Pharmacologic Therapy for Tobacco Use & Dependence

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Nicotine Dependence Center
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Learning Objectives

• Identify medication options for the treatment of tobacco dependence

• Identify dosing, contraindications, and adverse events associated with pharmacotherapies for the treatment of tobacco dependence
# Disclosures

## Relevant Financial Relationship(s)

<table>
<thead>
<tr>
<th>Name</th>
<th>Nature of Relationship</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jon Ebbert, M.D.</td>
<td>Consultant</td>
<td>Nesmah</td>
</tr>
<tr>
<td></td>
<td>Stock Shareholder (self-managed)</td>
<td>Al Kaif</td>
</tr>
</tbody>
</table>

## Off Label/Investigational Usage

None
Rationale for Pharmacological Therapy

• Attenuate reinforcing effects
  • Positive reinforcement
  • Negative reinforcement
• Reduce urges to smoke
• Break the link between nicotine effects and environmental triggers
• Engage strategies to change smoking behavior
Combined Behavioral & Pharmacotherapy

• Odds of successful abstinence at 6 months or longer with combined therapy compared with behavioral or pharmacotherapy alone

• Overall: 1.82 (1.66, 2.00)
• Health care setting: 2.06 (1.81, 2.34)
• Community setting: 1.53 (1.33, 1.76)

Stead, LF and Lancaster, T. Combined pharmacotherapy and behavioral interventions for smoking cessation. 2012 Cochrane Review
USPHS Guideline Recommendations

• First-Line
  • Nicotine Replacement Therapy
    • Gum
    • Patch
    • Inhaler
    • Nasal Spray
    • Lozenge
  • Non-NRT
    • Bupropion SR
    • Varenicline
USPHS Guideline Recommendations

• **First-Line**
  • **Nicotine Replacement Therapy**
    • **Gum**
    • Patch
    • Inhaler
    • Nasal Spray
    • Lozenge
  • **Non-NRT**
    • Bupropion SR
    • Varenicline
Nicotine Gum

- Useful adjunct with intervention
- Most effective with counseling
- 2 mg and 4 mg
- “Chew and Park”
- Frequent use initially (10-15/day)
- Frequently used in combination with other NRT
USPHS Guideline Recommendations

- **First-Line**
  - Nicotine Replacement Therapy
    - Gum
    - **Patch**
    - Inhaler
    - Nasal Spray
    - Lozenge
  - Non-NRT
    - Bupropion SR
    - Varenicline
Nicotine Patch

• Standard: 21 mg for 6 weeks, 14 mg for 4 weeks, 7 mg for 2 weeks

• Start on target quitting date

• Evidence of need for tapering at end of treatment is minimal

• Treatment for minimum of 8 to 12 weeks
Nicotine Patch Therapy: Dosing Guidelines

Based on Baseline Cigarettes/Day

1 mg per 1 cigarette/day

- <10 CPD: 7-14 mg/d
- 10-20 CPD: 14-21 mg/d
- 21-40 CPD: 22-42 mg/d
- >40 CPD: 42+ mg/d
USPHS Guideline Recommendations

• **First-Line**
  - **Nicotine Replacement Therapy**
    - Gum
    - Patch
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    - Nasal Spray
    - Lozenge
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    - Bupropion SR
    - Varenicline
C-11-nicotine deposition

Vapor inhaler

Cigarette

Clinical Pharmacology Therapeutics may 1996
USPHS Guideline Recommendations

• First-Line
  • Nicotine Replacement Therapy
    • Gum
    • Patch
    • Inhaler
    • **Nasal Spray**
    • Lozenge
  • Non-NRT
    • Bupropion SR
    • Varenicline
Nicotine Nasal Spray
Clinical Use

• More rapid delivery & more rapid treatment of withdrawal than other nicotine preparations
• 1 spray = 0.5 mg nicotine
• 1 dose = 1 spray in each nostril (Total = 1 mg)
• Instruction is important
  • Spray against lower nasal mucosa - don’t sniff
• Recommend:
  • 1-2 dose/h
  • NTE 5 doses/h or 40 doses/d
Median Serum Nicotine Levels

- **Nicotine (ng/mL)**
  - 4 mg active gum (n = 31)
  - 1 mg active spray (n = 29)
  - Combined placebo (n = 31)

- **Time of blood draws** (minutes following drug administration)
  - *Assay detection limit*
USPHS Guideline Recommendations

• **First-Line**
  • **Nicotine Replacement Therapy**
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    • Patch
    • Inhaler
    • Nasal Spray
    • **Lozenge**
  • **Non-NRT**
    • Bupropion SR
    • Varenicline
Nicotine Lozenge

- Nicotine Lozenge
  - 2 mg
  - 4 mg
- Dissolves in mouth over 20-30 minutes
- Delivers 25% more nicotine than the gum
# Adverse events related to nicotine replacement therapy


<table>
<thead>
<tr>
<th>Adverse event</th>
<th>Prevalence in observational studies (%)</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin irritation</td>
<td>19.5</td>
<td>PATCH</td>
</tr>
<tr>
<td>Insomnia</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>Headache*</td>
<td>9.7</td>
<td></td>
</tr>
<tr>
<td>Nausea or vomiting</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Cough</td>
<td>8.1</td>
<td>NASAL SPRAY</td>
</tr>
<tr>
<td>Dizziness*</td>
<td>7.3</td>
<td></td>
</tr>
<tr>
<td>Mouth/throat irritation</td>
<td>5.4</td>
<td>GUM/LOZ/INHALER</td>
</tr>
<tr>
<td>GI complaints</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>Heart palpitations</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>Anxiety*</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>Depression*</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>Hiccoughs</td>
<td>2.5</td>
<td></td>
</tr>
</tbody>
</table>

*In RCT’s no difference in AE rate in active compared with placebo treatment*
NRT Contraindications

- Virtually none
- Serious allergic reaction (rare)
- Blistering patch site reactions
USPHS Guideline Recommendations

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    • Gum
    • Patch
    • Inhaler
    • Nasal Spray
    • Lozenge
  • Non-NRT
    • Bupropion SR
    • Varenicline
Mechanism of Action

• Atypical antidepressant
• Blocks reuptake of NE and DA
• Increased DA in the mesolimbic “reward center” mimics nicotine
• Uncertain of NE role in smoking cessation
• May act as a nicotinic receptor blocker
Bupropion Efficacy Across Populations

- Psychiatric comorbidity (PTSD, schizophrenia, on SSRI for MDD)
- Medical comorbidity (COPD, CHD)
- Urban African-Americans

Bupropion significantly increases long-term cessation

- 44 trials, N = 13,728, risk ratio
- RR 1.62 (95% CI: 1.49 - 1.76)

Bupropion SR prescribing

• Set target quit date 1 week from start of medication
• Begin with 150 mg daily for 3 days
• Increase to 150 mg twice daily at least 8 hrs apart
• Evening dose before 6PM
• Treat for 8-52 weeks
### Common adverse events reported in 40 controlled clinical trials of bupropion SR

<table>
<thead>
<tr>
<th>AE</th>
<th>Mean %</th>
<th>Range</th>
<th>Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insomnia</td>
<td>32.3</td>
<td>10 to 53</td>
<td>25</td>
</tr>
<tr>
<td>Dry mouth</td>
<td>23.9</td>
<td>6 to 62</td>
<td>17</td>
</tr>
<tr>
<td>Headache</td>
<td>21.5</td>
<td>6 to 56</td>
<td>9</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>17.5</td>
<td>6 to 50</td>
<td>5</td>
</tr>
<tr>
<td>Anxiety</td>
<td>20.3</td>
<td>10 to 31</td>
<td>4</td>
</tr>
<tr>
<td>Nausea</td>
<td>19.8</td>
<td>10 to 44</td>
<td>5</td>
</tr>
</tbody>
</table>
Serious adverse effects with bupropion SR

• Seizure rate about 1/1000 treated
  • 7/6409 subjects on active therapy in RCT’s
  • Post marketing studies show seizures in people with known predisposition
  • Contraindications: known seizure (ever); structural brain abnormality; serious closed head injury

• Hypersensitivity (about 1%)
  • Hives, urticaria, angioedema
  • Serum sickness-like

• Neuropsychiatric symptoms (“Boxed Warning”)
Bupropion contraindications

• Allergic reaction (occurs in about 1%)
• Anorexia/bulimia
• Seizure history or seizure risk
  • Withdrawal seizures
  • Febrile seizures
  • Serious closed head injury (LOC within 5 years or evidence of intracranial injury)
• MAO inhibitors
• Liver failure
USPHS Guideline Recommendations

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  • **Non-NRT**
    • Bupropion SR
    • **Varenicline**
Varenicline Mechanism of Action

- Varenicline targets the nicotinic acetylcholine receptor
- Not nicotine nor an antidepressant
- Partial agonist with specificity for the α4β2 acetylcholine receptor
  - Agonist - stimulates the receptor to decrease craving and withdrawal
  - Antagonist - blocks the receptor to decrease the reinforcement associated with smoking
- No clinically relevant drug-drug interactions
Chantix™ (varenicline): A Highly Selective $\alpha_4\beta_2$ Receptor Partial Agonist

**Nicotine**

- Nucleus accumbens (nAcc)
- Ventral tegmental area (VTA)
- Binding of nicotine at the $\alpha_4\beta_2$ nicotinic receptor in the VTA is believed to cause release of dopamine at the Nucleus Accumbens (nAcc)

**Chantix**

- Nucleus accumbens (nAcc)
- Ventral tegmental area (VTA)
- Chantix is an $\alpha_4\beta_2$ nicotinic receptor partial agonist, a compound with dual agonist and antagonist activities. This is believed to result in both a lesser amount of dopamine release from the VTA at the nAcc as well as the prevention of nicotine binding at the $\alpha_4\beta_2$ receptors

Figure 2. Network meta-analysis of smoking cessation with each first-line pharmacotherapy versus placebo and versus each other

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Odds ratio (95% credible interval)</th>
<th>No. of studies (direct comparisons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRT vs Placebo</td>
<td>1.84 (1.71, 1.99)</td>
<td>119</td>
</tr>
<tr>
<td>Bupropion vs Placebo</td>
<td>1.82 (1.6, 2.06)</td>
<td>36</td>
</tr>
<tr>
<td>Varenicline vs Placebo</td>
<td>2.88 (2.4, 3.47)</td>
<td>15</td>
</tr>
<tr>
<td>Bupropion vs NRT</td>
<td>0.99 (0.88, 1.13)</td>
<td>9</td>
</tr>
<tr>
<td>Varenicline vs NRT</td>
<td>1.57 (1.29, 1.91)</td>
<td>0</td>
</tr>
<tr>
<td>Varenicline vs Bupropion</td>
<td>1.59 (1.29, 1.98)</td>
<td>3</td>
</tr>
</tbody>
</table>
Varenicline Prescribing

- Use in combination with behavioral treatment
- Start medication 1 week prior to target quit date
  - Days 1-3, Varenicline 0.5mg daily
  - Days 4-7, Varenicline 0.5mg twice daily
  - Day 8 to end of treatment 1.0mg twice daily
  - TQD on day 8
- Take with food and 8-12 ounces of water
- Dose reduction with severe renal impairment (GFR<30)
- Supplied as starter card (11X0.5mg tabs) and 4-week packs of 1 mg BID or bottles of 56
- Treat for 3 to 6 months
Additional Prescribing Information

• No dose reduction needed in...
  • Geriatric population
  • Patients with liver disease
• No important drug-drug interactions
• Reduce dose in renal impairment
  • Estimated creatinine clearance <30 ml/min reduce dose to 0.5 mg daily and titrate to 0.5 mg BID as tolerated
## Common Adverse Events in Clinical Trials (%)

<table>
<thead>
<tr>
<th>Event</th>
<th>Varenicline</th>
<th>Placebo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nausea</td>
<td>35.8</td>
<td>11.2</td>
</tr>
<tr>
<td>Insomnia</td>
<td>22</td>
<td>12.7</td>
</tr>
<tr>
<td>Abnl dreams</td>
<td>14.4</td>
<td>5</td>
</tr>
<tr>
<td>Headache</td>
<td>16.8</td>
<td>14.3</td>
</tr>
<tr>
<td>Other GI</td>
<td>22.5</td>
<td>11.8</td>
</tr>
<tr>
<td>Discontinued</td>
<td>12</td>
<td>8.1</td>
</tr>
</tbody>
</table>
EAGLES Study Diagram

Primary Efficacy Endpoint: Week 9-12 Continuous Abstinence Rate
Secondary Efficacy Endpoint: Week 9-24 Continuous Abstinence Rate

Baseline Randomization
Screening Visit

Vertical ticks represent patient clinic visits
BL = Baseline

Target Quit Date

Study Contacts (Week) Visits*/Telephone contacts BL 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Treatment Phase

Non-treatment Follow-up

Primary Endpoint: Neuropsychiatric AE Composite Endpoint

There were more neuropsychiatric AEs in the psychiatric cohort (5.8%) than the non-psychiatric cohort (2.1%), p<0.0001 as well as a significant treatment-by-coh ort interaction requiring reporting of the primary composite endpoint separately.

<table>
<thead>
<tr>
<th>Non-Psychiatric Cohort</th>
<th>Risk Difference (95% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varenicline vs. placebo</td>
<td>-1.28 (-2.40, -0.15)</td>
</tr>
<tr>
<td>Bupropion vs. placebo</td>
<td>-0.08 (-1.37, 1.21)</td>
</tr>
<tr>
<td>NRT vs. placebo</td>
<td>-0.21 (-1.54, 1.12)</td>
</tr>
<tr>
<td>Varenicline vs. NRT</td>
<td>-1.07 (-2.21, 0.08)</td>
</tr>
<tr>
<td>Bupropion vs. NRT</td>
<td>0.13 (-1.19, 1.45)</td>
</tr>
<tr>
<td>Varenicline vs. bupropion</td>
<td>-1.19 (-2.30, -0.09)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychiatric Cohort</th>
<th>Risk Difference (95% Confidence Interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varenicline vs. placebo</td>
<td>1.59 (-0.42, 3.59)</td>
</tr>
<tr>
<td>Bupropion vs. placebo</td>
<td>1.78 (-0.24, 3.81)</td>
</tr>
<tr>
<td>NRT vs. placebo</td>
<td>0.37 (-1.53, 2.26)</td>
</tr>
<tr>
<td>Varenicline vs. bupropion</td>
<td>1.22 (-0.81, 3.25)</td>
</tr>
<tr>
<td>Varenicline vs. NRT</td>
<td>1.42 (-0.63, 3.46)</td>
</tr>
<tr>
<td>Bupropion vs. NRT</td>
<td>-0.20 (-2.34, 1.95)</td>
</tr>
</tbody>
</table>

### Components of the NPS AE Primary Endpoint: Non-Psychiatric Cohort

<table>
<thead>
<tr>
<th>Endpoints Components</th>
<th>Varenicline n=990</th>
<th>Bupropion n=989</th>
<th>NRT n=1,006</th>
<th>Placebo n=999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety*</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Depression*</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Feeling abnormal*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hostility*</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Agitation**</td>
<td>10</td>
<td>11</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>Aggression**</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Delusions**</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hallucinations**</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Homicidal ideation**</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Mania**</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Panic**</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Paranoia**</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Psychosis**</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Suicidal behavior**</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Suicidal ideation**</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Completed Suicide**</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*Grade: severe intensity AE; **Grade: moderate and severe intensity AE

### Secondary Endpoint

**Components of the NPS AE Primary Endpoint: Psychiatric Cohort**

<table>
<thead>
<tr>
<th>Composite NPS AE Primary Endpoint</th>
<th>Occurrence n (%)</th>
<th>Psychiatric Cohort (N=4,074)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Varenicline n=1,026</td>
</tr>
<tr>
<td>Anxiety*</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Depression*</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Feeling abnormal*</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Hostility*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Agitation**</td>
<td>25</td>
<td>29</td>
</tr>
<tr>
<td>Aggression**</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>Delusions**</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Hallucinations**</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Homicidal ideation**</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mania**</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Panic**</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>Paranoia**</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Psychosis**</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Suicidal behavior**</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Suicidal ideation**</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Completed Suicide**</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*Grade: severe intensity AE; **Grade: moderate and severe intensity AE

Varenicline and Neuropsychiatric Symptoms

• Advise patients and family members that this has been observed

• Ask patients and/or family to report any symptoms like this to you

• Patients with serious psychiatric comorbidity were not included in clinical trials

• No cause and effect relationship has been established
## Cochrane Review of NRT

<table>
<thead>
<tr>
<th>Type of NRT</th>
<th>RR</th>
<th>95% CI</th>
<th>I²</th>
<th>N of studies</th>
<th>N of participants Intervention/ Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gum</td>
<td>1.49</td>
<td>1.40 to 1.60</td>
<td>40%</td>
<td>56*</td>
<td>10,596/ 11,985</td>
</tr>
<tr>
<td>Patch</td>
<td>1.64</td>
<td>1.52 to 1.78</td>
<td>19%</td>
<td>43</td>
<td>11,746/ 7,840</td>
</tr>
<tr>
<td>Inhaler/inhalator</td>
<td>1.90</td>
<td>1.36 to 2.67</td>
<td>0%</td>
<td>4</td>
<td>490/ 486</td>
</tr>
<tr>
<td>Intranasal spray</td>
<td>2.02</td>
<td>1.49 to 2.73</td>
<td>0%</td>
<td>4</td>
<td>448/ 439</td>
</tr>
<tr>
<td>Tablets/lozenges</td>
<td>1.95</td>
<td>1.61 to 2.36</td>
<td>24%</td>
<td>7*</td>
<td>1808/ 1597</td>
</tr>
<tr>
<td>Oral spray</td>
<td>2.48</td>
<td>1.24 to 4.94</td>
<td>NA</td>
<td>1</td>
<td>318/ 161</td>
</tr>
<tr>
<td>Choice of product</td>
<td>1.60</td>
<td>1.39 to 1.84</td>
<td>NA</td>
<td>5</td>
<td>1449/ 1349</td>
</tr>
<tr>
<td>Patch and inhaler</td>
<td>1.07</td>
<td>0.57 to 1.99</td>
<td>NA</td>
<td>1</td>
<td>136/ 109</td>
</tr>
<tr>
<td>Patch and lozenge</td>
<td>1.83</td>
<td>1.01 to 3.31</td>
<td>NA</td>
<td>1</td>
<td>267/ 41</td>
</tr>
</tbody>
</table>

* includes 1 study treated as 2 for analysis

Combination Varenicline and Bupropion SR for Tobacco-Dependence Treatment in Cigarette Smokers: A Randomized Trial

Jon O. Ebbert, MD, MSc; Dorothy K. Hatsukami, PhD; Ivana T. Croghan, PhD; Darrell R. Schroeder, MS; Sharon S. Allen, MD; J. Taylor Hays, MD; Richard D. Hurt, MD

Study Design

Randomization

Smokers

Varenicline + Bupropion SR

Varenicline + Placebo

Medication: 12 weeks total with standard “ramp up”
Conclusions

• For lighter and less dependent smokers, varenicline+bupropion SR does not increase smoking abstinence rates compared to varenicline alone.

• For heavier and more dependent smokers, varenicline+bupropion SR significantly increases smoking abstinence rates compared to varenicline alone.
### Pharmacotherapy for Tobacco Dependence: General Approach

<table>
<thead>
<tr>
<th>NRT</th>
<th>Non-NRT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous dosing</td>
<td>Bupropion SR or Varenicline</td>
</tr>
<tr>
<td>Patches @ 1 mg patch per 1 cigarette per day</td>
<td></td>
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<tr>
<td>Ad lib dosing</td>
<td>Gum</td>
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<td></td>
<td>Inhaler</td>
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<td></td>
<td>Nasal spray</td>
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<td>Lozenge</td>
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Effect of Varenicline on Smoking Cessation Through Smoking Reduction
A Randomized Clinical Trial

Jon O. Ebbert, MD, MSc; John R. Hughes, MD; Robert J. West, PhD; Stephen I. Rennard, MD; Cristina Russ, MD; Thomas D. McRae, MD; Joan Treadow, RN, BSN; Ching-Ray Yu, PhD; Michael P. Dutro, PharmD; Peter W. Park, PhD

Conclusions

Among cigarette smokers not willing or able to quit within the next month but willing to reduce cigarette consumption and make a quit attempt at 3 months, use of varenicline for 24 weeks compared with placebo significantly increased smoking cessation rates at the end of treatment, and also at 1 year. Varenicline offers a treatment option for smokers whose needs are not addressed by clinical guidelines recommending abrupt smoking cessation.
“Reduce-to-Quit”

- Viable option for smokers unwilling to set a target quit date right away
- Use pharmacologic support during reduction
- Advise a specific reduction schedule/target
- Continue treatment even for those who miss the target quit date if motivated to quit
Learning Objectives

• Identify medication options for the treatment of tobacco dependence

• Identify dosing, contraindications, and adverse events associated with pharmacotherapies for the treatment of tobacco dependence