



Pharmaceutical Assistance
Contract for the Elderly



Balanced information for better care

Helping patients with COPD breathe easier



COPD is the third-leading cause of death in the U.S., following cancer and heart disease¹

FIGURE 1. Women now have a higher annual incidence of COPD death than men.^{1,2}

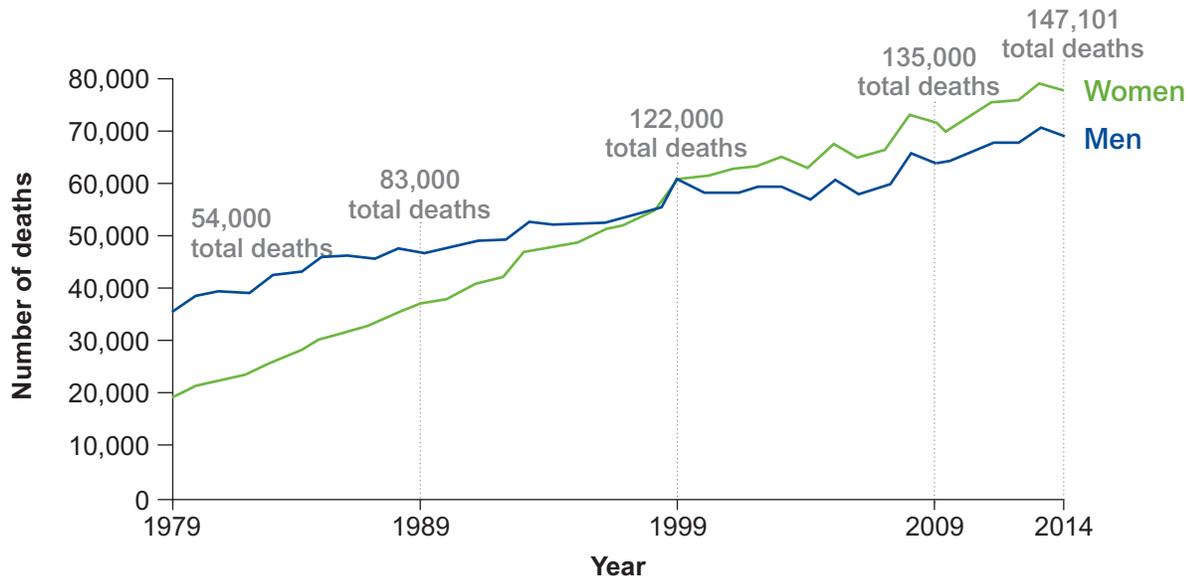
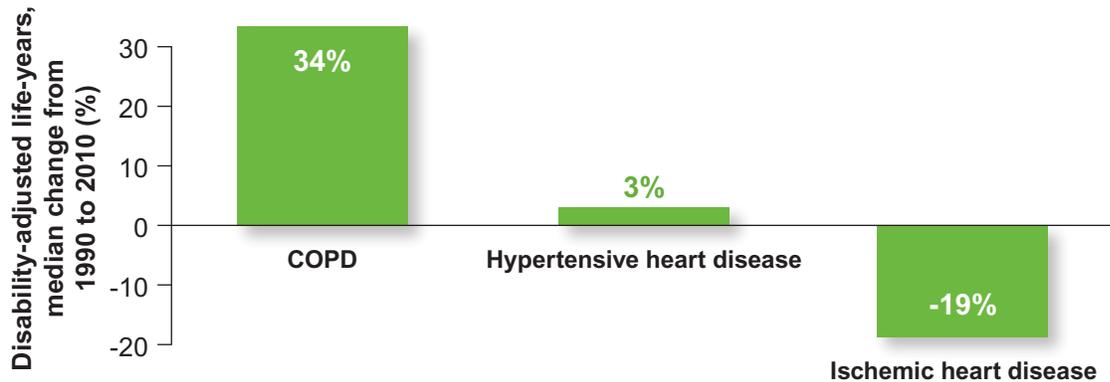


FIGURE 2. The burden of disease for some chronic diseases like hypertension and ischemic heart disease have been stable or improved over the past 20 years, while COPD morbidity continues to worsen.³



Primary care providers play a central role in helping these patients.

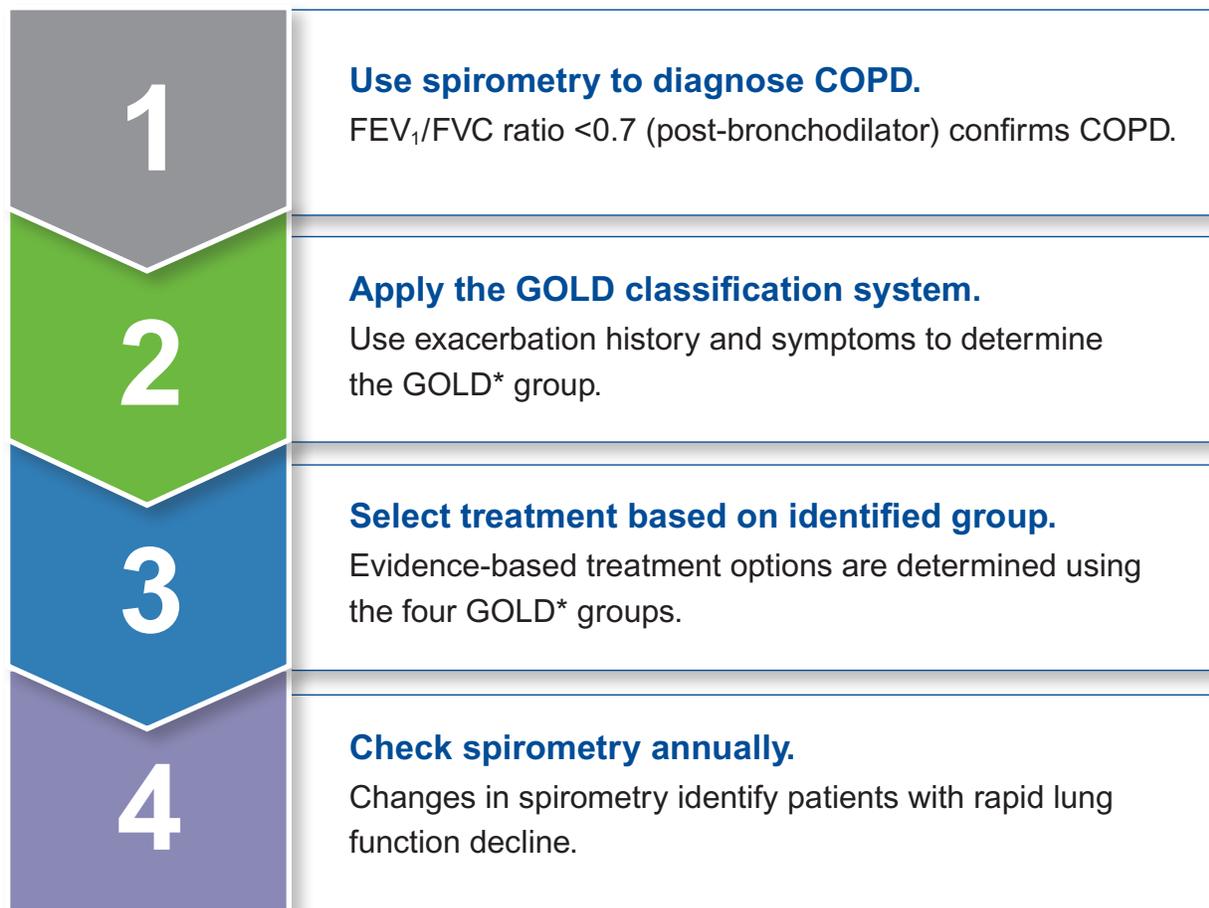
Early diagnosis and aggressive treatment can:

- slow disease progression and relieve symptoms
- improve pulmonary function and quality of life
- reduce exacerbations
- reduce mortality

Steps to diagnose and manage patients with COPD

For patients over age 40 with dyspnea, chronic cough or sputum production, and a history of smoking or exposure to other risk factors, check pulmonary function tests.

FIGURE 3. An evidence-based process to diagnose and treat patients⁴



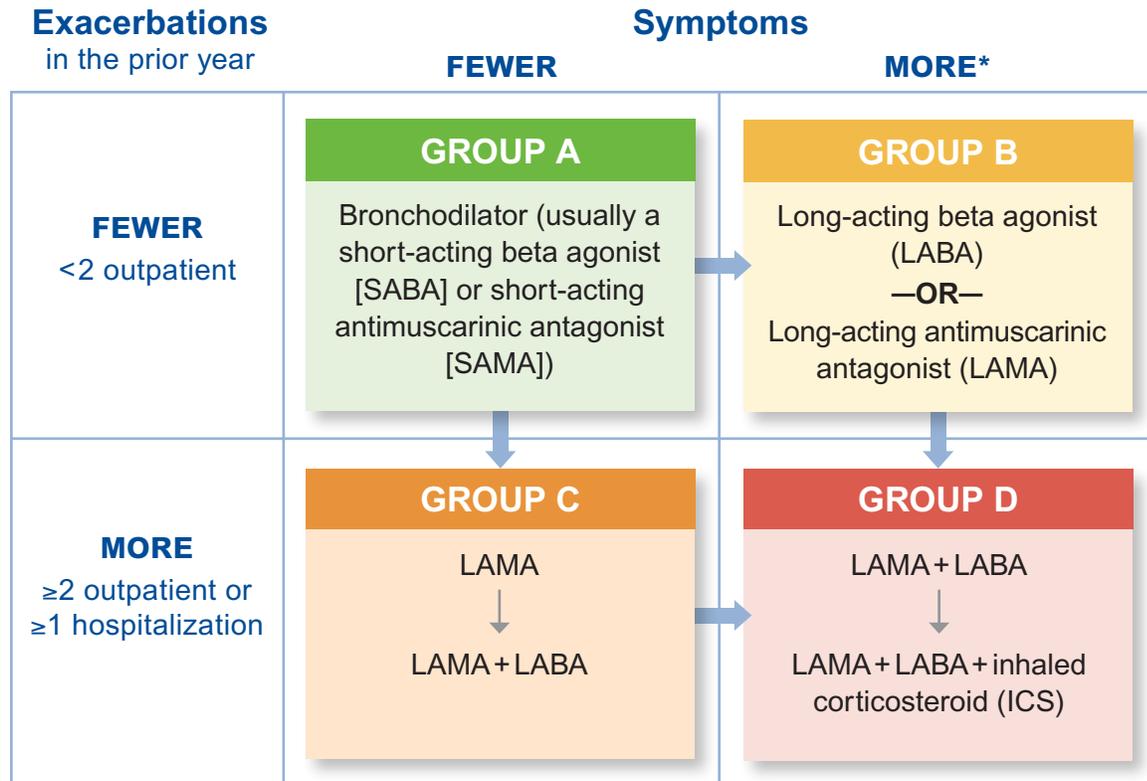
*GOLD = Global initiative for Chronic Obstructive Lung Disease
FEV₁ = Forced expiratory volume in 1 second; FVC = Forced vital capacity

When making management decisions, consider:

- multiple comorbidities
- frailty
- co-existing asthma

Classify and manage COPD patients based on symptoms and exacerbation history

FIGURE 4. Using the newest GOLD guideline, treatment is driven by symptoms and a history of exacerbations in the prior year. It no longer relies on lung function.⁴



*More symptoms: mMRC scale⁵ ≥2: e.g., walking slower than people of the same age because of breathlessness or needing to stop for breath on level ground. If possible, asking about symptoms other than breathlessness is recommended (e.g., the COPD Assessment Test [CAT]).⁶

GROUP A Short-acting bronchodilators (SABA/SAMA)

Short-acting beta agonists (e.g., albuterol, levalbuterol) and/or short-acting antimuscarinic antagonists or anticholinergics (e.g., ipratropium) improve dyspnea and exercise tolerance. These agents should be used for symptom control in all GOLD groups.

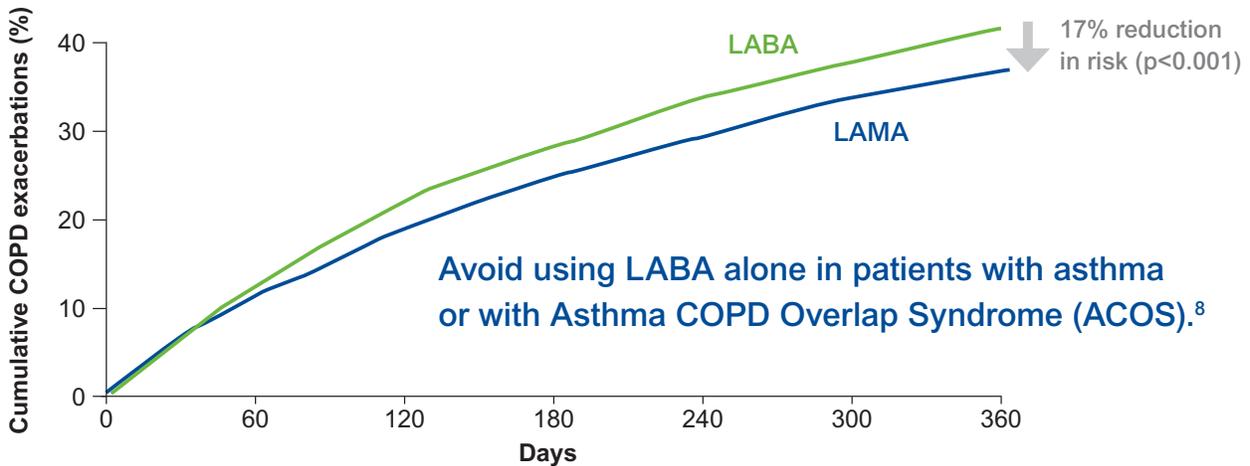


Ensure the patient can demonstrate proper use of inhalers and spacers. See AlosaHealth.org/COPD for links to videos for patient education.

As symptoms increase, add long-acting bronchodilators

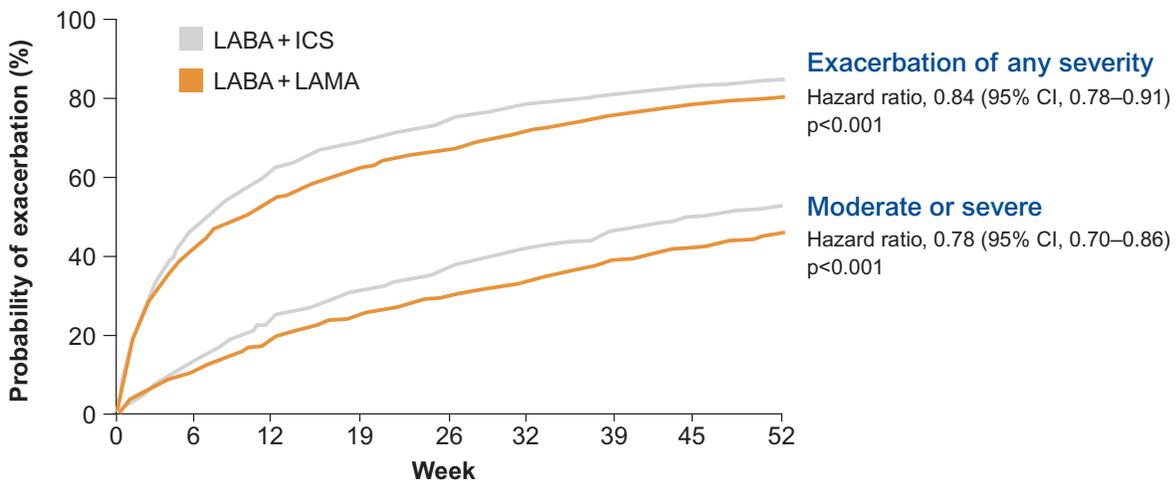
GROUP B Daily LAMA or LABA

FIGURE 5. LABA or LAMA reduce exacerbations compared to placebo, but in POET-COPD, a LAMA reduced exacerbations 17% more than a LABA.⁷



GROUP C LAMA alone, or combination of LAMA+LABA

FIGURE 6. LABA+LAMA reduced exacerbations more than LABA+ICS.⁹

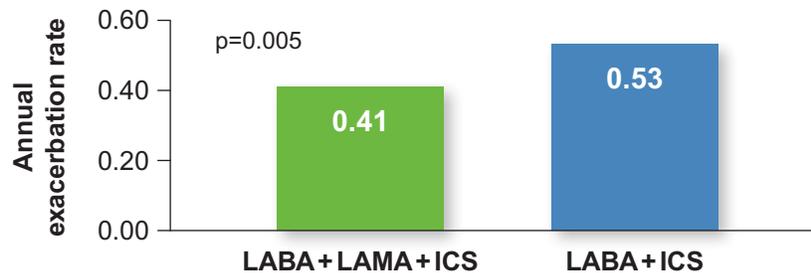


An ICS also increases the risk of pneumonia.⁴ In FLAME, the incidence of pneumonia was 4.8% in the LABA+ ICS group compared to 3.2% in the LABA+ LAMA group (p=0.02).⁹

Advance treatment as severity increases

GROUP D Combine multiple therapies: LABA+LAMA or LABA+LAMA+ICS

FIGURE 7. For patients on dual therapy with continued symptoms or exacerbations, stepping up to triple therapy (LABA+LAMA+ICS) reduced exacerbations by 23% and significantly improved quality of life.¹⁰



In WISDOM, withdrawing the ICS in patients on triple therapy did not increase exacerbations or worsen quality of life, but did reduce FEV₁.¹¹

Additional therapies:

- Roflumilast (Daliresp) may be added in patients with chronic bronchitis and can reduce exacerbations by 17%, but causes GI side effects, like diarrhea and nausea.¹²
- Daily azithromycin for stable COPD reduces exacerbations and improves quality of life, but concerns exist regarding risk of hearing loss, development of antibiotic resistance, and QTc prolongation.¹³
- Oxygen can be useful in chronic hypoxemia.¹⁴⁻¹⁶



Prescribe home oxygen in severe disease if:

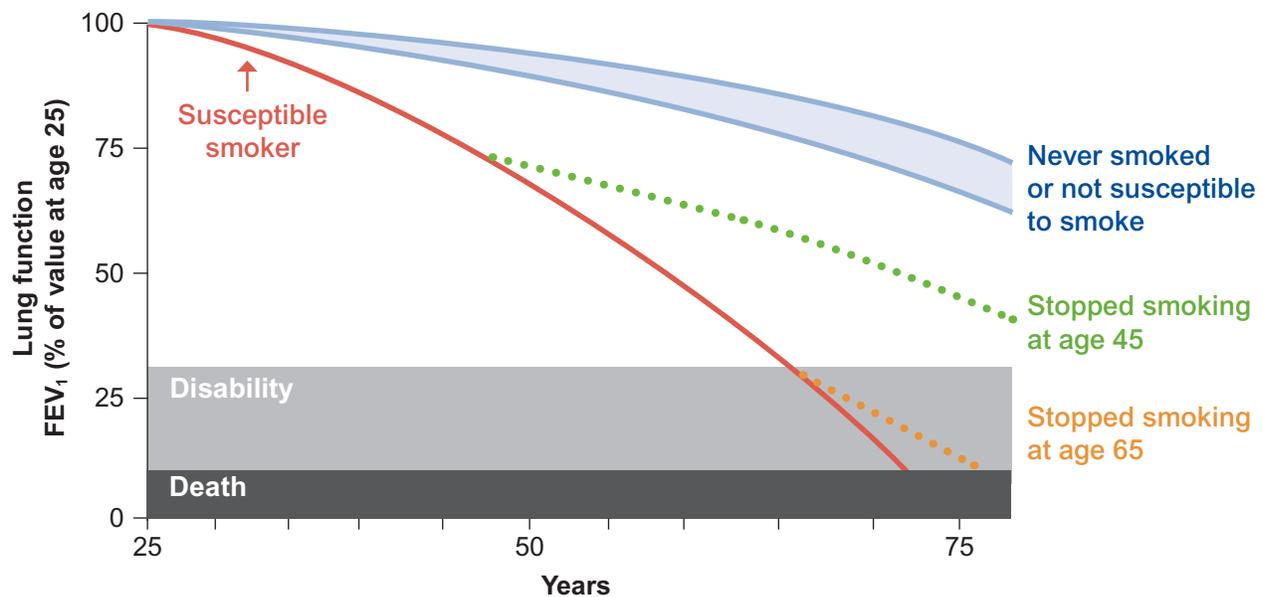
- O₂ saturation $\leq 88\%$ or PaO₂ ≤ 55 mm Hg, **or**
- PaO₂ of 55-59 mm Hg with evidence of pulmonary hypertension, cor pulmonale, hematocrit $>55\%$, **or**
- PaO₂ ≥ 60 mm Hg with exercise desaturation, sleep desaturation not corrected by continuous positive airway pressure (CPAP), or severe dyspnea that responds to oxygen therapy.¹⁴

At least 15 hours/day of oxygen or more improves survival.^{15,16}

Note: When titrating oxygen, aim for an O₂ saturation $>90\%$.

Smoking cessation is the most effective intervention to delay COPD symptoms, onset of disability, and mortality

FIGURE 8. Smoking and decline of lung function in COPD¹⁷



Create a plan for patients who are ready to quit.

- 1 Select pharmacologic support based on patient preference, cost, and relevant medical and/or psychiatric conditions.**
Pharmacologic options include:
 - Nicotine replacement therapy (e.g., gum, transdermal patches, inhaler)
 - Prescription medications: bupropion (Wellbutrin, Zyban, generics) OR varenicline (Chantix)Nicotine replacement may be combined with either bupropion or varenicline.
- 2 Provide or refer for behavioral support. Even brief, simple advice increases the likelihood of a smoker quitting. More intensive advice may result in higher rates of quitting.¹⁸**
- 3 All drugs can be effective, though multiple attempts may be needed.¹⁹**

Encourage patients to call 1-800-QUIT-NOW (1-800-784-8669) or text QUIT to 47878 to receive text message support. Additional resources available at AlosaHealth.org/COPD.

Prescribe exercise, good nutrition, and immunizations at all stages of disease

TABLE 1. Non-pharmacologic interventions for COPD⁴

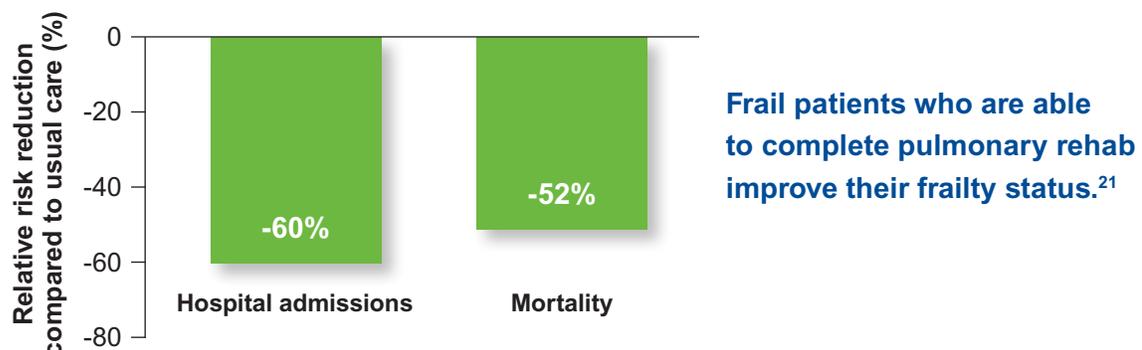
	GROUP A	GROUP B	GROUP C	GROUP D
Smoking cessation	✓	✓	✓	✓
Reduce occupational and environmental exposures	✓	✓	✓	✓
Exercise/physical therapy	✓	✓	✓	✓
Good nutrition	✓	✓	✓	✓
Vaccination	✓	✓	✓	✓
Pulmonary rehabilitation		✓	✓	✓
Pulmonologist referral			✓	✓
Address end-of-life decision making			✓	✓
Consider surgery in select patients				✓

Exercise and pulmonary rehabilitation can make a difference.

Pulmonary rehabilitation reduces hospital admissions and improves symptoms.²⁰ It also increases exercise capacity, reduces breathlessness, improves quality of life, relieves anxiety and depression, and reduces days spent in the hospital.⁴

- The usual program is 6 weeks, with continuation of exercises at home.
- If a formal program is unavailable, encourage a walking regimen, building slowly to 20 minutes per day.

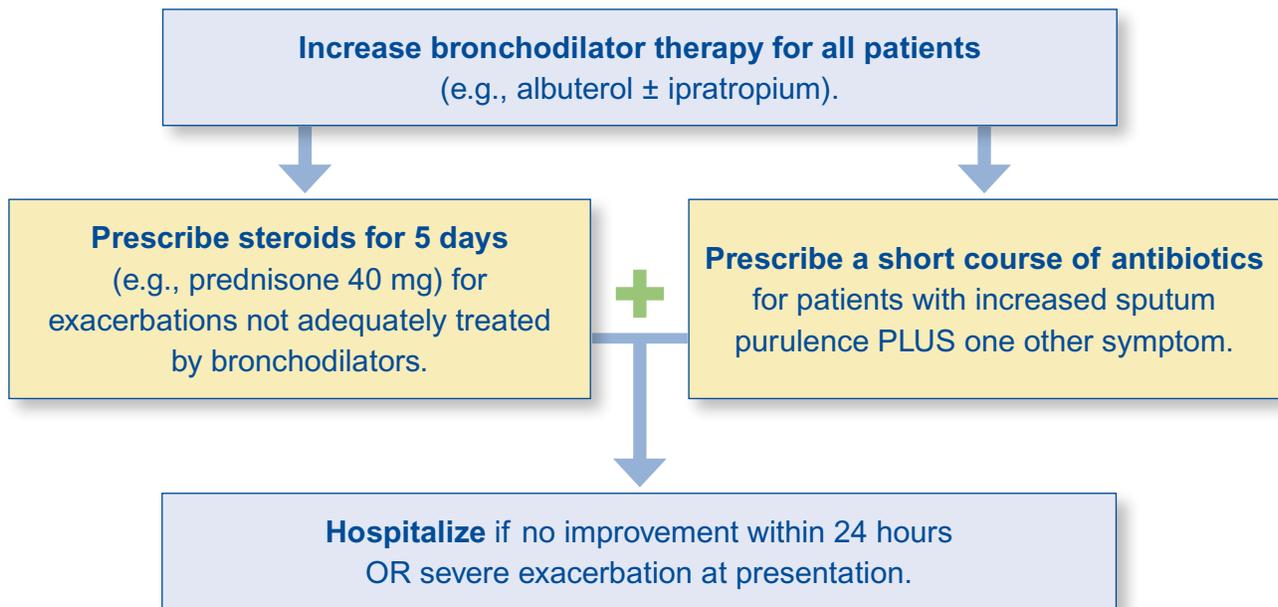
FIGURE 9. Pulmonary rehab reduces hospital admissions and mortality after an exacerbation.²⁰



Exacerbations reduce long-term lung function and increase mortality

These episodes are marked by worsening dyspnea, increased volume or purulence of sputum, and cough.

FIGURE 10. An algorithm for managing COPD exacerbations in primary care⁴



Review management plan in all patients after exacerbation, stepping up therapy according to GOLD classifications.

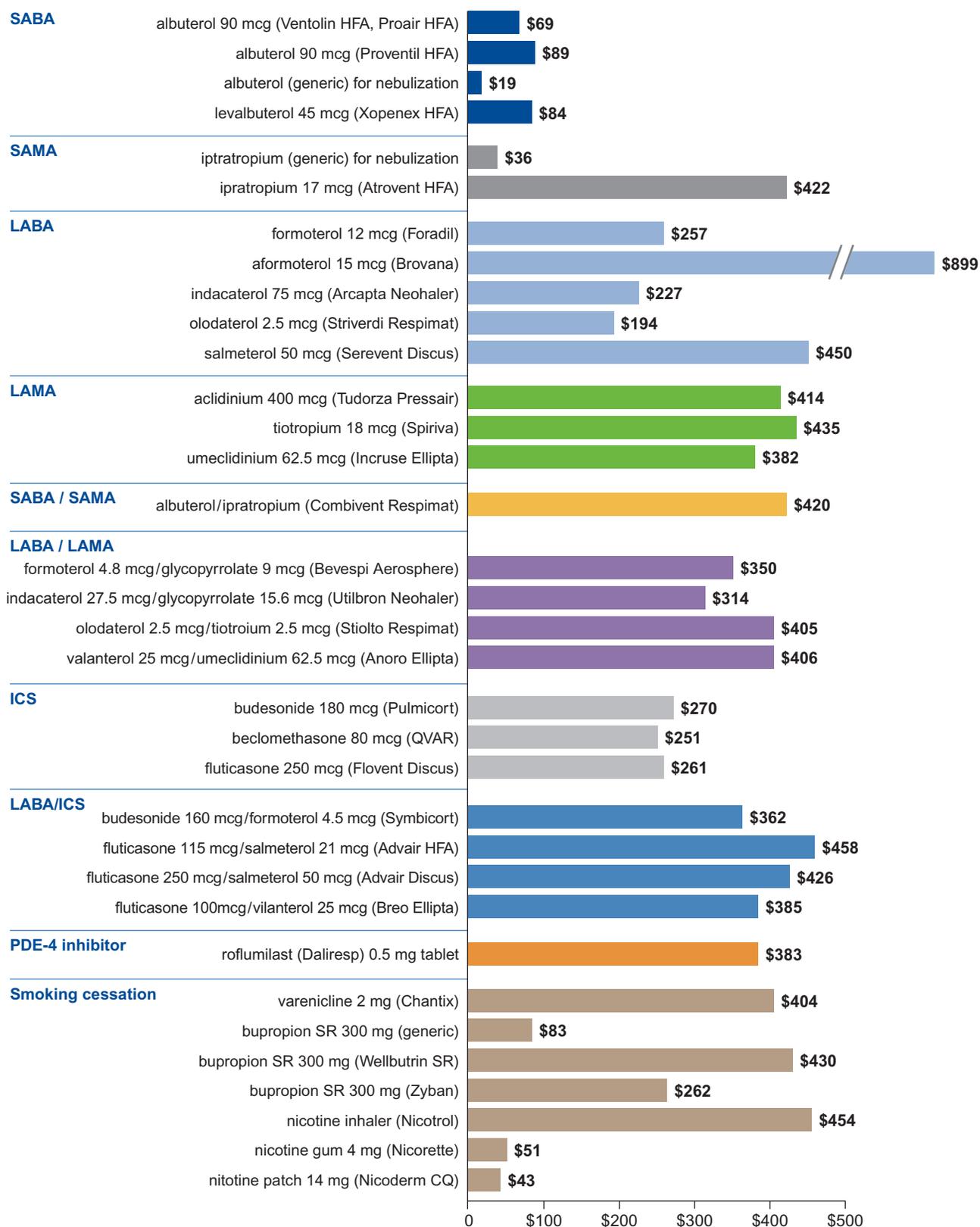


Oral corticosteroids—for acute exacerbations only

Avoid long-term use of **oral** steroids in COPD because of the risk of osteoporosis, hypertension, hyperglycemia, and other adverse effects.

Costs

FIGURE 11. Price per month of medications used for the treatment of COPD and smoking cessation



* Prices from goodrx.com April 2017. For additional prices, visit goodrx.com or for formulary information, visit formularylookup.com or fingertipformulary.com.

Key messages

- Use spirometry to diagnose COPD.
- Classify COPD patients based on symptoms and history of exacerbation according to the GOLD 4-group classification system.
- Match drug therapy to disease severity according to the GOLD system.
 - Begin with p.r.n. inhaled bronchodilators (SABA and/or SAMA).
 - Add long-acting agents as symptoms progress or exacerbations increase.
- For patients who smoke, begin by assessing their willingness to quit. Tailor recommendations appropriate for their stage of readiness.
- Utilize non-pharmacologic interventions to improve overall health:
 - Prescribe a regimen of exercise, good nutrition, and immunizations at all stages of COPD.
 - Refer to pulmonary rehabilitation if available.
- Prescribe oxygen in patients with chronic hypoxemia.
- Treat acute exacerbations aggressively with short-acting bronchodilators, systemic steroids, and an antibiotic when indicated.

Visit AlosaHealth.org/COPD
for patient resources and more detailed information

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- (1) Kochanek KD, Murphy SL, Xu J, Tejada-Vera B. *Deaths: final data for 2014*. Centers for Disease Control and Prevention, U.S. Department of Health and Human Services; June 30, 2016. 2016. (2) Centers for Disease Control and Prevention. National Center for Health Statistics, CDC Wonder on-line database, compiled from compressed mortality file 1979-2009. 2012;Series 20, No. 20. (3) Murray CJ, Atkinson C, Bhalla K, et al. The state of US health, 1990-2010: burden of diseases, injuries, and risk factors. *JAMA*. 2013;310(6):591-608. (4) Global Initiative for Chronic Obstructive Lung Disease. *Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: 2017 Report*. (5) Stenton C. The MRC breathlessness scale. *Occupational medicine* (Oxford, England). 2008;58(3):226-227. (6) Jones PW, Harding G, Berry P, Wiklund I, Chen WH, Kline Leidy N. Development and first validation of the COPD Assessment Test. *Eur Respir J*. 2009;34(3):648-654. (7) Vogelmeier C, Hederer B, Glaab T, et al. Tiotropium versus salmeterol for the prevention of exacerbations of COPD. *N Engl J Med*. 2011;364(12):1093-1103. (8) Global Initiative for Asthma/Global Initiative for Chronic Obstructive Lung Disease. *Diagnosis of Diseases of Chronic Airflow Limitation: Asthma, COPD, and Asthma-COPD Overlap Syndrome (ACOS)*. 2015. (9) Wedzicha JA, Banerji D, Chapman KR, et al. Indacaterol-Glycopyrronium versus Salmeterol-Fluticasone for COPD. *N Engl J Med*. 2016;374(23):2222-2234. (10) Singh D, Papi A, Corradi M, et al. Single inhaler triple therapy versus inhaled corticosteroid plus long-acting beta2-agonist therapy for chronic obstructive pulmonary disease (TRILOGY): a double-blind, parallel group, randomised controlled trial. *Lancet*. 2016;388(10048):963-973. (11) Magnussen H, Disse B, Rodriguez-Roisin R, et al. Withdrawal of inhaled glucocorticoids and exacerbations of COPD. *N Engl J Med*. 2014;371(14):1285-1294. (12) Calverley PM, Rabe KF, Goehring UM, et al. Roflumilast in symptomatic chronic obstructive pulmonary disease: two randomised clinical trials. *Lancet*. 2009;374(9691):685-694. (13) Albert RK, Connert J, Bailey WC, et al. Azithromycin for prevention of exacerbations of COPD. *N Engl J Med*. 2011;365(8):689-698. (14) American Thoracic Society/European Respiratory Society. Standards for the Diagnosis and Management of Patients with COPD. 2004. (15) Nocturnal Oxygen Therapy Trial Group. Continuous or nocturnal oxygen therapy in hypoxemic chronic obstructive lung disease: a clinical trial. *Ann Intern Med*. 1980;93(3):391-398. (16) Long term domiciliary oxygen therapy in chronic hypoxic cor pulmonale complicating chronic bronchitis and emphysema. Report of the Medical Research Council Working Party. *Lancet*. 1981;1(8222):681-686. (17) Fletcher C, Peto R. The natural history of chronic airflow obstruction. *Br Med J*. 1977;June 25(16077):1645-1648. (18) Stead LF, Bergson G, Lancaster T. Physician advice for smoking cessation. *Cochrane Database Syst Rev*. 2008(2):Cd000165. (19) van Eerd EA, van der Meer RM, van Schayck OC, Kotz D. Smoking cessation for people with chronic obstructive pulmonary disease. *Cochrane Database Syst Rev*. 2016(8):CD010744. (20) Puhan MA, Gimeno-Santos E, Scharplatz M, Troosters T, Walters EH, Steurer J. Pulmonary rehabilitation following exacerbations of chronic obstructive pulmonary disease. *Cochrane Database Syst Rev*. 2011(10):CD005305. (21) Maddocks M, Kon SS, Canavan JL, et al. Physical frailty and pulmonary rehabilitation in COPD: a prospective cohort study. *Thorax*. 2016;71(11):988-995.

About this publication

These are general recommendations only; specific clinical decisions should be made by the treating physician based on an individual patient's clinical condition. More detailed information on this topic is provided in a longer evidence document at AlosaHealth.org.



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