NICOTINE
(nik-o-teen)

nicotine chewing gum
Nicorette, Thrive

nicotine inhaler
Nicoderm CQ

nicotine lozenge
Commit, Nicorette

nicotine nasal spray
Nicorette NS

nicotine transdermal
Nicoderm CQ

Classification
Therapeutic: smoking deterrents
Pregnancy Category D

Indications
Adjunct therapy (with behavior modification) in the management of nicotine withdrawal in patients desiring to give up cigarette smoking.

Action
Provides a source of nicotine during controlled withdrawal from cigarette smoking.

Therapeutic Effects:
Lessened sequelae of nicotine withdrawal (irritability, insomnia, somnolence, headache, and increased appetite).

Pharmacokinetics
Absorption:
Gum, lozenge — Slowly absorbed from buccal mucosa during chewing/sucking.
Inhaler — 50% of dose is systemically absorbed; most of nicotine released from inhaler is deposited in the mouth; absorption from buccal mucosa is slow.
Nasal spray — 53% absorbed from nasal mucosa.
Transdermal — 70% of nicotine released from the system is absorbed through the skin.

Distribution: Enters breast milk.

Metabolism and Excretion: Mostly metabolized by the liver. Small amounts are metabolized by kidneys and lungs. 10–20% excreted unchanged by kidneys.

Half-life: 1–2 hr.

TIME/ACTION PROFILE (nicotine blood levels)

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>gum</td>
<td>rapid</td>
<td>15–30 min</td>
<td>unknown</td>
</tr>
<tr>
<td>inhaler</td>
<td>slow</td>
<td>15–30 min</td>
<td>unknown</td>
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<tr>
<td>lozenge</td>
<td>unknown</td>
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<td>transdermal</td>
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Contraindications/Precautions
Contraindicated in: Hypersensitivity; Recent history of MI (inhaler or nasal spray); Arrhythmias (inhaler or nasal spray); Severe or worsening angina (inhaler or nasal spray); Severe cardiovascular disease; OB: Effects on fetus unknown; spontaneous abortion has been reported. Encourage behavioral approaches to smoking cessation. Lactation: Excreted in breast milk; weigh risks of nicotine product use against risks of continued smoking. Use Cautiously in: Cardiovascular disease (including hypertension); Recent history of MI (gum, lozenge, patch); Arrhythmias (gum, lozenge, patch); Severe or worsening angina (gum, lozenge, patch); Diabetes mellitus; Pheochromocytoma; Peripheral vascular disease; Hyperthyroidism; Diabetes; Continued smoking; Peptic ulcer disease; Hepatitis; Bronchospastic lung disease (inhaler or nasal spray); Geri: Begin at lower dosage.

Adverse Reactions/Side Effects
CNS: headache, insomnia, abnormal dreams, dizziness, depression, impaired concentration, paraskewisia, weakness.
EENT: sinusitis, gum, pharyngitis, nasal spray, nasopharyngeal irritation, sneezing, watering eyes, change in smell, earache, epistaxis, eye irritation, hoarseness.
Resp: cough, dyspnea.
CV: tachycardia, chest pain, hypertension.
GI: abdominal pain, nausea, vomiting, belching, q appetite, q salivation, oral injury, sore mouth.
Derm: transdermal — burning at patch site, erythema, pruritus, diarrhea, pruritus, dermatitis, rash, sweating.
Endo: dysmenorrhea.
MS: arthralgia, back pain, myalgia, jaw muscle ache, gum.
Neuro: paresthesia.
Misc: allergy.

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Interactions

Drug-Drug: Effects of acetaminophen, caffeine, imipramine, insulin, oxazepam, pantoprazole, propranolol, or other beta blockers, adrenergic antagonists (prazosin, labetalol), and theophylline may be upon smoking cessation; dose at cessation may be necessary. Effects of adrenergic agonists (e.g., isoproterenol, phenylephrine) may be upon smoking cessation; dose at cessation may be necessary. Concurrent treatment with bupropion may cause treatment-emergent hypotension.

Route/Dosage

Gum (Adults): If first cigarette is desired 30 min after awakening, start with 2 mg gum, if first cigarette is desired 30 min after awakening, start with 4 mg gum. Patients should chew one piece of gum every 1–2 hr for 6 wk, then one piece of gum every 4–8 hr for 3 wk, then discontinue. Should not exceed 24 pieces of gum/day.

Lozenge (Adults): If first cigarette is desired 30 min after awakening, start with 2 mg lozenge, if first cigarette is desired 30 min after awakening, start with 4 mg lozenges. Patients should use one lozenge every 1–2 hr for 6 wk, then one lozenge every 2–4 hr for 3 wk, then discontinue. Should not exceed 20 lozenges/day or more than 5 lozenges in 6 hr.

Intranasal (Adults): One spray in each nostril 1–2 times/hr (up to 5 times/hr); may be up to maximum of 40 times/day (should not exceed 3 mo of therapy).

Inhaln (Adults): Patients are encouraged to use at least 6 cartridges/day for first 3–6 wk, with additional cartridges as necessary (up to 10 cartridges/day) for 12 wk. Patients are self-titrated to level of nicotine they require (usual usage 6–16 cartridges/day) followed by gradual withdrawal over 6–12 mo. Patients smoking 10 cigarettes/day—Begin with Step 1 (21 mg/day) for 6 wk, followed by Step 2 (14 mg/day) for 2 wk, and then Step 3 (7 mg/day) for 2 wk, then stop (total of 8 wk) (new patch should be applied every 24 hr).

Transdermal (Adults): Patients smoking 10 cigarettes/day—Begin with Step 2 (14 mg/day) for 6 wk, followed by Step 3 (7 mg/day) for 2 wk, then stop (total of 6 wk) (new patch should be applied every 24 hr).

NURSING IMPLICATIONS

Assessment

Prior to therapy, assess smoking history (number of cigarettes smoked daily, smoking patterns, nicotine content of preferred brand, degree to which patient inhales smoke).

Assess patient for symptoms of smoking withdrawal (irritability, drowsiness, fatigue, headache, nausea, agitation) periodically during nicotine replacement therapy (NRT).

Evaluate progress in smoking cessation periodically during therapy.

Potential Nursing Diagnoses

Ineffective coping (Indications)

Implementation

Gum: Protect gum from light; exposure to light causes gum to turn brown.

Lozenge: Lozenge should be allowed to dissolve slowly in the mouth; it should not be chewed or swallowed.

Transdermal: Patch can be worn for 16 or 24 hr; the patch can be removed before the patient goes to bed (especially if patient has vivid dreams or sleep disturbances) or can remain on while the patient sleeps (especially if patient craves cigarettes upon awakening).

Visual changes and hallucinations may occur at the onset or during the first few weeks of therapy may help patient adjust to minor effects of the spray.

Patient/Family Teaching

Bupropion may cause treatment-emergent hypotension.

Encourage patient to participate in a smoking cessation program while using this product.

Review the patient instruction sheet enclosed in the package.

Instruct patient in proper method of disposal of unit. Emphasize need to keep out of the reach of children or pets.

No nicotine in any form can be harmful to a pregnant woman and/or the fetus. Assist patient in determining risk/benefits of nicotine replacement therapy (NRT) and further the fetus versus the likelihood of stopping smoking without NRT.

Emphasize the importance of regular visits to health care professionals to monitor progress of smoking cessation.

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CONTINUED
### Nicotine

**Lozenge:**
- Instruct patient to place lozenge in mouth and allow it to slowly dissolve (20–30 min).
- Patients who fail to stop smoking should be given a treatment holiday before another attempt.
- Advise patient to replace childcare responsibilities when smoking.
- Advise patient to stop smoking by the end of therapy (patient is unlikely to quit on that attempt).
- Advise patient to contact health care professional if smoking continues.
- Advise patient to avoid eating or drinking for 15 min before and during chewing of nicotine gum.
- Advise patient to chew gum when cravings occur or according to a fixed schedule (every 1–2 hr while awake) as directed. Gum chewed until tingling sensation is felt (about 15 chews). Then, patient should stop chewing and store the gum between the cheek and gums until the tingling sensation disappears (about 1 min). Process of stopping, then resuming chewing should be repeated for approximately 5 min until more of the single dose has disappeared. Rapid, vigorous chewing may result in side effects similar to those of smoking too many cigarettes (headache, dizziness, nausea, increased salivation, heartburn, and lacrimation). For best chances of quitting, chew at least 9 pieces of gum/day during 1st 6 wk.
- Advise patient that the gum has a slight tobacco/pepper-like taste. Many patients initially find it unpleasant and slightly irritating to the mouth. This usually resolves after several days of use.
- Advise patient to carry gum at all times during therapy.
- Advise patient to avoid eating or drinking the 15 min before and during chewing of nicotine gum; these interfere with buccal absorption of nicotine.
- Advise patient to chew gum whenever a craving for nicotine occurs or according to a fixed schedule.
- Nimotop (gum) should be used at a fixed time each day. Keep patch in place during showering, bathing, or swimming; replace patches that have fallen off. Wash hands with soap and water after handling patches. Do not trim or cut patch. No more than 1 patch should be used at a time. Alternate application sites. Dispose of used patches by folding adhesive sides together and replacing in protective pouch or aluminum foil. Keep out of reach of children.
- Advise patient to avoid shaving or trimming the edges around the edges. Keep patch in place during showering, bathing, or swimming; replace patches that have fallen off. Wash hands with soap and water after handling patches. Do not trim or cut patch. No more than 1 patch should be used at a time. Alternate application sites. Dispose of used patches by folding adhesive sides together and replacing in protective pouch or aluminum foil. Keep out of reach of children.
- Advise patient that the gum is chewed between the cheek and gums until a tingling sensation is felt (about 15 chews). Then, patient should stop chewing, store the gum between the cheek and gums, and chew it again after several days of therapy. This usually resolves after several days of use.
- Advise patients who fail to stop smoking should be given a treatment holiday before another attempt.
- Advise patient referred for MRI test to discuss patch with referring health care professional and MRI facility to determine if removal of patch is necessary prior to test and for directions for replacing patch.
- Advise patient not to swallow gum. Gum should be folded adhesive sides together and replaced in protective pouch or aluminum foil; keep out of reach of children.
- Advise patient to avoid eating or drinking the 15 min before and during chewing of nicotine gum; these interfere with buccal absorption of nicotine.
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chances of quitting, use at least 9 lozenges/day during 1st 6 wk. Do not use more than 1 lozenge at a time or use continuously one after the other. Lozenge should not be used after 12 wk without consulting health care professional.

**Evaluation/Desired Outcomes**

- Lessened sequelae of nicotine withdrawal (irritability, insomnia, somnolence, headaches, and increased appetite) during smoking cessation.

**Why was this drug prescribed for your patient?**