



Pharmacotherapy for Smoking Cessation

HOW NICOTINE CREATES DEPENDENCE¹

- When cigarette smoke is inhaled, nicotine reaches the brain quickly and binds with nicotinic receptors.
- At the receptor sites, nicotine stimulates the release of “feel good” chemicals such as dopamine, acetylcholine, norepinephrine, serotonin, and beta endorphin.
- Through chronic smoking the brain makes more nicotinic receptors and becomes accustomed to a certain level of chemical stimulation from nicotine.
- Quitting smoking leaves the brain wanting nicotine and causes withdrawal symptoms.

HOW PHARMACOTHERAPY HELPS TOBACCO USERS QUIT

- Pharmacotherapy helps reduce withdrawal symptoms in two main ways:
 - **Nicotine Replacement Therapy (NRT)** delivers nicotine to the brain from a less harmful source.
 - **Prescription Drugs** stimulate “feel good” chemicals in the brain without nicotine.
- These pharmacological tools are designed to reduce withdrawal symptoms, freeing the smoker to focus on the behavioral aspects of quitting.

RECOMMENDATIONS

- All FDA-approved pharmacological quitting aids can improve the odds of success and should be covered by health plans and hospital formularies.
- When feasible, quitting aids should be combined with behavioral counseling to further improve the odds of successful quitting.
- Factors to consider when helping a patient select a quitting aid include contraindications, insurance coverage, previous use of quitting aids, and current patient preference. The last of these should be weighed heavily, since patients who obtain the quitting aid they want are more likely to use it.
- While the clinical guidelines for tobacco cessation² recommend pharmacotherapy for everyone trying to quit, it is also possible to quit successfully without quitting aids. Patients who do not have access to them or who do not wish to use them should still be encouraged to make a quit attempt.

¹ Benowitz, NL. Pharmacology of nicotine. In RE Tarter & RT Ammerman (Eds.), *Handbook of substance abuse: Neurobehavioral pharmacology* (pp. 283-297). New York: Plenum Press, 1998.

² Fiore MC, Bailey WC, Cohen SJ, et al. *Treating Tobacco Use and Dependence*. Rockville, MD: U.S. Department of Health and Human Services. Public Health Service. October 2000.

Suggestions for the clinical use of pharmacotherapies for smoking cessation*

	Pharmacotherapy	Possible Side Effects	Contraindications	Dosage and Duration
Nicotine Replacement Therapies (NRT)	Nicotine Patch <ul style="list-style-type: none"> • Nicoderm CQ (OTC) • Generic (Rx & OTC) 	Local skin reaction Insomnia	For all NRT products: Pregnancy or nursing Recent heart attack Irregular heartbeat Severe or worsening pain Stomach ulcers Overactive thyroid High blood pressure Diabetes requiring insulin	Begin treatment on the first day of quitting. 11+cigs/day - for 4-6 weeks, use one 21 mg patch daily. For the next 2 weeks, use one 14 mg patch daily. Then for 2 weeks, use one 7 mg patch daily. 1-10 cigs/day - for 4-6 weeks, use one 14-mg patch daily. Then for two weeks use one 7 mg patch daily.
	Nicotine Gum <ul style="list-style-type: none"> • Nicorette (OTC) • Generic (OTC) 	Mouth soreness Dyspepsia		Begin treatment on the first day of quitting. Chew one piece of gum every 1-2 hrs, up to a total of 24 pieces per day. 1-24 cigs/day, use 2 mg gum 25+ cigs/day, use 4 mg gum Continue for up to 12 weeks.
	Nicotine Nasal Spray <ul style="list-style-type: none"> • Nicotrol NS (Rx) 	Nasal irritation		Begin treatment on the first day of quitting. Use one dose every 1-2 hours, up to a total of 40 doses per day. Continue for up to 3 months.
	Nicotine Inhaler <ul style="list-style-type: none"> • Nicotrol Inhaler (Rx) 	Local irritation of mouth & throat		Begin treatment on the first day of quitting. Use one cartridge every 1-2 hours, up to a total of 16 cartridges per day. Continue for up to 3 months.
	Nicotine Lozenge <ul style="list-style-type: none"> • Commit (OTC) • Generic (OTC) 	Mouth soreness Local irritation of throat Hiccups Heartburn Indigestion		Begin treatment on the first day of quitting. Use one lozenge every 1-2 hours, up to a total of 20 lozenges per day. First cig after 30 minutes from waking, use 2 mg lozenges. First cig within 30 minutes after waking, use 4 mg lozenges. Continue for up to 12 weeks.
Bupropion SR <ul style="list-style-type: none"> • Zyban (Rx) • Generic (Rx) 	Insomnia Dry mouth	Pregnancy or nursing Taking MAO inhibitors or other medications that contain bupropion hydrochloride Seizure disorders Anorexia nervosa Bulimia Withdrawing from alcohol	Begin treatment 1-2 weeks prior to quitting. Take one 150 mg pill every morning for 3 days. Then take one 150 mg pill twice daily for 7-12 weeks.	
Varenicline <ul style="list-style-type: none"> • Chantix (Rx) 	Nausea Headache Insomnia Flatulence Vomiting Patients and providers should closely monitor psychiatric symptoms. Adverse mood and behavior changes noted in post-marketing reports. Research data have not yet established causal links.	Pregnancy or nursing Under age 18 Kidney problems Medications such as insulin, blood thinners, asthma medications	Begin treatment 1 week prior to quitting. Take one 0.5 mg pill once daily for 1-3 days. Then take one 0.5 mg pill twice daily for 4-7 days. On day 8, begin taking one 1.0 mg pill twice daily. Continue for 12 weeks.	

*The information contained within this table is not comprehensive.
Revised 9/2/08