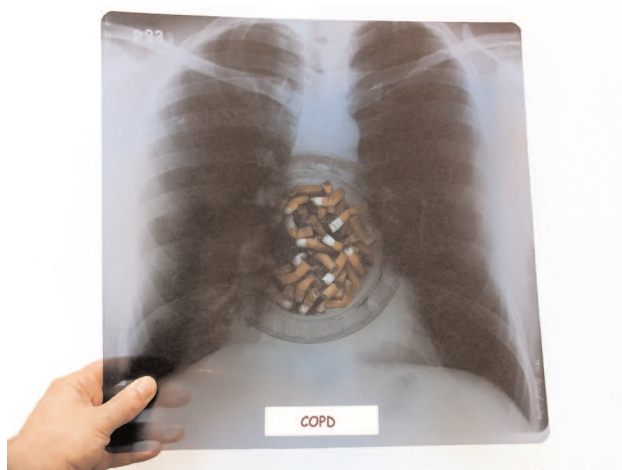


## Best Treatment Options for Moderate-to-Severe Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death in the United States and occurs most often in individuals who have a history of cigarette smoking. Since patients usually do not seek medical attention until symptoms of COPD affect their quality of life, it is likely that the condition is under-diagnosed.

Medications cannot stop the progressive decline in lung function associated with COPD, but can prevent acute flare-ups and provide relief of symptoms. Drugs called bronchodilators, which relax muscles in the airway, are used to open airway passages in the lungs. During early stages of COPD, short-acting bronchodilators are used to relieve symptoms, but as the disease progresses, long-acting bronchodilators are preferred. However, more information is needed about which long-acting bronchodilators are



most beneficial as COPD worsens. A recent review examined the medical literature to find out which long-acting bronchodilators have proved to be the most beneficial.

The 2 primary types of long-acting bronchodilators are referred to as anticholinergic medications and beta<sub>2</sub>-agonists. Of the anticholinergic drugs, 2 can be delivered directly to the lungs: tiotropium (Spiriva) and ipratropium (Atrovent). These drugs relax the muscles that surround the airways in the lungs and stop mucus secretion in the airways. When the 2 drugs are compared, it is clear that tiotropium has a longer-lasting effect compared with ipratropium. Tiotropium is used just once daily, while ipratropium must be used 4 times each day. In addition, clinical studies using spirometry—

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American Academy of Family Physicians  
<http://familydoctor.org/online/famdocen/home/articles/706.printerview.html>

Centers for Disease Control and Prevention  
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Medline Plus  
[www.nlm.nih.gov/medlineplus/copdchronicobstructivepulmonarydisease.html](http://www.nlm.nih.gov/medlineplus/copdchronicobstructivepulmonarydisease.html)

Based on “Long-Acting Bronchodilator Therapy for the Treatment of Chronic Obstructive Pulmonary Disease” Andrea Chen, Suzanne Bollmeier, and Patrick Finnegan, *The Annals of Pharmacotherapy*, December 2008, <http://dx.doi.org/10.1345/aph.1L250>. For Our Patients is provided by *The Annals* to help explain the latest research and information relating to your medications. These summaries are for informational purposes only and are not a substitute for professional advice from your personal medical provider. If you have questions about this material, you should discuss it with your physician or pharmacist. This summary may be reproduced without permission for not-for-profit educational purposes only. Any other use must be approved by the publisher. © Copyright 2008, Harvey Whitney Books Company, [www.hwbooks.com](http://www.hwbooks.com). FOPE20 DOI 10.1345/fop.1L250

which measures how much air a person can hold in their lungs—have found that tiotropium improves airway function more than ipratropium does. In addition, tiotropium is associated with fewer flare-ups, less shortness of breath, and a better quality of life overall. As with all anticholinergic medicines, tiotropium is associated with side effects like dry mouth and constipation.

Similarly, there are also 2 long-acting beta<sub>2</sub>-agonists used by patients with COPD: salmeterol (Serevent) and formoterol (Foradil). Both drugs are effective bronchodilators. Formoterol may work faster, but salmeterol's effects last longer. The side effects of these long-acting beta<sub>2</sub>-agonists may include rapid heart beat, tremor, and low potassium levels in the blood.

When tiotropium is compared directly to the beta<sub>2</sub>-agonists, the beta<sub>2</sub>-agonists open airways faster than tiotropium, but tiotropium's effects last for 24 hours versus 12 hours. In other assessments, tiotropium opened airways more than beta<sub>2</sub>-agonists did. This was associated with less difficulty breathing, improved quality

of life, and fewer flare-ups with tiotropium. As might be expected, even greater benefits were seen when long-acting beta<sub>2</sub>-agonists were used in combination with tiotropium.

In addition to drug effects, there are many other factors that influence a patient's choice of treatments including drug costs, health plan coverage, adverse effects, and ability to operate the devices used to deliver these medications to the lungs. New long-acting medications are expensive (more than \$100 per month for people without health insurance). Yet, those higher costs associated with tiotropium may be worthwhile, considering that its use is associated with fewer days in the hospital, which leads to lower healthcare costs overall.

COPD requires optimal drug therapy. As the disease progresses, long-acting drugs are preferred to short-acting bronchodilators. From clinical studies, it appears that tiotropium, alone or in combination with long-acting beta<sub>2</sub>-agonists, is an ideal choice for therapy because it has long-lasting effects, improves quality of life, reduces flare-ups, and reduces overall healthcare costs.