaping is still emerging, the inhalation of toxic and carcinogenic substances suggests significant health risks
- Vaping has been linked to acute lung injury (EVALI), a condition that can lead to hospitalization and, in severe cases, lung transplants

### Benefits of quitting smoking

Adapted from the American Cancer Society

- **A few weeks after quitting:** Blood circulation improves, and lung function begins to recover
- **One to two years after quitting:** Heart attack risk drops significantly
- **Five to 10 years after quitting:** The risk of developing cancers of the mouth, throat, and larynx is reduced by 50 percent. Stroke risk also decreases
- **15 years after quitting:** Coronary heart disease risk is nearly equivalent to that of a non-smoker

## Overview of medications for smoking cessation

### VARENICLINE

- **Mechanism of action:** Binds to nicotine receptors, blocking nicotine while mildly stimulating the receptor to reduce cravings (similar to buprenorphine for opioids)
- **Precautions/contraindications**
  - » Requires dose adjustments for renal impairment
  - » Not approved for patients under 18 years of age
- **Dosing**
  - » Day 1–3: 0.5 mg PO qAM
  - » Day 4–7: 0.5 mg PO BID
  - » Weeks 2–12: 1 mg PO BID
  - » Start therapy one week prior to quit date
  - » Treatment lasts for 12 weeks and can be extended for another 12 weeks if needed
- **Adverse effects:** Nausea, sleep disturbance (vivid dreams, insomnia), headache, flatulence, constipation, taste alterations, depressed mood, irritability

### NICOTINE REPLACEMENT THERAPY (NRT)

- **Forms:** Lozenges, patches, inhalers, nasal spray, and gum. This guide focuses on the most common forms of NRT — gum, lozenges, and patches. See the American Academy of Family Physicians guide for details of how to use each, including dosing, and for information on nasal spray and inhaler
- **Best practice:** The most effective way to use NRT, according to the American Society of Addiction Medicine, is to combine short-acting forms (e.g., gum) with long-acting forms

(e.g., patches) so that patients have a baseline level of nicotine throughout the day and can also take a dose, as needed, if having cravings

- **Mechanism of action:** Provides nicotine to prevent withdrawal. Usually used to taper down on nicotine over time
- **Precautions/contraindications**
  - » Myocardial infarction within one week
  - » Angina pectoris
  - » Cardiac arrhythmia
  - » Not approved for patients under 18 years of age

### Nicotine gum:

- **Dosing:** Gum is available as 2 mg and 4 mg depending on the time of the first cigarette
  - » 2 mg: If the first cigarette is smoked more than 30 minutes after waking
  - » 4 mg: If the first cigarette is smoked less than 30 minutes after waking
- **How to use**
  - » Must be chewed correctly to work
  - » Chew slowly then park between cheek and gum when peppery or tingling sensation appears (15–30 chews). Resume chewing when tingle fades. Repeat chew and park until tingle does not return. Park in different areas of the mouth
  - » Can reduce the number of pieces used per day to taper off nicotine

- **Adverse effects:** Irritation of mouth/throat, can stick to dental work, hiccups, jaw soreness, GI upset (nausea or dyspepsia)
- Can be helpful with hand-to-mouth habits of smoking

### Nicotine lozenges:

- **Dosing:** Lozenges are available as 2 mg or 4 mg depending on the time of the first cigarette
  - » 2 mg: If the first cigarette is smoked more than 30 minutes after waking
  - » 4 mg: If the first cigarette is smoked less than 30 minutes after waking
- **How to use**
  - » Allow lozenge to dissolve slowly (20–30 minutes) until tingling sensation is felt
  - » Rotate to different areas of the mouth
  - » Can reduce the number of lozenges used per day to taper off nicotine
- **Adverse effects:** Mouth and throat irritation, hiccups, GI upset (nausea or dyspepsia)
- Can be helpful with hand-to-mouth habits of smoking

### Nicotine patches:

- **Dosing:** Patches are available as 21 mg/day, 14 mg/day, and 7 mg/day. Dosing varies based on how much a patient smokes
  - » 21 mg/day patch: More than 10 cigarettes per day
  - » 14 mg/day patch: 10 or fewer cigarettes per day
  - » The dose is tapered over many weeks to wean off nicotine

- **How to use**
  - » Rotate patch application sites
  - » May wear for 16 hours and remove at bedtime to avoid side effects
  - » Apply patch to clean, dry, and hairless area of the body
- **Adverse effects:** Skin reactions (erythema, pruritus, burning), sleep disturbances (vivid dreams)

### BUPROPION SR

- **Mechanism of action:** Works as an antidepressant by inhibiting the reuptake of norepinephrine and dopamine
- **Precautions/contraindications**
  - » Seizure disorder — bupropion lowers the seizure threshold
    - Current or prior diagnosis of anorexia or bulimia (increased risk of seizures)
    - Abrupt discontinuation of alcohol or benzodiazepines (increased risk of seizures)
  - » MAO inhibitor — risk of serotonin syndrome
  - » Use with caution with hepatic impairment
  - » May affect psychiatric conditions, such as inducing mania in patients with bipolar disorder
  - » Not approved for patients under 18 years of age
- **Dosing**
  - » 150 mg PO qAM x 3 days, then 150 mg PO BID
  - » Start therapy 1–2 weeks before quit date
  - » Duration is 7–12 weeks
- **Adverse effects:** Insomnia, dry mouth, nausea, anxiety, constipation

## Combining medications

Best practice for NRT is to combine long-acting (e.g., patches) with short-acting (e.g., gum) for breakthrough cravings. Other combinations of medications include:

- **NRT (usually in the form of patches) + varenicline:** For patients who have difficulty stopping despite being on one treatment. There is an increased risk of side effects (vivid dreams, nausea, etc.). UpToDate recommends this as a potential option for select cases
- **NRT + bupropion:** For patients who have difficulty stopping despite being on one treatment. The Veterans Administration has a documented protocol/patient guide for this which can be found at [mentalhealth.va.gov/quit-tobacco](http://mentalhealth.va.gov/quit-tobacco)
- **Varenicline + bupropion:** Limited studies available on this combination of medications

## Smoking cessation during pregnancy

Smoking is well-established as harmful during pregnancy. Smoking cessation is a top priority. Some medications can be used in pregnancy with careful consideration:

- Varenicline cannot be used in pregnancy or while breastfeeding
- NRT can be used under close supervision for patients that are motivated to quit
- Cautiously consider bupropion, preferably after the first trimester
- OB/GYN consultation is recommended if needed

## For more information, questions, or feedback:

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