

Improving Patient-Centric COPD Management

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CONTINUING MEDICAL EDUCATION

LEARNING OBJECTIVES

At the end of the activity, participants will be able to:

- **Employ** recommended diagnostic strategies to enhance prompt and accurate diagnosis of chronic obstructive pulmonary disease (COPD) in primary care settings.
- **Describe** evidence-based diagnostic and treatment approaches for COPD based on the most recent GOLD report.
- **Design** patient-specific treatment plans for adjusting therapy for COPD, based on individual preferences and characteristics.
- **Implement** proven processes for educating patients with COPD regarding correct inhaler technique and adherence.

KEY TAKEAWAYS

- Primary care clinicians (PCCs) play a critical role in COPD diagnosis and management since most patients with COPD are treated in the primary care setting.
- Gaps persist between real-world care and recommendations from the Global Initiative for Chronic Obstructive Lung Disease (GOLD) report.
- GOLD recommendations for diagnosis and treatment of COPD emphasize a patient-centered approach to care that incorporates patient characteristics and preferences.
- Along with pharmacologic therapy, key interventions for patients with COPD include smoking cessation, appropriate vaccinations, and pulmonary rehabilitation.
- Patient-centered COPD treatment focuses on individualizing inhaled therapy to promote efficacy and adherence and regular follow-up.

TARGET AUDIENCE

Family physicians and clinicians who wish

to gain increased knowledge and greater competency regarding primary care management of COPD.

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INTRODUCTION

Primary care's role in patient-centered COPD care

Primary care clinicians (PCCs) play a critical role in the care of patients with chronic obstructive pulmonary disease (COPD). Between 10% and 20% of their adult patients have

COPD, many of whose cases are unrecognized.¹⁻³ Especially in the United States, PCCs are involved with caring for most patients with COPD (approximately 80%) across the disease continuum, sometimes in collaboration with specialists.^{1,4} However, despite the availability of evidence-based guide-

lines and implementation of various location-specific COPD protocols, gaps persist between guideline-recommended COPD care and real-world clinical practice.⁵⁻⁷

COPD is a common, preventable, and treatable disease with persistent respiratory symptoms and airflow limitation.⁸ It is a significant public health and clinical challenge, ranking in the top 3 causes of mortality worldwide.^{4,8} The 11.7% global prevalence of COPD is expected to rise over the next 40 years.⁸ In the US, COPD is the leading lower respiratory cause of death and is the fourth leading overall cause of death.⁹ An estimated \$49 billion per year in medical costs are attributed to COPD.^{5,8} Exacerbations account for the largest proportion of COPD costs, resulting in 725,000 hospitalizations and 1.5 million emergency department visits each year.^{5,8,10,11}

COPD is characterized by several pathophysiologic respiratory changes, including obstruction (defined spirometrically as forced expiratory volume in 1 second [FEV₁]/forced vital capacity [FVC] <0.7) and an accelerated decline in FEV₁.^{8,12} Gas exchange abnormalities result in hypoxemia and hypercapnia. Mucus hypersecretion can cause a chronic productive cough, dyspnea, increased sputum production, lower oxygen saturation, worsened quality of life, and increased risk of all-cause mortality.^{8,13-15} Common complications of COPD include exacerbations, cardiac disease, muscle wasting, depression, and osteoporosis.⁸ Secondary late effects may also include pulmonary hypertension due to hypoxic vasoconstriction of pulmonary arteries.¹⁶

CASE SCENARIO

A 54-year-old woman with a diagnosis of COPD presents to her PCC with complaints of occasional increased dyspnea the past few weeks. She reports that her COPD has been “under control” for a few years, but now she’s having more symptoms. She is currently prescribed tiotropium (a long-acting muscarinic antagonist [LAMA]) and salmeterol (a long-acting beta₂-agonist [LABA]) in separate inhalers. She notes that she uses tiotropium pretty regularly but admits that she has had trouble paying for her medications and has not filled the salmeterol prescription in the past several months.

Upon further assessment, the patient does say she has been to urgent care and then on to the emergency department twice in the past year, where she was diagnosed with exacerbations and treated with oral “prednisone.” Her COPD Assessment Test (CAT) score today is elevated (12), and her eosinophil count is 400 cells/mL. The patient smokes “a few cigarettes a day” and says her activities are limited to attending church, going to the grocery store, and participating in a card club each week.

The patient in the case scenario could benefit from individualized COPD care that better addresses her needs and preferences. She continues to smoke, which increases her risk for

exacerbations, disease progression, and adverse outcomes, and her adherence to therapy is suboptimal due to financial constraints. She would also benefit from more physical activity.

DIAGNOSIS OF COPD IN PRIMARY CARE

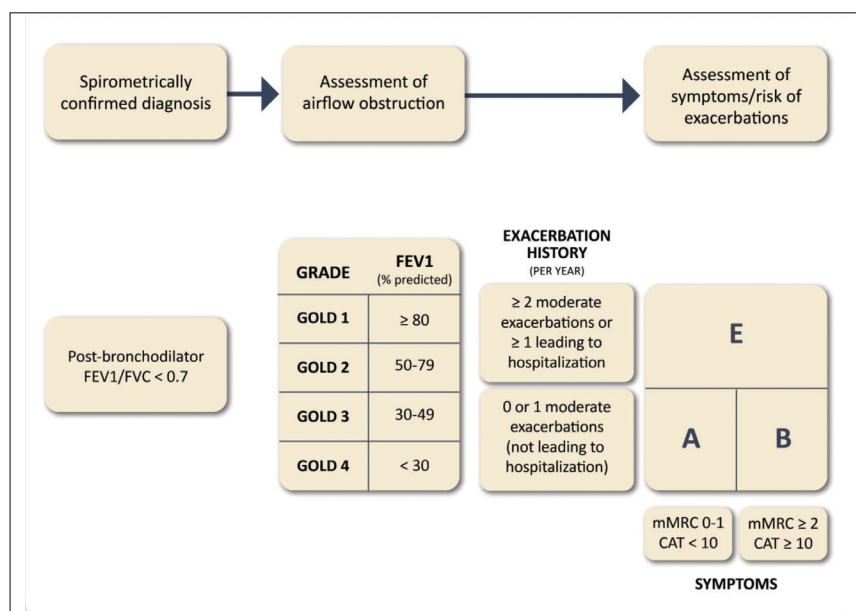
Since most patients with COPD are managed by PCCs in the US, PCCs are often tasked with establishing the initial COPD diagnosis.^{4,17} A COPD diagnosis requires suspicion of the diagnosis, confirmation of symptom burden, and spirometry, the latter of which tends to be underused in primary care settings.¹⁸ Lack of obtaining diagnostic spirometry, time pressures in primary care offices, and barriers to referral for spirometry (patient acceptance, distance, and costs) are reasons for low rates of spirometry use.⁴ When spirometry results are obtained, inexperience and lack of knowledge of spirometry interpretation may result in misdiagnoses in 10%-40% of individuals.¹⁹⁻²¹ Other factors that make COPD diagnoses challenging include underestimation of symptoms by patients and the progressive nature of the disease.²²

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) was established in 1998 to try to summarize current evidence and guide improvements in prevention and management of COPD through a worldwide coordinated effort. The first GOLD report was released in 2001, is updated annually, and has become a respected resource—the most often consulted resource when one is used by clinicians (79.4% of PCCs and 91.3% of pulmonologists).^{8,17} However, several studies indicate that substantial discrepancies continue to exist between GOLD recommendations and actual clinical practice.⁵⁻⁷

While PCCs may implement some components of recommended COPD care, such as assessing oxygen saturation and levels of dyspnea, many essential components are missed.⁵ Less than half of patients diagnosed with COPD receive spirometry, and many use inhaled treatments that are not consistent with GOLD recommendations.^{23,24} Additionally, fewer than 5% of patients with COPD undergo pulmonary rehabilitation (PR), although significant evidence supports its benefits.^{25,26} The next sections of this article discuss the most recent GOLD 2024 recommendations for diagnosis and treatment of COPD, with an emphasis on practical application and patient-centered approaches in primary care settings.

2024 GOLD report recommendations for diagnosing COPD

Diagnosis of COPD is based on a recognition of symptoms, presence of risk factors, and confirmation of the diagnosis via spirometry (**FIGURE 1**).⁸ Of note, screening for COPD is not recommended for asymptomatic adults, even if other risk factors are present.²⁷ The identification of postbroncho-

FIGURE 1. GOLD recommendations for assessment of COPD

Abbreviations: CAT, COPD Assessment Test; FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity; GOLD, Global Initiative for Chronic Obstructive Lung Disease; mMRC, modified Medical Research Council dyspnea questionnaire.

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dilator FEV₁/FVC ratio <0.70 is considered to be required for a diagnosis of COPD.⁸ Inaccurate and delayed PCC diagnoses of COPD can lead to inappropriate treatment and disease progression.⁴ Correct interpretation of spirometry is a key factor in limiting misdiagnosis of COPD. Resources are available to improve PCC interpretation of spirometry.²⁸

Once a COPD diagnosis is established, patients are classified by degree of symptom burden using 1 of 2 standardized assessments, the modified Medical Research Council (mMRC) dyspnea scale or the CAT and the frequency of exacerbation-like events in the prior 12 months.⁸ The mMRC is a dyspnea questionnaire with scores (or grades) ranging from 0 to 4 based on severity of dyspnea, with 4 being the most severe. The CAT is an 8-item questionnaire intended to assess health status in patients with COPD. CAT scores range from 0 to 40, with higher scores indicating more severe COPD symptoms.⁸

Patients are then classified into GOLD groups A, B, or E, which correspond to initial treatment recommendations. Additionally, disease severity based on airflow limitation (actual FEV₁ compared to predicted) can be divided into GOLD grades 1 to 4, ranging from mild to very severe, which may be useful for assessment of disease progression and need for supplemental oxygen evaluation.⁸ Smoking status, α_1 -antitrypsin, vaccination status, and comorbidities should also be assessed to help guide treatment and next steps.⁸ Additionally, blood eosinophil count may be measured for

certain patients already receiving COPD treatment, as blood eosinophils predict the magnitude of the effect of inhaled corticosteroids (ICS) added to maintenance bronchodilator therapy in preventing exacerbations.⁸

PRACTICAL MANAGEMENT OF COPD IN PRIMARY CARE

Therapeutic regimens for GOLD A, B, and E treatment groups consist of various combinations of pharmacotherapy and nonpharmacotherapy. The primary medications used include short-acting beta₂-agonists (SABAs) or muscarinic antagonists (SAMAs)—used only for those with few symptoms and rare exacerbations and as supplemental “rescue therapy” for all others; LABAs and LAMAs; and ICS only for prevention in those at high risk of exacerbations (FIGURE 2).⁸ Important nonpharmacotherapy management includes general COPD education, inhaler technique education, smoking cessation support,

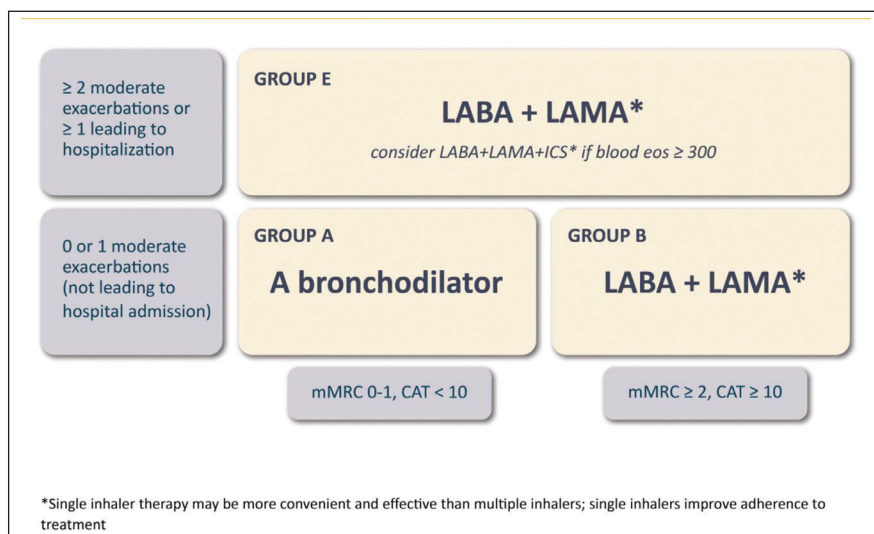
vaccinations, and pulmonary rehabilitation or, at least, activity enhancement.⁸ Once initial treatment is selected, patients should be evaluated regularly to assess disease/symptom control, and therapy should be modified accordingly. While routine follow-up patients with COPD is essential, the frequency and intervals are individualized based on the disease severity.

There are many components of COPD care (FIGURE 3), and PCCs should not feel obligated to address every part of treatment during any single visit, this being the importance of continuity care.⁸ Based on the patient’s individual needs and preferences, PCCs can select which components of COPD care would be the most impactful and choose to focus on those interventions. In the example of the patient case scenario, inhaled therapy including inhaler technique education, general information on the synergistic effects of LABA+LAMA, and smoking cessation support may have the most significant current impact for this patient. Over time, other interventions can be added to further optimize management. Vaccination status review is a usual part of all primary care visits and can be supported by the team approach.

Pharmacologic treatment

For patients classified in GOLD group A, a short- or long-acting bronchodilator can be used, but long-acting bronchodilators are preferred, unless patients have only very occasional breathlessness. For patients classified in GOLD group B, LAMA+LABA or “dual” inhaled therapy is pre-

FIGURE 2. GOLD recommendations for initial pharmacologic treatment of COPD



Abbreviations: CAT, COPD Assessment Test™; eos, blood eosinophil count in cells per microliter; ICS, inhaled corticosteroid; LABA, long-acting beta₂-agonist; LAMA, long-acting muscarinic antagonist; mMRC, modified Medical Research Council dyspnea scale.

Exacerbations refers to the number of exacerbations per year.

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ferred, as it is superior to LAMA-only therapy.^{8,29} For patients in GOLD group E—those with frequent or severe exacerbations—LABA+LAMA is preferred, but if there is an indication for ICS (ie, the patient has blood eosinophils ≥ 300 cells/microliter or concomitant asthma), then LABA+LAMA+ICS (triple therapy) is preferred and has been shown to be superior to LABA+ICS.^{8,30,31} After prescribing initial inhaled pharmacotherapy for COPD, clinicians should regularly review patients’ symptoms, exacerbation risk, inhaler technique, and adherence, and adjust pharmacologic treatment based on clinical findings.⁸

Smoking cessation

For the approximately 40% of individuals with COPD who smoke, smoking cessation is a key intervention that should be addressed at every clinic visit.⁸ This can be challenging because many individuals continue to smoke despite knowing its negative impact on COPD.³² Smoking is an addiction that may be more difficult for people with COPD to break because of the lower self-efficacy, lower self-esteem, and greater nicotine dependence often seen in these individuals.³³⁻³⁵ Despite the challenges, smoking cessation and abstinence have the greatest potential for reducing disease progression and exacerbations and improving symptoms.^{36,37}

Individualizing smoking cessation treatment using a combination of counseling and pharmacotherapy can help increase the effectiveness of interventions. PCCs can implement strate-

gies such as the “5 As” (Ask, Advise, Assess, Assist, Arrange), effective pharmacotherapy (nicotine replacement therapy, bupropion, nortriptyline, and varenicline), and promotion of smoking cessation by clinic support staff.⁸ Tools and resources for helping patients with smoking cessation include those produced and maintained by the Centers for Disease Control and Prevention (CDC): <https://www.cdc.gov/tobacco/patient-care/clinical-tools/index.html>.

Vaccination

Appropriate vaccinations for individuals with COPD can reduce serious illness and death and should be administered based on relevant local guidelines.⁸ In the US, the CDC maintains regularly updated vaccine recommendations.³⁸ Vaccines recommended for patients with COPD include influenza; COVID-19; pneumococcal; respiratory syncytial virus (age >60 years);

tetanus, diphtheria, and pertussis (every 10 years); and zoster (age >50 years).^{8,38}

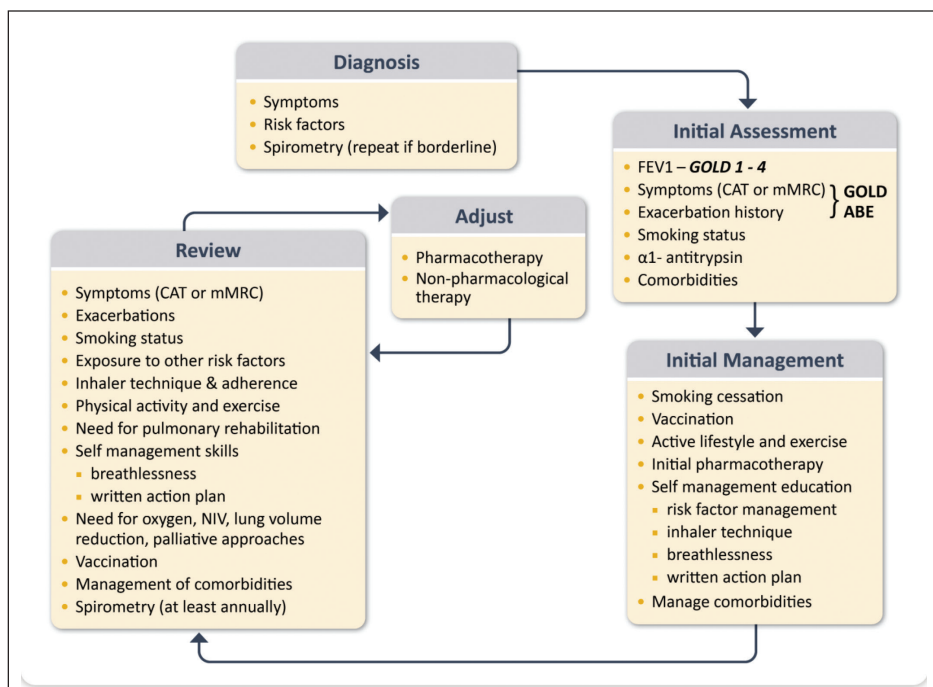
Pulmonary rehabilitation

PR is a comprehensive intervention that includes exercise training, self-management intervention, and education designed to improve physical and psychological well-being and enhance adherence to healthy behaviors.^{8,26} PR is an essential component of managing chronic respiratory diseases such as COPD, but despite its known benefits, PR is underused in clinical settings.²⁶ The American Thoracic Society (ATS) recently produced a clinical practice guideline that PCCs may find useful in reviewing the evidence and recommendations for implementing PR.²⁶ In brief, PR is strongly recommended for adults with stable COPD and after hospitalization for COPD exacerbation. Patients may be offered a choice between center-based PR or telerehabilitation, depending on preference and availability.²⁶

IMPLEMENTING PATIENT-CENTRIC COPD TREATMENT REGIMENS

Patient-based selection of inhaler devices, teaching and evaluating inhaler technique, and assessing and supporting adherence to prescribed therapies are essential to developing effective patient-centered treatment regimens.^{17,39} Patient-centered management of COPD also includes an emphasis on patient counseling and self-management when appropriate.⁴⁰ Therapies should consider patient prefer-

FIGURE 3. GOLD recommendations for overall management of COPD



Abbreviations: CAT, COPD Assessment Test; COPD, chronic obstructive pulmonary disease; FEV₁, forced expiratory volume in 1 second; GOLD, Global Initiative for Chronic Obstructive Lung Disease; mMRC, modified Medical Research Council dyspnea questionnaire; NIV, Non-invasive ventilation.

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ences and needs, in addition to being clinically appropriate. This includes consideration of insurance status, number of inhaled medication doses to be taken per day, type of inhaler (dry powder or metered-dose inhaler, soft mist inhaler, or nebulizer), and use of combination inhalers. Using combination inhalers can simplify regimens, may reduce costs associated with obtaining multiple inhalers, and may improve adherence and clinical outcomes.³⁹

Treatment adherence and proper inhaler technique are key components in overall COPD care and self-management.^{8,40,41} In addition to worsened health status, poor adherence and inaccurate inhaler technique can lead to increased symptoms and exacerbations and, when not assessed, prescribing of additional medications.^{41,42} Correcting the high frequency of poor inhaler technique and addressing adherence issues can improve quality of life, reduce symptoms and exacerbations, and enhance overall COPD management.⁴³

Educating patients on inhaler technique can seem time consuming and difficult in busy clinical practice.⁴¹ There are many online inhaler technique education videos that can be used by office staff and patients and families at home to learn, review, and update inhaler technique (<https://www.copdfoundation.org/Learn-More/Educational-Materials-Resources/>

Educational-Video-Series.aspx). For some practices, brief, 5-minute, one-on-one training sessions can be implemented in those with the greatest problems to significantly improve inhaler technique. Multicomponent interventions that include education and motivational or behavioral counseling delivered by healthcare professionals can improve adherence but may be difficult in many primary care practices.⁴⁴ Assessing technique using the patient's own devices should be done as often as feasible since technique can decline in 3 months or less.⁴⁵ Selection of inhalers based on the patient's physical and mental capabilities and preferences, such as combination inhalers and drugs that are dosed fewer times per day to simplify regimens, can result in improved adherence rates.³⁹

In the case scenario, the patient's PCC should review inhaler technique and adherence

and consider adjusting her 2-device inhaled therapy, addressing smoking cessation, and offering PR. To improve adherence and potentially reduce costs, the patient could be prescribed combination LAMA+LABA therapy in a single inhaler. The PCC may also want to consider the risks and benefits of LAMA+LABA+ICS due to her exacerbations and eosinophil count >300 cells/microliter. The PCC could direct the patient to available manufacturer patient assistance programs and copay cards to help her afford the new combination inhaler and improve access to treatment. Where available, engaging clinic staff such as medical assistants, nurses, and pharmacists can also help facilitate access to treatment.

SUMMARY

COPD remains a significant health challenge, and PCCs play a key role in managing COPD since most patients are treated in primary care settings. Current diagnostic and treatment guidance provided by the GOLD report emphasize individualized patient-centered approaches to care. Pharmacologic treatment regimens should incorporate patient and disease characteristics as well as patient preferences, with a focus on promoting adherence and facilitating appropriate inhaler technique. Smoking cessation, appropriate vaccinations, and PR

are important nondrug interventions with significant potential to improve patients' disease status and quality of life. ●

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