

Mayo Clinic NDC Tobacco Dependence Treatment Medication Summary*

Nicotine Replacement Therapy (NRT)

Description & Examples	Pros & Cons	Comments	Dosing Recommendations
<p style="text-align: center;">Nicotine patch (OTC)</p> <p>24-hour delivery systems: 21, 14, 7 mg/24 hour</p> <p>16-hour delivery systems: 15, 10, 5 mg/16 hour</p> <p style="text-align: center;">(Generic available)</p>	<p>Pros</p> <ul style="list-style-type: none"> Achieve desired levels of replacement Easy to use Only needs to be applied once a day Few side effects <p>Cons</p> <ul style="list-style-type: none"> Less flexible dosing Slower onset of delivery Mild skin rashes and irritation 	<p>Comments and limitations</p> <p>Patches vary in strengths and the length of time over which nicotine is delivered. Depending on the brand of patch used, may be left on for anywhere from 16 to 24 hours. Patches may be placed anywhere on the upper body, including arms and back. Rotate the patch site each time a new patch is applied.</p> <p>May purchase without a prescription.</p>	<p>Dosing (24-hour patch)</p> <p>≥40 cpd = 42 mg per day 21-39 cpd = 28-35 mg per day 10-20 cpd = 14-21 mg per day <10 cpd = 14 mg per day</p> <p>If a dose > 42mg per day may be indicated, contact the patient's prescriber. Adjust based on withdrawal symptoms, urges, and comfort.</p> <p>After 4-6 weeks of smoking abstinence, taper every 2-4 weeks in 7-14 mg steps as tolerated.</p>
<p style="text-align: center;">Nicotine lozenge Regular or "mini" size (OTC)</p> <p>Delivers nicotine through the lining of the mouth as the lozenge dissolves:</p> <p style="text-align: center;">2 mg, 4 mg standard lozenge 2 mg, 4 mg mini-lozenge</p> <p style="text-align: center;">(Generic available for regular size)</p>	<p>Pros</p> <ul style="list-style-type: none"> Easy to use Delivers doses of nicotine approximately 25% higher than nicotine gum <p>Cons</p> <ul style="list-style-type: none"> Should not eat or drink 15 minutes before use or during use (especially avoid acidic fluids such as colas and coffee) Should not be chewed or swallowed Nausea most common side effect (12-15%) 	<p>Comments or limitations</p> <p>Use at least 8-9 lozenges per day initially. Efficacy and frequency of side effects related to amount used. The mini-lozenge dissolves more rapidly and is smaller in size than the standard lozenge.</p> <p>May purchase without a prescription.</p>	<p>Dosing as monotherapy</p> <p>Based on time to first cigarette of the day: <30 minutes = 4 mg >30 minutes = 2 mg</p> <p>Based on cigarettes per day (cpd):</p> <p style="text-align: center;">>20 cpd = 4 mg ≤20 cpd = 2 mg</p> <p>Initial dosing is 1-2 lozenges every 1-2 hours (minimum of 9 per day).</p> <p>Taper as tolerated.</p>
<p style="text-align: center;">Nicotine gum (OTC)</p> <p style="text-align: center;">2mg, 4mg</p> <p>Flavors: Orange, Mint, Regular Various Flavors: Cinnamon, Fruit, Extreme Chill, Mint, Original</p> <p>Delivers nicotine through the lining of the mouth while the gum is "parked." However, the term "gum" is misleading, as it is not chewed like regular gum but rather is chewed briefly and then "parked" between cheek and gum.</p> <p style="text-align: center;">(Generic available)</p>	<p>Pros</p> <ul style="list-style-type: none"> Convenient and flexible dosing Faster delivery of nicotine than patches <p>Cons</p> <ul style="list-style-type: none"> May be inappropriate for people with dental problems and those with temporomandibular joint (TMJ) syndrome Should not eat or drink 15 minutes before use or during use (especially avoid acidic fluids such as colas and coffee) Frequent use during the day required to obtain adequate nicotine levels 	<p>Comments and limitations</p> <p>Many people use this medication incorrectly. Review package directions carefully to maximize benefit of product.</p> <p>May purchase without a prescription.</p>	<p>Dosing as monotherapy</p> <p>Based on time to first cigarette of the day: <30 minutes = 4 mg >30 minutes = 2 mg</p> <p>Based on cigarettes per day (cpd) >20 cpd: 4 mg gum ≤20 cpd: 2 mg gum</p> <p>Initial dosing is 1-2 pieces every 1-2 hours (10-12 pieces per day).</p> <p>Taper as tolerated.</p>

Description & Examples	Pros & Cons	Comments	Dosing Recommendations
<p>Nicotine nasal spray</p> <p>Delivers nicotine through the lining of the nose when sprayed directly into each nostril.</p>	<p>Pros</p> <ul style="list-style-type: none"> • Flexible dosing • Can be used in response to stress or urges to smoke • Fastest delivery of nicotine of currently available NRT products <p>Cons:</p> <ul style="list-style-type: none"> • Nose and throat irritation is common, but usually disappears within one week • Frequent use during the day required to obtain adequate nicotine levels • Infrequent nose bleed 	<p>Comments and limitations</p> <p>Unlike decongestant nasal sprays, the nicotine spray should not be sniffled. Rather, it is sprayed against the lining of each nostril once or twice an hour (maximum of five times in one hour).</p> <p>Prescription required for purchase.</p>	<p>Dosing as monotherapy</p> <p>1 spray in each nostril:</p> <p>1-2 times per hour (up to 5 times per hour, or 40 times per day)</p> <p>Most users average 14-15 doses per day initially.</p> <p>Taper as tolerated.</p>
<p>Nicotine inhaler</p> <p>Delivers nicotine vapor when puffed through a plastic cylinder containing a cartridge. The inhaler delivers nicotine through the lining of the mouth, not to the lung, and enters the body in much the same way as the NRT lozenge or gum.</p>	<p>Pros</p> <ul style="list-style-type: none"> • Flexible dosing • Mimics the hand-to-mouth behavior of smoking • Few side effects <p>Cons</p> <ul style="list-style-type: none"> • Frequent use during the day required to obtain adequate nicotine levels • May cause mouth or throat irritation 	<p>Comments and limitations</p> <p>Puffing must be done frequently and far more often than with a cigarette. Each cartridge is designed for 80 puffs and over 20 minutes of use. Patient does not need to inhale deeply to achieve an effect.</p> <p>Prescription required for purchase.</p>	<p>Dosing as monotherapy</p> <p>Minimum of 6 cartridges per day, up to 16 per day.</p> <p>Taper as tolerated.</p>

Non-Nicotine Medication

Description & Examples	Pros & Cons	Comments	Dosing Recommendations
<p>Bupropion SR</p> <p>(Generic Available)</p>	<p>Pros</p> <ul style="list-style-type: none"> • Easy to use • Pill form • Few side effects (most common are dry mouth and insomnia) • May be used in combination with NRT (nicotine patches, spray, gum and inhaler) <p>Cons</p> <ul style="list-style-type: none"> • Contraindicated with certain medical conditions and may interact adversely with MAO inhibitors 	<p>Comments and limitations</p> <p>A slight risk of seizure (1:1000) is associated with use of this medication. Seizure risk should be assessed. Risk of seizure is increased if there is:</p> <ul style="list-style-type: none"> • Personal history of seizures • Significant head trauma or brain injury • Anorexia nervosa or bulimia • Concurrent use of medications that lower the seizure threshold • Label contains boxed warning about mood changes, suicidal ideation and attempts, and aggressive behavior • Avoid in patients with hepatic failure <p>Prescription required for purchase.</p>	<p>Dosing: Take doses at least 8 hours apart</p> <p>Start medication one week prior to the target quit date (TQD):</p> <p>150 mg once daily for 3 days, then 150 mg twice daily for 4 days, then</p> <p>On TQD stop smoking</p> <p>Continue at 150 mg BID 12 weeks. Treatment can be used for as long as 12 months and may be effective for reducing relapse.</p> <p>May stop abruptly; no need to taper.</p>

Description & Examples	Pros & Cons	Comments	Dosing Recommendations
Varenicline	<p>Pros</p> <ul style="list-style-type: none"> • Easy to use • Pill form • Generally well tolerated • No known drug interactions <p>Cons</p> <ul style="list-style-type: none"> • Nausea, abnormal dreams and sleep disturbances are common adverse effects 	<p>Comments and limitations</p> <ul style="list-style-type: none"> • Nausea is common; taking the medication with food and titrating the dose as directed will help • Preliminary studies suggest that varenicline can be safely used in combination with bupropion and/or NRT; however, efficacy of these combinations has not been shown • Dose must be lowered if kidney function is impaired • Label contains boxed warning about mood changes, suicidal ideation and attempts, and aggressive behavior <p>Prescription required for purchase.</p>	<p>Dosing: Take with food Start medication one week prior to the target quit date (TQD):</p> <p>0.5 mg once daily X 3 days, then 0.5 mg twice daily X 4 days, then</p> <p>On TQD stop smoking, and</p> <p>Take 1.0 mg twice daily for 11 weeks. If not smoking at the end of twelve weeks, may continue at 1.0 mg twice daily for an additional 12 weeks.</p> <p>May stop abruptly; no need to taper.</p>

Combination Therapy

Description & Examples	Pros & Cons	Comments	Dosing Recommendations
<p>Long acting + short acting NRT</p> <p>Bupropion + NRT</p> <p>Varenicline + bupropion</p> <p>Varenicline + short acting NRT</p>	<p>Pros</p> <ul style="list-style-type: none"> • Permits sustained levels of nicotine with rapid adjustment for acute needs • More efficacious than monotherapy <p>Cons</p> <ul style="list-style-type: none"> • Cost 	<p>Comments and limitations</p> <ul style="list-style-type: none"> • Providing two types of delivery systems, one or two long-acting medications and one or more short-acting NRTs appears to be more efficacious and should be considered for those who have failed monotherapy in the past and those considered highly tobacco dependent • This strategy is endorsed by the Treating Tobacco Use and Dependence: 2008 Update, a Public Health Service-sponsored Clinical Practice Guideline, but is considered “off-label” prescribing according to the FDA-approved product labels • Short acting NRT and/or bupropion may be used in combination with varenicline if the patient has no contraindications for the use of each medication above 	<p>Dosing: Dose the patch as described according to cigarettes used per day</p> <p>Prescribe:</p> <p>2 mg gum, 2 mg lozenge, nicotine inhaler or nicotine nasal spray for ad lib</p> <p>Use every 1-2 hours and as needed when withdrawal symptoms and urges to use tobacco occur. Adjust dose of patch upward if unusually frequent use of immediate-release NRT is needed. The goal is to minimize need for short-acting NRT dosing.</p> <p>Some patients will benefit from using nicotine patch therapy and bupropion and one or more short acting NRT.</p>

Smokeless Tobacco (ST)

Description & Examples	Pros & Cons	Comments	Dosing Recommendations
Treatment recommendations	<p>24-hour nicotine patch</p> <p>>3 cans or pouches per week = 42 mg per day 2-3 cans or pouches per week = 21 mg per day <2 cans or pouches per week = 14 mg per day</p> <p>Adjust based on withdrawal symptoms, urges and</p>	<p>Other NRT</p> <p>Nicotine lozenge:</p> <p>4mg if > 3 times per week 2mg if ≤ 3 times per week</p>	<p>Non-nicotine pharmacotherapy</p> <p>Empiric evidence suggests that bupropion and varenicline may be of benefit in this population of tobacco users through using the dosing guidelines recommended for cigarette smokers.</p>

	comfort. After 4-6 weeks of abstinence, taper every 2-4 weeks in 7-14 mg steps as tolerated.	Nicotine gum or nicotine lozenge may be combined with nicotine patch as described for cigarette smokers. Nicotine inhaler and nicotine nasal spray are not recommended for ST users.	
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**The table is a summary of recommendations for use of medication in the treatment of tobacco dependence. The most effective regimen and doses vary by individual. Costs will vary depending on retailer. Some of the dosing recommendations are “off-label,” (that is, not contained in the current FDA-approved product labeling information). Adapted from Hurt, R.D., et al. CA Cancer J Clin.2009;59:314-326; Fiore, et.al. Treating Tobacco Use and Dependence: 2008 Update, a Public Health Service-sponsored Clinical Practice Guideline, 2008 Revised January 2015*