Break the Habit

A Pharmacist's Toolkit for Smoking Cessation Counselling

Smoking Cessation Pharmacotherapy Options

Nicotine Replacement Therapy

Dosage	Adverse Effects	Drug Interactions	Contraindications
NICOTINE GUM			
Initial dose: 10–12 pieces/day • Fagerström score is ≤6, use 2 mg; if ≥7, use 4 mg • Initial dose of 2 mg if <25 cigarettes/day, 4 mg if ≥25 cigarettes/day • Use lowest effective dose to relieve cravings, aiming to reduce smoking by 50% within 4 months and quit within 6 months Maximum dose: 20 pieces/day if needed for up to 6 months Dosing frequency: • Weeks 1–6: chew 1 piece of gum Q1–2H. To increase chances of quitting, chew at least 9 pieces/day during the first 6 wk • Weeks 7–9: chew 1 piece of gum Q2–4H • Weeks 10–12: chew 1 piece of gum Q4-8H Tapering: reduce by 1 piece/wk over 3–6 months as withdrawal symptoms allow Peak: 20–30 min Directions for use: • Do not chew like regular gum; this impacts absorption and mitigates side effects • Bite down once or twice, then park between teeth and gums for about 1 min	Common: jaw, mouth, throat soreness; changes in taste perception; hiccups; dyspepsia; nausea; vomiting; headache: • Belching, hiccups, stomach upset: advise proper chewing technique or switch agents. Cardiovascular: hypertension, palpitations, tachycardia, chest pain. Skin: erythema, itching, rash, urticaria. Respiratory: dyspnea, cough, hoarseness, sneezing, wheezing. CNS: depression, anxiety, irritability, insomnia; weakness, dizziness (dose may be too high; review proper use of product).	Acidic beverages and foods within 15 min before and during use using may affect absorption. Adenosine: nicotine may enhance the AV-blocking effect of adenosine. Nicotine may enhance the tachycardic effect of adenosine. Varenicline (systemic): may enhance the adverse/toxic effect of nicotine.	Absolute contraindications: life-threatening arrhythmia; severe angina pectoris; history of recent stroke; temporomandibular joint disease; within 2 wk following myocardial infarction. Relative contraindications: pregnancy, smoking while using this medication (nicotine toxicity), breastfeeding, age <18 y. Caution in hyperthyroidism, pheochromocytoma, insulin-dependent diabetes, active peptic ulcer, uncontrolled hypertension.
NICOTINE BITARTRATE DIHYDRATE LOZENGES			
Initial strength: 1 mg if <20 cigarettes/day; 2 mg if ≥20 cigarettes/day Maximum dose: 25 lozenges/day for 1 mg strength, 15 lozenges/day for 2 mg strength; use beyond 6 months is generally not recommended Dosing frequency: • Weeks 1–6: dissolve 1 lozenge in the mouth Q1–2H PRN for withdrawal symptoms • Weeks 7–9: 1 lozenge Q2–4H PRN • Weeks 10–12: 1 lozenge Q4–8H PRN Tapering: discontinue when dose reduced to 1–2 lozenges/day Peak: 20–60 min Directions for use: • Slowly dissolve, moving periodically to and from sides of mouth • Do not swallow or chew lozenges to avoid increased side effects	See Nicotine Gum		

NICOTINE POLACRILEX LOZENGES		
Initial strength: 2 mg if first cigarette of the day >30 min after waking; 4 mg if ≤30 min Maximum dose: 15 lozenges/day Dosing frequency, tapering, directions for use: see nicotine bitartrate dihydrate lozenges Peak: 20–60 min	See Nicotine Gum	
NICOTINE INHALER		
Each 10 mg cartridge delivers 4 mg of nicotine, equivalent to about 20 min of continuous puffing Initial therapy: use at least 6 cartridges/day for the first 3–6 wk Maximum dose: 12 cartridges/day; use for >6 months not recommended Tapering: decrease slowly over 6–12 wk. Discontinue once use decreases to 1– 2 times per day (ideally after 3 months, up to 6 months) Peak: 15 min Vapour is absorbed through buccal lining, rather than lungs Directions for use: • Puff the inhaler for ~5–10 min at a time • Take shallow puffs into the cheeks; hold vapour in cheeks for a few seconds before blowing it out • Cartridge can be used for up to 24 h once punctured • "Hand-to-mouth" activity may be preferred by some people, while others may find it triggering • Store in a warm place to maintain absorption rates Useful for those with poor oral health, dentures or difficulty chewing gum	Common: mild local irritation, cough, throat irritation, pharyngitis, stomatitis, rhinitis. Less common: headache, dyspepsia, nausea. Side effects usually transient and decrease with continued use. Colder weather may affect absorption.	See Nicotine Gum
NICOTINE MOUTHSPRAY		
Each spray delivers 1 mg of nicotine Initial dose: use 1 or 2 sprays every 30–60 min PO Maximum dose: 2 sprays/episode, 4 sprays/h, 64 sprays/day Peak: 16 min Directions for use: • Prime the spray with the first use or after 2 days of it not being used • Spray toward cheeks, avoiding back of throat	Common: altered sense of taste, headache, hiccups, nausea and vomiting, dyspepsia, oral soft tissue pain, stomatitis, salivary hypersecretion, burning lips, dry mouth.	See Nicotine Gum

NICOTINE TRANSDERMAL PATCH			
Initial dose: 21 mg/24 h × 6 wk then 14 mg/24 h × 2 wk then 7 mg/24 h × 2 wk Total daily doses may be increased using additional patches or other NRT: • 35 mg/day for people previously using 21–40 cigarettes/day • 40 mg/day for people previously using >40 cigarettes/day If patient has cardiovascular disease, weighs <45 kg or smokes <1/2 pack/day: begin with 14 mg/24 h × 6 wk then decrease to 7 mg/24 h × 2 wk Peak: 2–6 h Directions for use: • Apply patch(es) to non-hairy, clean, dry skin on upper arm or hip o Rotate sites daily; avoid using the same site more than once/wk o Wear for 16–24 h per day, depending on the product • Start patch on quit date • Do not smoke while using the patch, although it is generally safe • Fold used patches, medicated side in, and discard out of reach of children and pets Educate patient on signs and symptoms of nicotine toxicity Assess patient in first 2 wk to ensure smoking cessation Pharmacokinetic profile of different products may vary, refer to product monograph for more information about cutting the patch and use during exercise	Local skin reactions: erythema, pruritus, edema, blisters, rash, burning sensation. CNS: headache, dizziness, paresthesia, insomnia, abnormal dreams, depression, somnolence, anxiety, emotional lability. • Insomnia: tolerance may develop; remove patch before bedtime if it persists. • Vivid dreams: often transient; remove patch before bed if persists. Cardiovascular: palpitations, chest pain, blood pressure changes, tachycardia. GI: abdominal pain, dyspepsia, nausea, diarrhea, constipation, dry mouth, nausea and vomiting, flatulence, stomatitis. Respiratory: cough, pharyngitis, rhinitis, dyspnea, sinusitis. Other: myalgia, arthralgia, dysmenorrhea, sweating. Caution: wearing patch during strenuous exercise may increase absorption and adverse effects.	See Nicotine Gum	See Nicotine Gum Other contraindications: generalized skin disorders (severe eczema or psoriasis); hypersensitivity to topical adhesives or nicotine. Other relative contraindications: mild atopic or eczematous dermatitis.
DRUG CLASS: ANTIDEPRESSANTS			
BUPROPION*			
12-h extended release (sustained-release): • Initial dose: 150 mg daily PO × 3 days then 150 mg BID PO × 7–12 wk • Maximum dose: 300 mg/day Do not double up on doses or give doses too close together (dose-related seizure risk) Begin 1–2 wk before the selected quit date Can be combined with NRT – may enhance effectiveness	Common: insomnia (avoid taking doses too late in the evening; dose reduction may be required), dry mouth, dizziness, blurred vision, restlessness, difficulty concentrating. Less common: hypersensitivity reactions. CNS: increased risk of seizures at higher dosages; agitation-type reactions involving mood/behavioural changes, suicidal ideation. May cause motor or cognitive impairment in some patients, caution against tasks requiring mental alertness. Elevations in blood pressure and hypertension may occur in patients with or without pre-existing hypertension. Weight loss may result from bupropion use; caution is advised in patients where weight loss is not desirable.	Inhibits CYP2D6; may decrease clearance of atomoxetine, duloxetine, fluoxetine, fluvoxamine, paroxetine, risperidone, sertraline, venlafaxine; may decrease effectiveness of codeine and tamoxifen. Do not use with MAOIs (possible mania, excitation, hyperpyrexia). May be safely combined with NRT (monitor for treatment-emergent hypertension).	Not recommended in patients with conditions predisposing to seizures, history of seizures, current eating disorder or severe hepatic impairment, hypersensitivity to bupropion, or abrupt discontinuation of alcohol, benzodiazepines, barbiturates, or antiseizure drugs.

DRUG CLASS: NICOTINE RECEPTOR PARTIAL AGONISTS			
VARENICLINE*			
Initial dose: • Days 1–3: 0.5 mg once daily • Days 4–7: 0.5 mg twice daily Maintenance: • Day 8 and later: 1 mg twice daily for 11 wk; may consider a temporary or permanent dose reduction if usual dose is not tolerated Duration: total of at least 12 wk of treatment Advise patient to quit smoking 1–2 wk after starting varenicline Reassess therapy if the patient is still smoking 4 wk after starting	Common: nausea, vomiting (may be mitigated by taking on a full stomach, increasing water intake or reducing dose), headache, insomnia (take second daily dose at suppertime), abnormal dreams, irritability. Less common: suicidal/homicidal ideation have been reported; monitor closely for changes in mood/behaviour.	Combination with NRT may increase risk of adverse effects. Combining varenicline with NRT has increased quit rates compared to using varenicline alone. Combining with alcohol may increase adverse effects of alcohol. Decreased alcohol tolerance could increase neuropsychiatric adverse effects. Does not induce cytochrome P450 enzymes; excreted renally unchanged.	Not recommended in patients with hypersensitivity reactions or skin reactions to varenicline or any component of the formulation.

*Dosage adjustment may be required in renal impairment.

Abbreviations:
CNS = central nervous system; CYP = cytochrome P450; GI = gastrointestinal; MAOI = monoamine oxidase inhibitor; NRT = nicotine replacement therapy