



60th Annual Meeting

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Clearing the Air: What's New (and What's Out) in COPD Guidelines

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Disclosure

I do not have a vested interest in or affiliation with any corporate organization offering financial support or grant monies for this continuing education activity, or any affiliation with an organization whose philosophy could potentially bias my presentation (within the last 12 months).

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Presentation Objectives

1. Compare and contrast key updates in the 2026 COPD guidelines
2. Review evidence-based pharmacologic recommendations
3. Apply the guidelines to case-based scenarios
4. Explain the role of pharmacists and pharmacy technicians in patient education (inhaler technique, smoking cessation, environmental triggers)

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CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) OVERVIEW

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Epidemiology



COPD is 1 of top 3 causes of **death** worldwide

- 90% deaths occur in low-middle income countries (LMIC)



U.S. medical cost burden

\$24B/year for 45 years old+



Risk factors

- Highest risk: Tobacco smoking
- Additional risk in LMIC: household air pollution

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Risk Factors

All will increase risk of exacerbations, hospitalizations and mortality

Cigarette Smoking	Environmental exposure	Genetics
• Smokers have • ↑respiratory symptoms • ↑lung function abnormalities • a greater annual rate of decline in FEV1 • ↑COPD mortality rate than non-smokers. • Smoking before age 15 ↑risk of developing COPD, independent of cigarette pack-years and smoking duration • Other smoking like pipes, cigars, marijuana also risk factors	• Air pollution • Toxic particles • Gases from household/outdoor air pollution: Wood, crop residues, coal etc. • Occupational exposures: organic and inorganic dusts, chemical agents and pesticides	• Alpha-1 deficiency that leads to lung damage is epidemiologically rare

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Pathophysiology

- Related to emphysema or chronic bronchitis
 - Emphysema usually refers to destruction of the tiny air sacs at the end of the airways in the lungs.
 - Chronic bronchitis refers to a chronic cough with the production of phlegm resulting from inflammation in the airways.

Chronic obstructive pulmonary disease (COPD). Accessed March 25, 2021. https://www.cdc.gov/ncbpd/oddsat/drugat/cdd/cdd_copd.htm

Barry PJ, et al. Chronic obstructive pulmonary disease. Nat Rev Dis Primers. 2015;5(10):2015. doi:10.1038/nrdp.2015.76

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- Emphysema usually refers to destruction of the tiny air sacs at the end of the airways in the lungs.
- Chronic bronchitis refers to a chronic cough with the production of phlegm resulting from inflammation in the airways.

CO, carbon monoxide; CRP, C-reactive protein; OSA, obstructive sleep apnea; sRAGE, soluble receptor for activated glycylation end product.

Barry PJ, et al. Chronic obstructive pulmonary disease. Nat Rev Dis Primers. 2015;5(10):2015. doi:10.1038/nrdp.2015.76

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COPD Symptoms

Dyspnea (shortness of breath) – most common symptom	Wheezing	Chest tightness
Cough with or without sputum production	Limited activity/fatigue	Exacerbations • Bacterial/viral respiratory infections may trigger exacerbation

If patient has these symptoms and has history of exposure to cigarettes or pollutants, then recommend spirometry testing

GOLD COPD 2020. Available from: <https://goldcopd.org/2020-gold-report-and-pocket-guide/>

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Diagnostic Test

A. Spirometry - Normal Trace **B. Spirometry - Airflow Obstruction**

- **Forced Expiratory Volume in one second (FEV1):** measures the volume of air exhaled in the first second of a forced breath
- **Forced Vital Capacity (FVC):** Measures total volume/lung capacity
- **Spirometry**
 - most reproducible and objective measurement of airflow obstruction
 - FEV1/FVC < 0.70 **required** post-bronchodilation
 - Non-fully reversible airflow obstruction

GOLD COPD 2020. Available from: <https://goldcopd.org/2020-gold-report-and-pocket-guide/>

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GLOBAL INITIATIVE FOR CHRONIC OBSTRUCTIVE LUNG DISEASE (GOLD) CLASSIFICATION

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GOLD ABE Assessment Tool

Disease Activity Assessment

- Airflow obstruction
- Symptoms
 - Modified Medical Research Council (mMRC)
 - Chronic Airways Assessment Test (CAAT)
- Exacerbations

★ Group C/D merged to become Group E in 2023

GRADE	FEV1 (% predicted)	EXACERBATION HISTORY (no. in last year)	SYMPTOMS
GOLD 1	≥ 80	One or more (≥ 1) moderate or severe exacerbations in the previous year	E
GOLD 2	50-79	Zero (0)	A, B
GOLD 3	30-49	Zero (0)	A, B
GOLD 4	< 30	Zero (0)	A, B

mMRC 0-1, CAAT < 10; mMRC ≥ 2, CAAT ≥ 10

GOLD COPD 2020. Available from: <https://goldcopd.org/2020-gold-report-and-pocket-guide/>

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Modified Medical Research Council (mMRC): Symptom Assessment Tools

Modified MRC Dyspnea Scale

PLEASE TICK IN THE BOX THAT APPLIES TO YOU | ONE BOX ONLY | Grades 0 - 4

mMRC Grade 0	mMRC Grade 1	mMRC Grade 2	mMRC Grade 3	mMRC Grade 4
I only get breathless with strenuous exercise ☐	I get short of breath when hurrying on the level or walking up a slight hill ☐	I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level ☐	I stop for breath after walking about 100 meters or after a few minutes on the level ☐	I am too breathless to leave the house or I am breathless when dressing or undressing ☐

- Dyspnea Scale
- mMRC ≥ 2 more breathlessness/dyspnea
 - Worsening shortness of breath with activities of daily living
- Score up to 4

Reference: American Thoracic Society. Am Rev Respir Dis. 1982;126(3):952-6.

GOLD COPD 2020. Available from: <https://goldcopd.org/2020-guid/regist-and-posttest-guest/>



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Chronic Airways Assessment Test (CAAT): Symptom Assessment Tool

- CAAT ≥ 10 = high symptom burden
- Score up to 40

CAAT™ Assessment
Figure 2.32

For each item below, place a mark [x] in the box that best describes you currently. Be sure to only select one response for each question.

	0	1	2	3	4	5	I am very sad	
EXAMPLE: I am very happy								Score
I never cough								
I have no phlegm (mucus) in my chest at all								
My chest does not feel tight at all								
When I walk up a hill or one flight of stairs I am not breathless								
I am not limited doing any activities at home								
I am confident leaving my home despite my lung condition								
I sleep soundly								
I have lots of energy								
I cough all the time								
My chest is completely full of phlegm (mucus)								
My chest feels very tight								
When I walk up a hill or one flight of stairs I am very breathless								
I am very limited doing activities at home								
I am not at all confident leaving my home despite my lung condition								
I don't sleep soundly because of my lung condition								
I have no energy at all								

TOTAL SCORE:

Reference: Jones et al. ERJ 2006; 34 (3): 648-54.

CGP™ has been licensed to the Chronic Airways Assessment Tool (CAAT™), CAAT™ and CGP™ are registered and the scores are interchangeable.

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Guideline Update

- Exacerbation defined as:
 - acute event with symptoms worsening over a few days (up to 14 days)
 - increased dyspnea and/or cough and sputum
 - +/- tachypnea and/or tachycardia
- Rule out comorbidities
 - Heart failure
 - Pneumonia
 - Pulmonary embolism
 - Bronchitis
 - Arrhythmias
 - Myocardial infarctions

2025

- ≥2 moderate exacerbations

2026

- ≥1 exacerbation now clinically meaningful
- Earlier escalation threshold

! (Warning/Update icon)

GOLD COPD, 2026. Available from: <https://goldcopd.org/2026-gate-report-and-pocket-guide/>

The diagram consists of a central blue circle with a white outline. To its right is a large blue rectangle with rounded corners containing the text "Treatment Goals". Below this rectangle is a smaller blue rectangle with rounded corners containing the text "Increase quality of life". To the left of the central circle is a large blue rectangle with rounded corners containing the text "Achieve 'low disease activity state' aka no exacerbations". A line connects the central circle to the "Achieve..." rectangle, and another line connects the central circle to the "Increase quality of life" rectangle.



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Non-pharmacological management

Smoking cessation

- 5 A's: Ask, Advise, Assess, Assist, Arrange

Vaccinations

- RSV now recommended ≥ 50 years
- Influenza, pneumococcal and RSV vaccines have been shown to decrease the incidence of lower respiratory tract infections.

THE BRIEF TOBACCO INTERVENTION

The 5As

ASK about tobacco use:
"Do you currently smoke or use other forms of tobacco?"

ADVISE the patient to quit:
"Quitting is one of the best things you can do for your health. I strongly encourage you to quit now. *How interested in quitting?*"

ASSESS readiness to quit:
"Are you interested in quitting tobacco?"

ASSIST the patient in quitting:
"If READY TO QUIT" involve brief counseling and medication if appropriate. Help patients to obtain support resources that can complement your case mix, practice, interventions, brief/quitline, 1-800-QUIT-4U, or group counseling."

FOR follow-up or brief counseling, see *www.atsdr.cdc.gov/tobacco*.

DO NOT QUIT TO QUIT Strongly encourage patients to consider quitting by using pharmacotherapy if appropriate. Patients may want to be helped when they are ready.

ARRANGE for follow up:
Follow up with patients who are trying to quit."

©CDC/CDCP 2008. Available from <https://guidesandresources.org/2008-guides-report-and-product.aspx>;
 CDC (n.d.). THE BRIEF TOBACCO INTERVENTION (THE BRIEF TOBACCO INTERVENTION). Centers for Disease Control and Prevention. Retrieved March 1, 2020, from <https://www.cdc.gov/tobacco/interventions/2008-guides-report-and-product.aspx>






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Non-pharmacological management

Pulmonary rehab

- Exercise training + education = improves exercise capacity, symptoms, and quality of life across all grades of COPD severity
- Optimum benefits in 6 to 8 weeks. Limited evidence in extending pulmonary rehabilitation to 12 weeks.

Oxygen

- May improve survival in patients with severe resting chronic hypoxemia (PaO₂ at or below 55 mmHg (7.3 kPa) or SaO₂ at or below 88%)
- If stable COPD: long term oxygen DOES NOT lengthen time to death or first hospitalization or provide sustained benefit in health status, lung function, and 6 min walk distance

GOLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-and-pocket-guide/>

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PHARMACOLOGIC TREATMENT

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Initial Pharmacologic Treatment

EXACERBATION HISTORY (PREVIOUS YEAR)

One or more (≥ 1) moderate or severe exacerbations in the previous year

GROUP E

LABA + LAMA*

consider LABA+LAMA+ICS* if blood eos ≥ 300

Zero (0) moderate or severe exacerbations in the previous year

GROUP A

A bronchodilator

mMRC 0-1, CAAT < 10

GROUP B

LABA + LAMA*

mMRC ≥ 2, CAAT ≥ 10

SYMPTOMS

Single inhaler therapy may be more convenient and effective than multiple inhalers. Single inhalers improve adherence to treatment. Exacerbations refers to the number of exacerbations per year; eos: blood eosinophil count in cells per microliter; mMRC: modified Medical Research Council dyspnea questionnaire; CAAT: Chronic Airways Assessment Test**.

GOLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-and-pocket-guide/>

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Group A Treatment: Bronchodilator

Exacerbations in previous year: Zero (0)
mMRC: 0-1
CAAT < 10

- Short-acting or long-acting bronchodilator
 - Short-acting beta agonist
 - Short-acting muscarinic antagonist
 - Long-acting beta agonist
 - Long-acting muscarinic antagonist

Short-acting beta, agonist (SABA) bronchodilators

- Albuterol 2 puffs qe-6 PRN (multiple formulations – not indicated per guidelines except for very occasional breathlessness)
- Nebulizer options
 - Albuterol Sulfate (2.5 mg/3mL) 0.083% neb 2.5 mg inhaled q4h PRN
 - Levalbuterol (0.63mg/3mL) neb 0.63 - 1.25 mg inhaled TID

OR

Short-acting muscarinic antagonist (SAMA) bronchodilator

- Nebulizer option: ipratropium Bromide 0.02% (0.5 mg/2mL) soln 500 mcg inhaled 3-4 times daily

OR

Long-acting beta, agonist (LABA) bronchodilators

- Serevent Diskus [salmeterol] 50 mcg 1 puff BID*
- Spiriva HandiHaler [tiotropium] 2.5 mcg 2 puffs daily
- Nebulizer options
 - Perforomist [formoterol fumarate] 20mcg/2mL Nebulizer twice daily
 - Brovana [arformoterol] 15 mcg every 12 hours*

OR

Long-acting muscarinic antagonists (LAMA)

- Incruse Ellipta [umeclidinium] 62.5 mcg 1 puff daily
- Spiriva HandiHaler [tiotropium] 18 mcg/capsule 1 capsule daily (inhale each capsule twice)*
- Spiriva Respimat [tiotropium] 2.5 mcg 2 puffs daily
- Tudorza Pressair [aclidinium] 400 mcg 1 puff BID

GOLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-and-pocket-guide/>

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LABA vs LAMA

LABAs and LAMAs improve:

- Lung function
- Dyspnea
- Health status
- Reduce exacerbation risks

LAMA > LABA for greater effects on

- Exacerbation reduction
- Decrease hospitalizations (lower level of evidence)

GOLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-and-pocket-guide/>

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Group B Treatment: LABA + LAMA

Exacerbations in previous year: Zero (0)
mMRC: ≥ 2
CAAT ≥ 10

Maltais et al found LABA + LAMA superior to LAMA for

- Change in baseline FEV1
- Reducing symptoms
- Decreasing risk of a first clinically important deterioration

Long-acting beta, agonist (LABA) + Long-acting muscarinic antagonists (LAMA) – combination preferred to avoid using 2 separate inhalers

- Anoro Ellipta [umeclidinium/vilanterol] 62.5/25 mcg 1 puff daily
- Brevoel AerospHERE [glycopyrrolate/formoterol fumarate] 3/4.8 mcg 2 puffs BID
- Duakir Pressair [aclidinium/formoterol fumarate] 400/12 mcg 1 puff BID
- Stiolto Respimat [tiotropium/olodaterol] 2.5/2.5 mcg 2 puffs daily

OR

If insurance or cost issues with combined inhalers above, below are alternative options for LABA + LAMA

Long-acting beta, agonist (LABA)

- Serevent Diskus [salmeterol] 50 mcg 1 puff BID
- Spiriva HandiHaler [tiotropium] 18 mcg/capsule 1 capsule daily (inhale each capsule twice)
- Nebulizer options
 - Perforomist [formoterol fumarate] 20mcg/2mL Nebulizer twice daily
 - Brovana [arformoterol] 15 mcg every 12 hours

AND

Long-acting muscarinic antagonists (LAMA)

- Incruse Ellipta [umeclidinium] 62.5 mcg 1 puff daily
- Spiriva HandiHaler [tiotropium] 18 mcg/capsule 1 capsule daily (inhale each capsule twice)
- Spiriva Respimat [tiotropium] 2.5 mcg 2 puffs daily
- Tudorza Pressair [aclidinium] 400 mcg 1 puff BID

Maltais B, Spierdijk L, Verstra R, et al. Respir Med. 2019;203:105-114. doi:10.1016/j.rmed.2019.09.005. Epub 2019 Oct 1. Available from: <https://doi.org/10.1016/j.rmed.2019.09.005>

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Group E Treatment:

LABA + LAMA or LABA+ICS if eosinophil counts are ≥ 300 cells/ μ L

Exacerbations in previous year: One or more (≥ 1) moderate or severe
 mMRC ≥ 2
 CAT-1 ≥ 10

- Use of LABA+ICS in COPD is not encouraged. If there is an indication for an ICS, then LABA+LAMA+ICS has been shown to be superior to LABA+ICS and is therefore the preferred choice.

Long-acting beta₂ agonist (LABA) + Long-acting muscarinic antagonists (LAMA) - combination preferred to avoid using 2 separate inhalers

- Anoro Epiptat (formoterol/furoate) 12/5mg/1mg puffs daily
- Bevespi Aerosphere (glycopyrrate/formoterol fumarate) 9/4.8 mcg 2 puffs BID
- Duaklir Pressair (acridinium/formoterol fumarate) 400/12 mg puffs BID
- Stiolto Respimat (tiotropium/dumometil) 2.5/2.5 mg 2 puffs daily

Consider ICS addition if both eosinophils ≥ 300 cells/microliter historically

LABA + LAMA + inhaled corticosteroid (ICS) combination preferred to avoid using 2 separate inhalers

- Trelegy Ellipta (fluticasone furate/umeclidinium/vilanterol) 100/62.5/25 mcg 1 puff daily
- Totala ICS = 100 mcg
- Breztri Aerosphere (budesonide/glycopyrrate/formoterol fumarate) 100/9/4.8 mcg 2 puffs BID
- Total ICS = 640 mcg

If insurance or cost issues with triple therapy combined inhalers, below are alternative options for LABA + LAMA + ICS

Long-acting muscarinic antagonists (LAMA)

- Incruspe Ellipta (umeclidinium) 62.5 mcg 1 puff daily
- Serives Handihaler (tiotropium) 2.5 mcg 2 puffs daily
- Spiriva Respimat (tiotropium) 2.5 mcg 2 puffs daily
- Tudorza Pressair (acridinium) 400 mcg 1 puff BID

AND

Long-acting beta₂ agonist (LABA) + inhaled corticosteroid (ICS)

- Symbrinct tri^{TM} Ellipta (budesonide/formoterol fumarate) 160/4.8mcg 2 puffs BID
- Advair Diskus (fluticasone propionate/salmeterol) 250/50 mcg or 500/50 mcg 1 puff BID*
- Wixela Inhaled (fluticasone propionate/salmeterol) 250/50 mcg or 500/50 mcg 1 puff BID*
- Breo Ellipta (fluticasone furate/vilanterol) 100/25 mcg 1 puff daily

GOLD COPD 2024. Available from <https://goldcopd.org/2024/gold-report-and-pocket-guide/>



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Adding Inhaled Corticosteroids (ICS)

Factors to Consider when Initiating ICS Treatment

Figure 3.10

Factors to consider when adding ICS to long-acting bronchodilators:
(note the severity of asthma by comparing ICS withdrawal)

STRONG EVIDENCE	History of hospitalizations (or exacerbations) of COPD ≥ 2 moderate exacerbations of COPD per year* Blood eosinophils ≥ 300 cells/ μ L History of an concomitant asthma
MODERATE EVIDENCE	Moderate exacerbations of COPD per year* Blood eosinophils 100 to < 300 cells/ μ L
WEAK EVIDENCE	Repeated pneumonia events Blood eosinophils < 100 cells/ μ L History of mycobacterial infection

*Note: appropriate adding/withdrawing recommendations (Figure 3.8 & 3.9) for maintenance inhalers. *Note
Lipman DA, Barcham T, Brannan K, et al. *CMAJ* 2019; 191(10):770-779. DOI: 10.1503/cmaj.201901
Note: Panel 3.10 is abstracted and summarized from the 2018 GOLD Report. Copyright: Reproduced by permission. DOI: 10.1183/13630494.2018.021000000
JGIM 2019; 34(10):1000-1008 Published 22 December 2018

- Eosinophils greater than 300 cells/ μ L
- For those already on LABA/LAMA + blood eosinophil counts ≥ 100 cells/ μ L, adding ICS could be beneficial
- Higher eosinophil counts = greater response with ICS
- IMPACT and ETHOS trial: less mortality in patients with symptomatic COPD who have a history of frequent and/or severe exacerbations – Inclusion criteria: symptomatic patients (CAAT ≥ 10) with a history of frequent (≥ 2 moderate exacerbations) and/or severe exacerbations (≥ 1 exacerbation requiring a hospital admission)



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• IF PERSISTENT DYSPNEA

Dyspnea Reassessment

Ensisifentrine



Mechanism of action

- Phosphodiesterase-3 Enzyme/Phosphodiesterase-4 Enzyme Inhibitor
- both anti-inflammatory activity and bronchodilator effects

Dosage

- Inhale 3mg twice daily by nebulizer

Role in therapy

- Add on therapy when on 2 long-acting bronchodilators with continued dyspnea
- However, note studies were not designed to assess impact of ensifentrine on top of LABA+LAMA or LABA+LAMA+ICS making it difficult to fully position this agent in treatment algorithm

Outcomes

- Improved lung function, dyspnea, health status



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Role of Roflumilast



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Mechanism of action

- Phosphodiesterase-4 Enzyme Inhibitor
- Reduce inflammation by inhibiting breakdown of intracellular cyclic AMP

Dosage

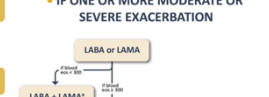
- 250 mcg by mouth once daily for 4 weeks (for tolerability) followed by 500 mcg once daily.

Role in therapy

- reduces moderate and severe exacerbations treated with systemic corticosteroids in patients with chronic bronchitis, severe to very severe airflow obstruction, and a history of exacerbations

Outcomes

- Reduce exacerbations



```

graph TD
    A[LABA or LAMA] -->|Add LABA| B[LABA + LAMA*]
    A -->|Add LAMA| C[LABA + LAMA + ICS*]
    B -->|Add LABA and ICS| C
    C -->|If more moderate or severe exacerbations AND ≥ 1 fixed or ≥ 300| D[Biologic Therapy*  
(see Figure 3.11)  
Dupinlimab (if chronic bronchitis)  
Mepolizumab]
    C -->|If not moderate or severe exacerbations AND ≥ 1 fixed or ≥ 300| E[Roflumilast  
(FEV1 ≥ 50% & 20% in chronic bronchitis)]
    C -->|If not moderate or severe exacerbations AND ≥ 1 fixed or ≥ 300| F[Anticholinergic preferentially in former smokers]
    
```

LABA or LAMA

• If ONE OR MORE MODERATE OR SEVERE EXACERBATION

LABA + LAMA*

LABA + LAMA + ICS*

Roflumilast
(FEV1 ≥ 50% & 20% in chronic bronchitis)

Anticholinergic
preferentially in former smokers

Biologic Therapy*
(see Figure 3.11)
Dupinlimab (if chronic bronchitis)
Mepolizumab

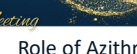
* See Drug-Drug Interactions Between April 8, 2020 from <https://pubs.ascp.net/doi/10.12659/MSM.151729>

COLD COPD 2028. Available from <https://goldcopd.org/2028/gold-report-and-pocket-guide/>

Refluxant. Drug Information in Use Drug-Drug Interactions. Between April 8, 2020 from <https://pubs.ascp.net/doi/10.12659/MSM.151729>



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Role of Azithromycin

- IF ONE OR MORE MODERATE OR SEVERE EXACERBATION
 - LABA or LABA
 - LABA + LABA*
 - LABA + LABA + ICS*
 - LABA + LABA + ICS* + Azithromycin

- **Dose:** 250 mg/day by mouth or 500 mg three times per week or erythromycin (250 mg two times per day) for one year in patients prone to exacerbations
- **Outcomes/role in therapy:** reduced the risk of exacerbations compared to usual care
- **Limitation:**
 - Limited data beyond 1 year
 - Less beneficial in current smokers
- **Considerations**
 - Bacterial resistance patterns
 - QTC prolongation
 - Greater incidence of impaired hearing

Roflumilast
(FEV1 + 50% & chronic bronchitis)

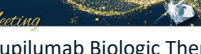
Azithromycin
preferentially in former smokers

Biologic Therapy*
(see Figure 3.11)
 Dupilumab (if chronic bronchitis)
 Mepolizumab

GOLD COPD, 2024. Available from: <https://goldcopd.org/2024/gold-report-and-pocket-guide/>



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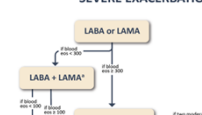


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Dupilumab Biologic Therapy

- Dupilumab
 - **Mechanism of action:** Monoclonal antibody that blocks IL-4/IL-13 pathways
 - **Role in therapy:** For the add-on maintenance treatment of inadequately controlled COPD, (e.g., chronic bronchitis) in patients with eosinophilic phenotype
 - Studies included patients with chronic bronchitis
 - **Dose:** 300 mg subcutaneously every other week
 - Note: no loading dose like with asthma

- **IF ONE OR MORE MODERATE OR SEVERE EXACERBATION**



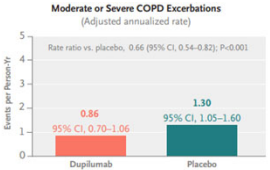


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Dupilumab NOTUS Study

- A 52-week Phase 3, double-blind, placebo-controlled, randomized trial
- Inclusion criteria**
 - COPD
 - Triple inhaler therapy at least 3 months
 - At least 2 moderate or 1 severe exacerbation in previous year
 - blood eosinophil count of ≥ 300 cells/ μ L
- Primary endpoint:** annualized rate of moderate or severe exacerbations



Moderate or Severe COPD Exacerbations
(Adjusted annualized rate)

Rate ratio vs. placebo, 0.66 (95% CI, 0.54-0.82); P<0.001

Events per Person-Yr

Dupilumab: 0.86 (95% CI, 0.70-1.06)
Placebo: 1.30 (95% CI, 1.05-1.60)

In patients with COPD and eosinophilic evidence of type 2 inflammation, the addition of dupilumab to triple inhaled therapy every 2 weeks lowered the incidence of COPD exacerbations over 1 year, as compared with add-on placebo.

Shah SP, Balle KH, Hanania MA, et al. N Engl J Med 2024;390:2274-85. DOI:10.1056/NEJMoa2405054

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Mepolizumab Biologic Therapy

- Added to 2026 guidelines
- Mechanism of action:** humanized monoclonal antibody that targets IL-5.
- Role in therapy:** For the add-on maintenance treatment of inadequately controlled COPD in patients with eosinophilic phenotype
- Dose:** 100 mg subcutaneously every 4 weeks
- Available as autoinjector pen or syringe



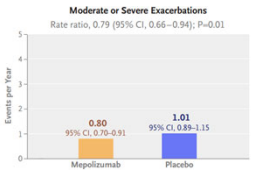
COLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-2026-asthma-2026/>
Mepolizumab. Drug information in Lexi-Comp Online. Retrieved April 8, 2026 from <https://www.lexi-comp.com/medications/mepolizumab>

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Mepolizumab Study

- A 52-week Phase 3, double-blind, placebo-controlled, randomized trial
- Inclusion criteria**
 - COPD
 - Triple inhaler therapy
 - At least 2 moderate or 1 severe exacerbation in previous year
 - blood eosinophil count of ≥ 300 cells/ μ L*
- Primary endpoint:** annualized rate of moderate or severe exacerbations



Moderate or Severe Exacerbations
Rate ratio, 0.79 (95% CI, 0.66-0.94); P=0.01

Events per Year

Mepolizumab: 0.80 (95% CI, 0.70-0.91)
Placebo: 1.01 (95% CI, 0.89-1.15)

NOT a class effect as **benralizumab** is also a IL-5 receptor monoclonal antibody and was not associated w/ lower annualized rate of COPD exacerbations

Schultz PJ, Criner GJ, Christenson SA, et al. N Engl J Med 2020;382(17):1710-20. <https://pubmed.ncbi.nlm.nih.gov/34032912/>
Cohen CJ, Celli BR, Brightling CE, et al. N Engl J Med 2019;381(16):1525-34. <https://pubmed.ncbi.nlm.nih.gov/3210285/>

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Inpatient/Acute Management

Severity	Variable thresholds to determine severity
Mild (default)	- Dyspnea VAS ≤ 5 - RR < 24 breaths/min - HR < 95 bpm - Resting $\text{SaO}_2 \geq 92\%$ breathing ambient air (or patient's usual oxygen prescription) AND change $< 3\%$ (when known) - CRP < 10 mg/L (if obtained)
Moderate (meets at least three of five*)	- Dyspnea VAS ≥ 5 - RR ≥ 24 breaths/min - HR ≥ 95 bpm - Resting $\text{SaO}_2 < 92\%$ breathing ambient air (or patient's usual oxygen prescription) AND/OR change $> 3\%$ (when known) - CRP ≥ 10 mg/L *If obtained, ABG may show hypoxemia (PaO_2 70-80 mmHg)
Severe	- Dyspnea, RR, HR, SaO_2 and CRP same as moderate *If obtained, ABG may show hypoxemia (PaO_2 ≤ 60 mmHg) and/or hypercapnia and acidosis

Place of Management

- Ambulatory**
 - Mild exacerbation event
 - Minimal comorbid involvement
 - Cooperative patient
 - Good home support
- Indications for Hospitalization**
 - Symptoms and signs of respiratory failure such as increased respiratory rate, use of accessory respiratory accessory muscles, worsening hypoxemia and/or hypercapnia, mental status changes
 - Failure of the exacerbation to respond to initial medical management
 - Presence of various comorbid conditions (e.g., heart failure, cardiac arrhythmias, etc.)
 - Insufficient home support
- Indications for Respiratory or Medical ICU**
 - Persistent or worsening hypoxemia and/or hypercapnia despite ventilator support
 - Worsening mental status changes (confusion, lethargy, coma)
 - Need for invasive mechanical ventilation
 - Hemodynamic instability, need for vasopressor support, cardiac arrhythmias

Abbreviations: VAS visual analog dyspnea scale; RR respiratory rate; HR heart rate; SaO_2 oxygen saturation; CRP C-reactive protein; ABG arterial blood gases; PaO_2 arterial pressure of oxygen; PaCO_2 arterial pressure of carbon dioxide

COLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-2026-asthma-2026/>

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Inpatient/Acute Management

SABA w/ or w/o anticholinergics One dose of nebulized medication q1h for 2-3 doses or use a pMDI 1-2 puffs every one hour for 2-3 doses and then every 2-4 hours based on the patient's response	Steroids up to 5 days for moderate/severe exacerbations - Improve lung function (FEV1), oxygenation, shorten recovery time and hospital duration - Recommended dose: 40 mg prednisone-equivalent per day x 5 days	Antibiotics for up to 5 days with purulent sputum or history of lung infections or require mechanical ventilation - Shortens recovery time and hospital duration, reduce risk of early relapse and treatment failure - Amoxicillin/clavulanic acid, azithromycin, doxycycline, or, in selected patients, levofloxacin or moxifloxacin
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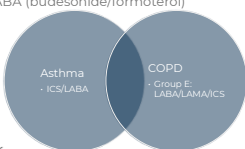
COLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-2026-asthma-2026/>

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Concomitant Asthma Management

- Asthma and COPD may coexist in an individual patient. If patient has both COPD and asthma, pharmacotherapy should primarily follow asthma guidelines.
 - Treatment base: ICS/LABA (budesonide/formoterol)



- Dupilumab dosing differs
 - Loading dose 600 mg subcutaneously once, followed by 300 mg every other week.

COLD COPD 2026. Available from: <https://goldcopd.org/2026/gold-report-2026-asthma-2026/>

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Therapy De-escalation

- COPD = progressive disease, less likely to de-escalate
- Patients treated with **LABA+LAMA+ICS** should **not** have the ICS component withdrawn unless:
 - ICS was started inappropriately or
 - There's no response to ICS or
 - Significant side-effects or severe or recurrent pneumonia
- If blood eosinophils are ≥ 300 cells/ μ L de-escalation is more likely to be associated with the development of exacerbations

GOLD COPD 2026. Available from <https://goldcopd.org/2026/gold-report-and-pocket-guide/>

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Pharmacist impact

- Medication optimization
 - Especially for frequent hospitalizations
- Adherence
- Access and insurance navigation (brand vs generic)
- Exacerbation prevention
- Smoking cessation education
- Educate on inhaler technique

30	Different inhaled therapies with bronchodilator
20	• Different inhaler devices • pressurized metered-dose inhaler • breath-actuated metered-dose inhaler • soft mist inhaler • Dry powder inhaler

GOLD COPD 2026. Available from <https://goldcopd.org/2026/gold-report-and-pocket-guide/>

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Summary

- Major 2026 guideline changes include decreasing number of exacerbations from ≥ 2 moderate exacerbations to ≥ 1 exacerbation thus creating an earlier escalation threshold and addition of mepolizumab as a treatment option
- Patients classified as Group E (≥ 1 exacerbations + mMRC ≥ 2 or CAAT ≥ 10) treated with LABA/LAMA or LABA/LAMA/ICS if eosinophil counts are ≥ 300 cells/ μ L
- Pharmacists educating on the importance of medication adherence and appropriate inhaler technique are vital to help meet COPD treatment goals of no exacerbations and increasing patient quality of life

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Questions?



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Clearing the Air: What's New (and What's Out) in COPD Guidelines

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Thank you!



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