Chronic Obstructive Pulmonary Disease (COPD) Pharmacotherapy

Based on the 2026 GOLD Report (Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease)

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Abbreviations

EOS: Blood eosinophil count (cells/mcL)
ICS: Inhaled corticosteroid
LABA: Long-acting beta-agonist
LAMA: Long-acting muscarinic antagonist
SABA: Short-acting beta-agonist
SAMA: Short-acting muscarinic antagonist

COPD Treatment Goals

Stable COPD	COPD Exacerbations
• **Improve** symptoms, exercise tolerance, health • **Reduce risks of** disease progression, exacerbations, death	• **Minimize** the effects of the exacerbation • **Prevent** future exacerbations

Initiation of Pharmacotherapy in Stable COPD

Select initial pharmacotherapy based on current symptoms and exacerbation history

Note
- If combination therapy is chosen, consider **single-inhaler options** for patient convenience
- Short-acting bronchodilators should be prescribed to **all** patients for immediate symptom relief

Exacerbations	CAAT <10, mMRC 0-1	CAAT ≥10, mMRC ≥2
≥1 moderate or severe exacerbations in the previous year	**E** LABA + LAMA • If EOS ≥300, consider LABA + LAMA + ICS	
No moderate or severe exacerbations in the previous year	**A** Bronchodilator (LABA, LAMA, SABA, or SAMA) • **Long-acting is generally preferred** unless very occasional dyspnea	**B** LABA + LAMA • If LABA + LAMA combo is not appropriate, **choose either** based on the patient's perceived symptom relief

Symptoms

CAAT: Chronic Airways Assessment Test
mMRC: Modified Medical Research Council dyspnea scale

Adapted from Figure 3.8 of the 2026 GOLD Report

Pharmacotherapy Key Points

General Notes on Inhaled Medications

- **Individualize** inhaler choice (e.g., cost, ability to use, efficacy)
- Assess inhaler technique and adherence **prior** to therapy modification

Bronchodilators - First-Line for COPD

- **Long-acting** agents (LABA, LAMA) are **preferred** over short-acting (SABA, SAMA), except in those with only **occasional dyspnea** and when **immediate relief** is needed in those on long-acting maintenance therapy
- LAMA+LABA is more effective at improving symptoms and lung function and ↓ exacerbation risk than monotherapy; patients not managed on a single long-acting bronchodilator should be **escalated** to dual therapy
- LAMAs provide greater exacerbation risk reduction than LABAs and decrease hospitalization
- Combination of SABA+SAMA is more effective than either alone
- **Inhaled** bronchodilators are recommended over oral bronchodilators

Inhaled Corticosteroids (ICS) - Main Anti-Inflammatory Therapy

- ICS **monotherapy** has **not** shown long-term benefit in COPD treatment
- Can be **added** to LABA+LAMA in patients with exacerbation history (especially if recurrent or has led to hospitalization) or **EOS ≥100**
  - ICS **should** be included if features of **asthma** are present
- **Triple regimen (LABA+LAMA+ICS)** may have mortality benefit versus LABA+LAMA in those with symptomatic COPD and history of exacerbations
- LABA+ICS **not** encouraged for COPD; if ICS is indicated, use **triple regimen**
- Main safety concern is **pneumonia**; not recommended in patients with history of **recurrent pneumonia** or **mycobacterial infection**

Others - PDE Inhibitors, Biologics, Antibiotics

- **Roflumilast** (phosphodiesterase [PDE]-4 inhibitor) reduces **exacerbations** and improves **lung function** in those with **severe to very severe airflow limitation**, **chronic bronchitis**, and **exacerbations**
  - Consider adding to LABA+LAMA (+/- ICS) for these patients
- **Ensifentrine** (PDE-3 and PDE-4 inhibitor) improves lung function and dyspnea
  - Consider adding to LABA+LAMA in patients with **dyspnea**
- **Dupilumab** (interleukin [IL]-4 and IL-13 inhibitor) reduces exacerbations and improves lung function in patients with **chronic bronchitis**, history of exacerbations despite triple therapy (LABA+LAMA+ICS), and **EOS ≥300**
  - Consider adding to triple therapy if EOS ≥300 and exacerbations occur
- **Mepolizumab** (IL-5 inhibitor) reduces exacerbations in patients with history of exacerbations despite triple therapy and **EOS ≥300**
  - Consider adding to triple therapy if EOS ≥300 and exacerbations occur
- **Azithromycin** may be considered for **≤1 year** if exacerbations occur despite appropriate therapy (especially in **former smokers**)

Follow-Up Pharmacotherapy Management in Stable COPD

Note: COPD management is an individualized, continuous cycle of assessment and treatment adjustment

Is COPD well managed?

Review:
- Symptoms (e.g., dyspnea)
- Exacerbations

Assess:
- Inhaler technique & adherence
- Non-pharmacological interventions
- Other relevant conditions

Adjust:
- Consider escalation/de-escalation
- Switch device or medications

No →
- Consider switching inhaler or medication
- Optimize non-pharmacological interventions
- Assess and address other causes of symptoms
- Consider adding **ensifentrine**

If Yes:
Continue current therapy

Adapted from Figures 3.7 and 3.9 of the 2026 GOLD Report

Addressing dyspnea*

LAMA or LABA
↓
LAMA + LABA**
↓
- Consider switching inhaler or medication
- Optimize non-pharmacological interventions
- Assess and address other causes of symptoms
- Consider adding **ensifentrine**

Addressing exacerbations*

LAMA or LABA
↓
LAMA + LABA**
← EOS <300 / EOS ≥300

EOS ≥300 ↓
LAMA + LABA + ICS**
(Consider **de-escalating** to LAMA + LABA if ICS is not tolerated or not effective)
→ If EOS ≥300 and 2 moderate or 1 severe exacerbation

EOS ≥100 / EOS <100 ↓
Consider adding:
- **Roflumilast** if FEV1 <50% + chronic bronchitis
- **Azithromycin**, preferentially in former smokers

If EOS ≥300 and 2 moderate or 1 severe exacerbation ↓
Consider adding:
- **Dupilumab** (if **chronic bronchitis** is present)
- **Mepolizumab**

Although LABA+ICS is **not** preferred in treatment of COPD without features of asthma, if the patient has already been on LABA+ICS and is well managed, current therapy **may** be continued (or consider switching to LABA+LAMA if no relevant exacerbation history).
- If **exacerbations** occur, escalate to LABA+LAMA+ICS (if EOS ≥100) **or** switch to LABA+LAMA (if EOS <100)
- If **major symptoms** are present, decide based on previous response to ICS:
  - If no relevant history of exacerbation, consider switching to LABA+LAMA
  - If history of positive response to ICS in previous exacerbations, consider escalating to LABA+LAMA+ICS

*If **both** dyspnea and exacerbation must be addressed, **the exacerbations pathway** should be followed
**For patients on LAMA+LABA or LAMA+LABA+ICS, single-inhaler options should be considered for convenience and to improve adherence

Pharmacotherapy Management of Acute Exacerbations*

*Non-life-threatening

Initial Treatment:
SABA
(with or without SAMA)
→
- Initiate maintenance with **long-acting bronchodilators** as soon as stable
- Consider adding **ICS** to LAMA+LABA if moderate/severe exacerbations with ↑ EOS (≥100 cells/mcL)
- If moderate/severe exacerbations, consider **systemic corticosteroids** (duration: generally **≤5 days**)
- If indicated (e.g., signs of bacterial infection), give **antibiotics** (duration: generally **≤5-7 days**)

References available at pyrls.com

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