**Nicotine Replacement Therapy (NRT)**

<table>
<thead>
<tr>
<th>Description &amp; Examples</th>
<th>Pros</th>
<th>Pros &amp; Cons</th>
<th>Comments</th>
<th>Dosing Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nicotine patch</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(OTC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24-hour delivery systems:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21, 14, 7 mg/24 hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-hour delivery systems:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15, 10, 5 mg/16 hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Generic available)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nicotine lozenge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular or “mini” size</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(OTC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delivers nicotine through the lining of the mouth as the lozenge dissolves:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 mg, 4 mg standard lozenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 mg, 4 mg mini-lozenge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Generic available for regular size)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nicotine gum</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(OTC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2mg, 4mg</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flavors: Orange, Mint, Regular</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Various Flavors: Cinnamon, Fruit, Extreme Chill, Mint, Original</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Generic available)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dosing (24-hour patch)**

- $\geq 40$ 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

If a dose $>42$mg per day may be indicated, contact the patient’s prescriber. Adjust based on withdrawal symptoms, urges, and comfort.

After 4-6 weeks of smoking abstinence, taper every 2-4 weeks in 7-14 mg steps as tolerated.

**Dosing as monotherapy**

- Based on time to first cigarette of the day:
  - $<30$ minutes = 4 mg
  - $>30$ minutes = 2 mg

- Based on cigarettes per day (cpd):
  - $>20$ cpd = 4 mg
  - $\leq 20$ cpd = 2 mg

Initial dosing is 1-2 lozenges every 1-2 hours (minimum of 9 per day).
Taper as tolerated.

**Dosing as monotherapy**

- Based on time to first cigarette of the day:
  - $<30$ minutes = 4 mg
  - $>30$ minutes = 2 mg

- Based on cigarettes per day (cpd):
  - $>20$ cpd = 4 mg gum
  - $\leq 20$ cpd = 2 mg gum

Initial dosing is 1-2 pieces every 1-2 hours (10-12 pieces per day).
Taper as tolerated.
### Nicotine nasal spray

Delivers nicotine through the lining of the nose when sprayed directly into each nostril.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible dosing</td>
<td>Nose and throat irritation is common, but usually disappears within one week</td>
</tr>
<tr>
<td>Can be used in response to stress or urges to smoke</td>
<td>Frequent use during the day required to obtain adequate nicotine levels</td>
</tr>
<tr>
<td>Fastest delivery of nicotine of currently available NRT products</td>
<td>Infrequent nose bleed</td>
</tr>
</tbody>
</table>

**Comments and limitations:** Unlike decongestant nasal sprays, the nicotine spray should not be snuffed. Rather, it is sprayed against the lining of each nostril once or twice an hour (maximum of five times in one hour). Prescription required for purchase.

**Dosing Recommendations**
- Dosing as monotherapy
  - 1 spray in each nostril:
    - 1-2 times per hour (up to 5 times per hour, or 40 times per day)
  - Most users average 14-15 doses per day initially.
  - Taper as tolerated.

### Nicotine inhaler

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.

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexible dosing</td>
<td>Frequent use during the day required to obtain adequate nicotine levels</td>
</tr>
<tr>
<td>Mimics the hand-to-mouth behavior of smoking</td>
<td>May cause mouth or throat irritation</td>
</tr>
<tr>
<td>Few side effects</td>
<td></td>
</tr>
</tbody>
</table>

**Comments and limitations:** 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. Prescription required for purchase.

**Dosing Recommendations**
- Dosing as monotherapy
  - Minimum of 6 cartridges per day, up to 16 per day.
  - Taper as tolerated.

### Non-Nicotine Medication

#### Bupropion SR

(Generic Available)

<table>
<thead>
<tr>
<th>Pros</th>
<th>Cons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to use</td>
<td>Contraindicated with certain medical conditions and may interact adversely with MAO inhibitors</td>
</tr>
<tr>
<td>Pill form</td>
<td></td>
</tr>
<tr>
<td>Few side effects (most common are dry mouth and insomnia)</td>
<td></td>
</tr>
<tr>
<td>May be used in combination with NRT (nicotine patches, spray, gum and inhaler)</td>
<td></td>
</tr>
</tbody>
</table>

**Comments and limitations:** 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:
- 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

Prescription required for purchase.

**Dosing:** Take doses at least 8 hours apart
- Start medication one week prior to the target quit date (TQD):
  - 150 mg once daily for 3 days, then
  - 150 mg twice daily for 4 days, then
  - On TQD stop smoking
- Continue at 150 mg BID 12 weeks. Treatment can be used for as long as 12 months and may be effective for reducing relapse.
- May stop abruptly; no need to taper.
### Varenicline

**Pros**
- Easy to use
- Pill form
- Generally well tolerated
- No known drug interactions

**Cons**
- Nausea, abnormal dreams and sleep disturbances are common adverse effects

**Comments and limitations**
- 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

**Prescription required for purchase.**

**Dosing Recommendations**
- **Take with food**
- Start medication one week prior to the target quit date (TQD):
  - 0.5 mg once daily X 3 days, then
  - 0.5 mg twice daily X 4 days, then
  - On TQD stop smoking, and
  - 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.
  - May stop abruptly; no need to taper.

### Combination Therapy

**Long acting + short acting NRT**
- **Pros**
  - Permits sustained levels of nicotine with rapid adjustment for acute needs
  - More efficacious than monotherapy
- **Cons**
  - Cost

**Bupropion + NRT**
- **Pros**
  - 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

**Varenicline + bupropion**

**Varenicline + short acting NRT**

**Smokeless Tobacco (ST)**

**Treatment recommendations**
- **24-hour nicotine patch**
  - >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
  - Adjust based on withdrawal symptoms, urges and

**Other NRT**
- **Nicotine lozenge:**
  - 4mg if > 3 times per week
  - 2mg if ≤ 3 times per week

**Non-nicotine pharmacotherapy**
- 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.
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.

---