COPD Medications and Treating Tobacco Dependence

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GOLD Website Address

http://www.goldcopd.org
COPD, a common preventable and treatable disease, is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases.

Exacerbations and comorbidities contribute to the overall severity in individual patients.
### Therapeutic Options: COPD Medications

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<th>Category</th>
<th>Medications</th>
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<td>Short-acting beta$_2$-agonists</td>
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<td>Long-acting beta$_2$-agonists</td>
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<td><strong>Anticholinergics</strong></td>
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<tr>
<td>Short-acting anticholinergics</td>
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<td>Long-acting anticholinergics</td>
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<tr>
<td><strong>Combination</strong></td>
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<tr>
<td>Combination short-acting beta$_2$-agonists + anticholinergic in one inhaler</td>
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<tr>
<td>Combination long-acting beta$_2$-agonist + anticholinergic in one inhaler</td>
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<td><strong>Methylxanthines</strong></td>
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<td><strong>Inhaled corticosteroids</strong></td>
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<td>Combination long-acting beta$_2$-agonists + corticosteroids in one inhaler</td>
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<td><strong>Systemic corticosteroids</strong></td>
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<tr>
<td><strong>Phosphodiesterase-4 inhibitors</strong></td>
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</tbody>
</table>
Bronchodilator medications are central to the symptomatic management of COPD.

Bronchodilators are prescribed on an as-needed or on a regular basis to prevent or reduce symptoms.

The principal bronchodilator treatments are beta$_2$-agonists, anticholinergics, theophylline or combination therapy.

The choice of treatment depends on the availability of medications and each patient’s individual response in terms of symptom relief and side effects.
Short-Acting Bronchodilators

- These work quickly (within 15-20 minutes) to help decrease shortness of breath. They are sometimes described as "rescue" or "quick-reliever" medications:
  - Albuterol – ProAir, Ventolin, Proventil
  - Levalbuterol – Xopenex
  - Albuterol & Atrovent (ipratropium) – Combivent Respimat, DuoNeb
  - Atrovent (ipratropium) – anticholinergic alone
Long-acting inhaled bronchodilators are convenient and more effective for symptom relief than short-acting bronchodilators.

Long-acting inhaled bronchodilators reduce exacerbations and related hospitalizations and improve symptoms and health status.

Combining bronchodilators of different pharmacological classes may improve efficacy and decrease the risk of side effects compared to increasing the dose of a single bronchodilator.
Long-Acting Bronchodilators

- **Long-acting beta-agonists (LABAs)** – long-acting bronchodilators

- **Long-acting muscarinic receptor antagonists (LAMAs)** – long-acting anticholinergic bronchodilators – block the parasympathetic nerve reflexes that cause the airways to constrict, so allow the airways to remain open. Muscarinic receptor antagonists bind to muscarinic receptors and inhibit acetylcholine mediated bronchospasm.

- Studies show that combination therapy – LABA & LAMA – can be superior to either agent used alone

- Coming soon…triple therapy! LABA & LAMA & ICS
Long-Acting Bronchodilators

**Single agents:**
- Tiotropium (Spiriva Handihaler & Respimat) – LAMA – once daily
- Salmeterol (Severent) – LABA q 12 hours
- Formoterol (Foradil, Perforomist) – LABA q 12 hours
- Arfomoterol (Brovana) – LABA – q 12 hours
- Indacaterol (Arcapta) – LABA – once daily
- Aclidinium (Tudorza Pressair) – LAMA – q 12 hours
- Umeclidium (Incruse Ellipta) – LAMA – once daily

**Combination agents (once daily):**
- Umeclidium & Vilanterol - (Anoro Ellipta) – LAMA & LABA
- Tiotropium & Olodaterol (Stiolto Respimat) – LAMA & LABA
Regular treatment with inhaled corticosteroids improves symptoms, lung function and quality of life and reduces frequency of exacerbations for COPD patients with an FEV\textsubscript{1} < 60% predicted.

Inhaled corticosteroid therapy is associated with an increased risk of pneumonia.

Withdrawal from treatment with inhaled corticosteroids may lead to exacerbations in some patients.
Oral and Inhaled Corticosteroids

- Oral steroids – typically used for exacerbations
- Long-term treatment with inhaled corticosteroids (ICS) added to long-acting bronchodilators is recommended for patients at high risk of exacerbations in COPD
- Long-term monotherapy with oral or inhaled corticosteroids including budesonide (Pulmicort) and fluticasone (Flovent) is not recommended in COPD because these are less effective than a combination ICS with LABA
- Regular treatment with ICS does not modify long-term decline of lung function or mortality risk
- Side effects of ICS: risk of pneumonia and increased risk of fractures with long-term exposure
An inhaled corticosteroid combined with a long-acting beta\textsubscript{2}-agonist is more effective than the individual components in improving lung function and health status and reducing exacerbations in moderate to very severe COPD.

Combination therapy is associated with an increased risk of pneumonia.

Addition of a long-acting beta\textsubscript{2}-agonist/inhaled corticosteroid combination to an anticholinergic (tiotropium) appears to provide additional benefits (triple therapy).
Therapeutic Options: Combination Therapy

- Combination ICS & LABA
  - Advair (fluticasone and salmeterol)
  - Symbicort (budesonide and formoterol)
  - Dulera (mometasone & formoterol) – currently indicated only for asthma

- Long-term treatment with ICS & LABA is recommended for patients at high risk of exacerbations

- Black box warning for all LABAs
Phosphodiesterase-4 Inhibitors

- Roflumilast (Daliresp) – an oral drug that acts as a selective, long-acting inhibitor of the enzyme PDE-4. Has anti-inflammatory effects and is approved for severe COPD associated with chronic bronchitis.

- Side effects include: diarrhea, nausea, headache, insomnia, abd. pain, UTI, depression, decreased appetite
In patients with severe and very severe COPD (GOLD 3 and 4) and a history of exacerbations and chronic bronchitis, the phosphodiesterase-4 inhibitor, roflumilast, reduces exacerbations treated with oral glucocorticosteroids.
Methylxanthines

How Theophylline works:
- Mild bronchodilator, mild anti-inflammatory medicine
- Improves breathing by increasing the strength of the diaphragm (if it is weakened) and by stimulating the breathing control centers in the brain.

Side Effects
- Nausea and vomiting, seizures, arrhythmias, insomnia, nervousness & irritability, tachycardia, tachypnea
- May be able to reduce these side effects by avoiding caffeine
- Difference between a therapeutic dose and toxicity is small
- Significant interactions with other prescribed medicines, which can make it less effective and potentially life-threatening
Methylxanthines

How Well It Works

- A few studies have noted that, compared to a placebo, theophylline provides a small improvement in lung function as measured by spirometry in stable COPD.

- In a COPD exacerbation, methylxanthines, compared to a placebo, provide a small improvement in lung function as measured by spirometry.

- In general, research shows that the small improvement in lung function does not justify the severe side effects for most people who have COPD.

- In most cases, newer and safer medicines have replaced methylxanthines for treatment of people who have COPD.
Methylxanthines

Why It Is Used

- Because of their side effects, methylxanthines are not considered first-choice medicines to treat COPD. They are prescribed most often for people with COPD who:
  - Still have major difficulty breathing despite using both an inhaled beta2-agonist and an inhaled anticholinergic.
  - Have persistent nighttime symptoms.
  - Have frequent, rapid, and sometimes sudden increase in shortness of breath (COPD exacerbation).

- Medicines and illnesses can affect how quickly theophylline is cleared from the body so theophylline levels must be checked regularly.

- Smoking increases how quickly theophylline is cleared from the body so a person with COPD who continues to smoke may need larger doses of the medicine.
Theophylline is less effective and less well tolerated than inhaled long-acting bronchodilators and is not recommended if those drugs are available and affordable.

There is evidence for a modest bronchodilator effect and some symptomatic benefit compared with placebo in stable COPD. Addition of theophylline to salmeterol produces a greater increase in FEV$_1$ and breathlessness than salmeterol alone.

Low dose theophylline reduces exacerbations but does not improve post-bronchodilator lung function.
Chronic treatment with systemic corticosteroids should be avoided because of an unfavorable benefit-to-risk ratio.
Influenza vaccines can reduce serious illness. Pneumococcal polysaccharide vaccine is recommended for COPD patients 65 years and older and for COPD patients younger than age 65 with an FEV$_1$ < 40% predicted.

The use of antibiotics, other than for treating infectious exacerbations of COPD and other bacterial infections, is currently not indicated.
**Alpha-1 antitrypsin augmentation therapy:** not recommended for patients with COPD that is unrelated to the genetic deficiency.

**Mucolytics:** Patients with viscous sputum may benefit from mucolytics; overall benefits are very small.

**Antitussives:** Not recommended.

**Vasodilators:** Nitric oxide is contraindicated in stable COPD. The use of endothelium-modulating agents for the treatment of pulmonary hypertension associated with COPD is not recommended.
All COPD patients benefit from *exercise training programs* with improvements in exercise tolerance and symptoms of dyspnea and fatigue.

Although an effective pulmonary rehabilitation program is 6 weeks, the longer the program continues, the more effective the results.

If exercise training is maintained at home, the patient's health status remains above pre-rehabilitation levels.
Oxygen Therapy - some studies have shown an increase in survival rates in patients who use oxygen more than 15 hours a day. Can improve sleep, mood, mental alertness and stamina and allows individuals to carry out normal, everyday functions.

Non-invasive ventilatory support – positive pressure ventilation delivers intermittent positive airway pressure (PAP), which gives the patient ventilatory support using a face or nasal mask.

Lung volume reduction surgery (LVRS) – small wedges of damaged lung tissue are removed to allow the remaining tissue to function better.

In appropriately selected patients with very severe COPD, lung transplantation has been shown to improve quality of life and functional capacity.
Long-acting formulations of beta$_2$-agonists and anticholinergics are preferred over short-acting formulations. Based on efficacy and side effects, inhaled bronchodilators are preferred over oral bronchodilators.

Long-term treatment with inhaled corticosteroids added to long-acting bronchodilators is recommended for patients with high risk of exacerbations.
Long-term monotherapy with oral or inhaled corticosteroids is not recommended in COPD.

The phosphodiesterase-4 inhibitor roflumilast may be useful to reduce exacerbations for patients with FEV₁ < 50% of predicted, chronic bronchitis, and frequent exacerbations.
Global Strategy for Diagnosis, Management and Prevention of COPD

Manage Stable COPD: Pharmacologic Therapy

RECOMMENDED FIRST CHOICE

Exacerbations per year

- 0
- 1 (not leading to hospital admission)
- 2 or more or > 1 leading to hospital admission

CAT < 10 mMRC 0-1

CAT ≥ 10 mMRC ≥ 2

GOLD 4

C

ICS + LABA

or

LAMA

D

ICS + LABA

and/or

LAMA

GOLD 3

A

SAMA prn

or

SABA prn

B

LABA

or

LAMA

GOLD 2

GOLD 1

SAMA

or

SABA prn

LABA

or

LAMA

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Global Strategy for Diagnosis, Management and Prevention of COPD

Manage Stable COPD: Pharmacologic Therapy

ALTERNATIVE CHOICE

GOLD 4
LAMA and LABA or
LAMA and PDE4-inh or
LABA and PDE4-inh

GOLD 3
LAMA or
LABA or
SABA and SAMA

GOLD 2
ICS + LABA and LAMA or
ICS + LABA and PDE4-inh or
LABA and LABA or
LABA and PDE4-inh.

GOLD 1
LAMA and LABA

CAT < 10 mMRC 0-1
CAT ≥ 10 mMRC ≥ 2

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Global Strategy for Diagnosis, Management and Prevention of COPD

Manage Stable COPD: Pharmacologic Therapy

OTHER POSSIBLE TREATMENTS

- **GOLD 4**
  - Exacerbations per year: 2 or more
  - Other treatments: SABA and/or SAMA, Theophylline

- **GOLD 3**
  - Exacerbations per year: ≥ 1 leading to hospital admission
  - Other treatments: Carboxylic, N-acetylcysteine, SABA and/or SAMA, Theophylline

- **GOLD 2**
  - Exacerbations per year: 1 (not leading to hospital admission)
  - Other treatments: SABA and/or SAMA, Theophylline

- **GOLD 1**
  - Exacerbations per year: 0
  - Other treatments: Theophylline

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### Manage Stable COPD: Pharmacologic Therapy

(Medications in each box are mentioned in alphabetical order, and therefore not necessarily in order of preference.)

<table>
<thead>
<tr>
<th>Patient</th>
<th>Recommended First choice</th>
<th>Alternative choice</th>
<th>Other Possible Treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SAMA prn or SABA prn</td>
<td>LAMA or LABA or SABA and SAMA</td>
<td>Theophylline</td>
</tr>
<tr>
<td>B</td>
<td>LAMA or LABA</td>
<td>LAMA and LABA</td>
<td>SABA and/or SAMA Theophylline</td>
</tr>
<tr>
<td>C</td>
<td>ICS + LABA or LAMA</td>
<td>LAMA and LABA or LAMA and PDE4-inh. or LABA and PDE4-inh.</td>
<td>SABA and/or SAMA Theophylline</td>
</tr>
<tr>
<td>D</td>
<td>ICS + LABA and/or LAMA</td>
<td>ICS + LABA and LAMA or ICS+LABA and PDE4-inh. or LAMA and LABA or LAMA and PDE4-inh.</td>
<td>Carbocysteine (mucolytic) N-acetylcysteine (Mucomyst) SABA and/or SAMA Theophylline</td>
</tr>
</tbody>
</table>
## Manage Stable COPD: Non-pharmacologic

<table>
<thead>
<tr>
<th>Patient Group</th>
<th>Essential</th>
<th>Recommended</th>
<th>Depending on local guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Smoking cessation (can include pharmacologic treatment)</td>
<td>Physical activity</td>
<td>Flu vaccination</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pneumococcal vaccination</td>
</tr>
<tr>
<td>B, C, D</td>
<td>Smoking cessation (can include pharmacologic treatment)</td>
<td>Physical activity</td>
<td>Flu vaccination</td>
</tr>
<tr>
<td></td>
<td>Pulmonary rehabilitation</td>
<td></td>
<td>Pneumococcal vaccination</td>
</tr>
</tbody>
</table>
An exacerbation of COPD is:

“an acute event characterized by a worsening of the patient’s respiratory symptoms that is beyond normal day-to-day variations and leads to a change in medication.”
The most common causes of COPD exacerbations are viral upper respiratory tract infections and infection of the tracheobronchial tree.

Diagnosis relies exclusively on the clinical presentation of the patient complaining of an acute change of symptoms that is beyond normal day-to-day variation.

The goal of treatment is to minimize the impact of the current exacerbation and to prevent the development of subsequent exacerbations.
Short-acting inhaled beta$_2$-agonists with or without short-acting anticholinergics are usually the preferred bronchodilators for treatment of an exacerbation.

Systemic corticosteroids and antibiotics can shorten recovery time, improve lung function (FEV$_1$) and arterial hypoxemia (PaO$_2$), and reduce the risk of early relapse, treatment failure, and length of hospital stay.

COPD exacerbations can often be prevented.
Exacerbations of COPD

- Defined as an acute change in a patient’s baseline dyspnea, cough, and/or sputum beyond day-to-day variability, and sufficient to warrant a change in therapy

- Evidence supports that exacerbations are acute inflammatory events superimposed on the chronic inflammation characteristic of COPD

- In a 12-month study, 77% of patients had at least 1 exacerbation

- Frequency of exacerbations contributes to a decline in lung function and significant worsening in quality of life

- The prevention of exacerbations is recognized as a goal in COPD disease-state management


Consequences Of COPD Exacerbations

- Negative impact on quality of life
- Impact on symptoms and lung function
- Accelerated lung function decline
- Increased economic costs
- Increased Mortality

EXACERBATIONS

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Oxygen: titrate to improve the patient’s hypoxemia with a target saturation of 88-92%.

Bronchodilators: Short-acting inhaled beta$_2$-agonists with or without short-acting anticholinergics are preferred.

Systemic Corticosteroids: Shorten recovery time, improve lung function (FEV$_1$) and arterial hypoxemia (PaO$_2$), and reduce the risk of early relapse, treatment failure, and length of hospital stay. A dose of 40 mg prednisone per day for 5 days is recommended.
Antibiotics should be given to patients with:

- Three cardinal symptoms: increased dyspnea, increased sputum volume, and increased sputum purulence.
- Who require mechanical ventilation.

Global Strategy for Diagnosis, Management and Prevention of COPD

Manage Exacerbations: Treatment Options

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Manage Exacerbations:
Indications for Hospital Admission

- Marked increase in intensity of symptoms
- Severe underlying COPD
- Onset of new physical signs
- Failure of an exacerbation to respond to initial medical management
- Presence of serious comorbidities
- Frequent exacerbations
- Older age
- Insufficient home support
GOLD Website Address

http://www.goldcopd.org

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WORLD COPD DAY
November 18, 2015

Raising COPD Awareness Worldwide

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Tobacco Dependence is a CHRONIC DISEASE
Tobacco Dependence

- Active smoking causes permanent changes to brain structure and chemistry
- Cigarette smoking maintains near-complete saturation — and thus desensitization — of the nicotine receptors in the brain
- Smokers rely on smoking to modulate mood and arousal, relieve withdrawal symptoms, or both
- Highly effective treatments for tobacco dependence are available

Nicotine has Multiple Effects in the Brain

Nicotine

Dopamine → Pleasure, appetite suppression
Norepinephrine → Arousal, appetite suppression
Acetylcholine → Arousal, cognitive enhancement
Glutamate → Learning, memory enhancement
Serotonin → Mood modulation, appetite suppression
β-endorphin → Reduction of anxiety and tension
GABA → Reduction of anxiety and tension

Nicotine Withdrawal Symptoms

- Cravings for cigarettes
- Irritability, frustration, anger
- Increased appetite
- Tremors
- Dysphoric or depressed mood
- Insomnia
- Anxiety, Restlessness
- Difficulty concentrating
- Slowed cognitive performance

TobaccoDependence.chestnet.org, 2010
Tobacco Dependence Toolkit

Access your ToolKit today!

The Tobacco Dependence Treatment ToolKit includes:

- Clinical background, rationale, and approach to the treatment of tobacco dependence
- Correct coding principles for tobacco dependence treatment reimbursement
- Downloadable and printable treatment algorithms, patient assessment, management, and communication tools, and patient education brochures
- Resources for health-care practitioners
- Physician advocacy information
If you can treat asthma, you can treat tobacco dependence

- **Goal of asthma therapy:**
  - Normal lung function
  - Minimal to no asthma symptoms

- **Goal of tobacco dependence therapy**
  - Normal brain function
  - Minimal to no symptoms of nicotine withdrawal
If you can treat asthma, you can treat tobacco dependence

- **Controller Medications**
  - Nicotine Patch (OTC)
  - Bupropion (Rx)
  - Varenicline (Rx)

- **Reliever Medications**
  - Nicotine gum, lozenge (OTC)
  - Nicotine inhaler, nasal spray (Rx)

- Severity of disease guides intensity of treatment
- Pre-medicate for at risk situations
On Follow-Up Visits

- If disease is well-controlled
  - Step down medications

- If disease is not well-controlled
  - Evaluate for triggers, adherence, etc.
  - Consider stepping up medication

- Medications are adjusted based on control of the underlying disease -- not on a fixed timetable.
Treating Tobacco Dependence: ARMR Model

- **A**SSESS the disease
- **R**ECOMMEND treatment
- **M**ONITOR for effectiveness and side effects.
- **R**EVISE the treatment plan
Assess

- Assess severity of disease
  - Faegerström Test for Nicotine Dependence
  - Modified Faegerström Tolerance Questionnaire (adolescents)
  - Hooked on Nicotine Checklist (autonomy over smoking)
- Previous experience with smoking cessation
The Fagerstrom Test for Nicotine Dependence

1. How soon after you wake up do you smoke your first cigarette?
   - Within 5 minutes (3 points)
   - 5 to 30 minutes (2 points)
   - 31 to 60 minutes (1 point)
   - After 60 minutes (0 points)

2. Do you find it difficult not to smoke in places where you shouldn’t, such as in church or school, in a movie, at the library, on a bus, in court or in a hospital?
   - Yes (1 point)
   - No (0 points)

3. Which cigarette would you most hate to give up; which cigarette do you treasure the most?
   - The first one in the morning (1 point)
   - Any other one (0 points)

4. How many cigarettes do you smoke each day?
   - 10 or fewer (0 points)
   - 11 to 20 (1 point)
   - 21 to 30 (2 points)
   - 31 or more (3 points)

5. Do you smoke more during the first few hours after waking up than during the rest of the day?
   - Yes (1 point)
   - No (0 points)

6. Do you still smoke if you are so sick that you are in bed most of the day, or if you have a cold or the flu and have trouble breathing?
   - Yes (1 point)
   - No (0 points)

Scoring: 7 to 10 points = highly dependent; 4 to 6 points = moderately dependent; less than 4 points = minimally dependent.
# Classification of Tobacco Dependence Severity

Adapted from ACCP Tobacco Dependence Treatment Toolkit 3rd Edition, 2010

<table>
<thead>
<tr>
<th>Step 0 Non-daily/Social</th>
<th>Cigarette Use</th>
<th>Nicotine Withdrawal Symptoms</th>
<th>Fagerström Test of Nicotine Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Social settings only</td>
<td>None</td>
<td>0 - 1</td>
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</table>

<table>
<thead>
<tr>
<th>Step 1 Mild</th>
<th>1 - 5/day</th>
<th>Intermittent</th>
<th>2 - 3</th>
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</thead>
<tbody>
<tr>
<td>Time to 1st cigarette:</td>
<td>&gt; 60 min.</td>
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<table>
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<tr>
<th>Step 2 Moderate</th>
<th>6 - 19/day</th>
<th>Frequent</th>
<th>4 - 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to 1st cigarette:</td>
<td>31 - 60 min.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3 Severe</th>
<th>20 - 40/day</th>
<th>Constant</th>
<th>6 - 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to 1st cigarette:</td>
<td>6 - 30 min.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4 Very Severe</th>
<th>&gt; 40/day</th>
<th>Constant</th>
<th>8 - 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time to first cigarette:</td>
<td>0 - 5 min.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*If chronic medical or psychiatric disease, escalate severity by 1-2 steps*
Assess

- Co-morbid conditions
  - Psychiatric conditions
  - Medications
Recommend

- Base treatment intensity on:
  - Severity of underlying disease
  - Prior experience with tobacco dependence treatment
  - Combination therapy is more effective than single agent therapy
Cessation Treatment Options

- Nicotine replacement products
  - OTC – nicotine patch, gum, lozenge
  - Rx – nicotine patch, inhaler, nasal spray
- Prescription non-nicotine medications
  - Bupropion SR (Zyban)
  - Varenicline tartrate (Chantix)
Stepwise Approach to Treatment

Controllers:
- Varenicline and/or Bupropion-SR
- AND/OR
- High Dose Nicotine Patch
- AND
- Multiple reliever medications

Controller:
- Varenicline + Bupropion SR
  OR
- Nicotine patch + Bupropion SR
  AND
- Reliever as needed

Controller:
- Nicotine patch or Bupropion SR
  OR
- Varenicline
  OR
- Reliever as needed

Controller:
- None

Reliever:
- As needed reliever use may be considered.

Step 0: Non-daily/Social
Step 1: Mild
Step 2: Moderate
Step 3: Severe
Step 4: Very Severe
Step Down/Maintenance

When withdrawal is controlled
- Step Down medications,
- Monitor, to control maintained

Controller:
- Nicotine patch or Bupropion SR
  OR
- Varenicline

Controller:
- Reliever as needed

Controller:
- None

Reliever:
- As needed reliever use may be considered.
Freedom from Tobacco Action Plan

Tobacco use is more than a habit. It’s an addition.

In the green and good to go!

I have no real cravings for tobacco. I’m pretty calm. I feel like my brain can focus normally.

I use medicine to control nicotine cravings every day.
- Nicotine patch: ______ mg patch ______ # patches, apply once daily.
- Bupropion IR, SR, XL (Wellbutrin® or Zyban®): _____mg/day once daily for first ___ days, then _____________
- Varenicline (Chantix ®)
  - Use Starter Pack as directed
  - Use continuing month pack, ___ mg tab, ____ times per day
- Use prior to problem times: ________________________

Yellow, but not so mellow.

I’m craving tobacco. I may be feeling irritable, anxious, and restless.
It is hard for me to get my brain to focus.

Continue your Green zone EVERY DAY Medicine

Need a rescue? Take a quick-relief nicotine medicine:
- Gum
- Lozenge
- Nasal Spray
- Inhaler

Take ________(dose) every ________ minutes as needed.

Seeing red.

I am feeling strong cravings for tobacco. I really need a cigarette now. It may be very hard to get my brain to focus.

In the RED ZONE, take a quick-relief nicotine medicine.

Take ________(dose) every ________ minutes as needed.  
- Gum
- Lozenge
- Nasal Spray
- Inhaler

Continue your Green zone EVERY DAY Medicine.
If you are in the red zone, contact your physician or tobacco dependence treatment specialist. You may need stronger medicine
## Classification of Tobacco Dependence Severity

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<th>Nicotine Withdrawal Symptoms</th>
<th>Fagerström Test of Nicotine Dependence</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>Very Severe</td>
<td>0-5 min</td>
<td>8-10</td>
</tr>
<tr>
<td>3</td>
<td>Severe</td>
<td>6-30 min</td>
<td>6-7</td>
</tr>
<tr>
<td>2</td>
<td>Moderate</td>
<td>6-19/day</td>
<td>4-5</td>
</tr>
<tr>
<td>1</td>
<td>Mild</td>
<td>1-5/day</td>
<td>2-3</td>
</tr>
<tr>
<td>0</td>
<td>Non-daily/Social</td>
<td>Social settings only</td>
<td>0-1</td>
</tr>
</tbody>
</table>

- If chronic medical or psychiatric disease, escalate severity by 1-2 steps.
Stepwise Approach to Treatment

Controllers:
- Varenicline and/or Bupropion-SR
- AND/OR
- High Dose Nicotine Patch
- AND
- Multiple reliever medications

Controller:
- Varenicline + Bupropion SR
- OR
- Nicotine patch + Bupropion
- AND
- Reliever as needed

Controller:
- Nicotine patch or Bupropion SR
- OR
- Varenicline
- OR
- Reliever alone.
Freedom from Tobacco Action Plan

In the green and good to go!
I have no real cravings for tobacco. I’m pretty calm. I feel like my brain can focus normally.

I use medicine to control nicotine cravings every day.

- **Nicotine patch:** 21 mg patch # patches, apply once daily.
- **Bupropion IR, SR, XL (Wellbutrin® or Zyban®):** mg/day once daily for first days, then ________________
- **Varenicline (Chantix ®):**
  - Use Starter Pack as directed
  - Use continuing month pack, mg tab, times per day
- **Use prior to problem times:** Nicotine gum, 4 mg ________________

Yellow, but not so mellow.

I’m craving tobacco. I may be feeling irritable, anxious, and restless. It is hard for me to get my brain to focus.

Continue your Green zone EVERY DAY Medicine

**Need a rescue? Take a quick-relief nicotine medicine:**

- **Gum**
- **Lozenge**
- **Nasal Spray**
- **Inhaler**

Take 4mg (dose) every 30 minutes as needed.

Seeing red.

I am feeling strong cravings for tobacco. I really need a cigarette now. It may be very hard to get my brain to focus.

In the RED ZONE, take a quick-relief nicotine medicine.

Take 4 mg (dose) every 20 minutes as needed. Gum

Continue your Green zone EVERY DAY Medicine.

If you are in the red zone, contact your physician or tobacco dependence treatment specialist. You may need stronger medicine
Not ready to quit yet?

- Discuss “5 Rs”
  - Relevance
  - Risks
  - Rewards
  - Roadblocks
  - Repetition

- Individualize so treatment is age appropriate and personally relevant
Reduction Toward Cessation

- Use nicotine patch to reduce smoking and prepare for cessation
- Use of NRT to reduce smoking and gain greater control of smoking behavior

Morre D et al. BMJ. 2009 Apr 2;338:b1024
E-cigarettes: NOT RECOMMENDED

- FDA analysis found carcinogenic and toxic substances in the vapor of these devices
- Vapor contains anti-freeze
- An “introductory” product to get kids hooked
- Use of flavorings (chocolate, strawberry and mint) is designed to appeal to young people
E-Cigarettes

- Liquid nicotine is health risk to young children
- Fine particles in aerosol degrades lung function
- Unknown if exposure to secondhand emissions are harmful
- User can exhale formaldehyde, benzene and other toxins
- No acute risks of active vaping have been identified
E-Cigarettes

- Dual use dangers
  - Smokers may be using them along with traditional cigarettes
- At present, research regarding safety of e-cigarettes is not conclusive
- Possible health risks of e-cigarettes appear to be far less than the dangers associated with tobacco use
- Not regulated in the U.S.
- Not enough scientific studies on risk
E-Cigarettes and Smoking Cessation

- One study in *The Lancet* found that e-cigarettes were equivalent to the patch.
- Another study in *Addiction* found e-cigarettes associated with increases in attempts to quit but not smoking cessation.
- **BUT**... the FDA has not found any e-cigarette safe and effective in helping smokers quit.
- More studies needed to assess effectiveness.
- Not approved as a cessation device.
Future of E-Cigarettes

- For individuals who switch to vaping (not dual use), can favorably impact standard cigarette use – but what are long-term effects on health??

- Need to study effectiveness of e-cigarettes to help smokers quit

- Need to study health status of individuals who have switched from smoking to e-cigarettes

- Need research on how e-cigarettes can be made safer
Tobacco has a long history of promotion...

SOMETHING WONDERFUL HAPPENS when you change to PHILIP MORRIS!

YOU FEEL BETTER BECAUSE, in case after case, coughs due to smoking disappear... parched throat clears up... that stale, “smoked-out” feeling vanishes.*

*Proof of superiority published in leading medical journals.

CALL FOR PHILIP MORRIS

Cigarette Advertisement, 1953
Before you scold me, Mom... maybe you'd better light up a Marlboro.

Gee, Mommy, you sure enjoy your Marlboro!

Yes, you never feel over-smoked... that's the Miracle of Marlboro!

Marketing Marlboro to Mothers 1950
Maybe it is healthy for you?!
1970s Virginia Slims advertisement

- 1971 ban on advertising on television
- 1998 prohibited tobacco companies from targeting children

1989 Virginia Slims advertisement
We’ve come a long way – from this to this

**Dr. Batty’s**
For Your Health
**Asthma Cigarettes**
Since 1882
For the temporary relief of paroxysms of asthma
Effectively treats: asthma, hay fever, foul breath
All diseases of the throat, head colds, canker sores
Bronchial irritations
Not recommended for children under 6.

**WARNING:** Cigarettes cause fatal lung disease.

1-800-QUIT-NOW
Tobacco Dependence Treatment Resources

- For Patients:
  - Quit line: 1 800 QUIT NOW

- For Providers:
  - American College of Chest Physicians Tobacco Dependence Treatment Toolkit
  - Tobaccodependence.chestnet.org
Questions?

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- Phone: 616-685-1432
- Email: meyersok@trinity-health.org
- Websites:
  - www.asthmanetworkwm.org
  - www.goldcopd.org
  - http://tobaccodependence.chestnet.org/