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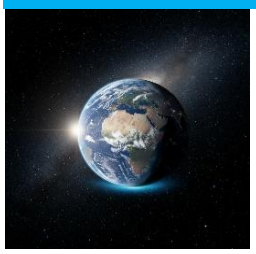

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Key Differences Between GOLD 2026 and Current Polish Guidelines in the Diagnosis and Treatment of COPD

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Abstract
Chronic obstructive lung disease is recurrently one of the most common causes of morbidity and death in the world, it takes third place among death causes. The dynamic development of medical knowledge provides regular input into recommendations for the diagnosis and treatment of this disease. The goal of this thesis was comparison of most up-to-date GOLD 2026 recommendations with most current recommendations for diagnosis and treatment of COPD in force in Poland and pointing out the differences in both documents. The analysis shows that basic rules of diagnostics and primary treatment are in common and are based on assessment of the symptoms, risk of exacerbations and spirometry results. The differences come from novelty approach to COPD classification according to GOLD 2026 recommendations and availability of new treatments of exacerbations. Areas like disease monitoring, patient education or effectiveness of therapy are very similar and could be easily implemented into Polish clinical practice. The main difference remains the use of new biological therapy in

treating COPD. Implementation of those new solutions could be difficult in Polish medical care due to financial reasons. Availability of these drugs is also a important factor.

Aim of the study

Comparison of the latest recommendations for the diagnosis and treatment of chronic obstructive pulmonary disease GOLD 2026 vs the latest Polish guidelines.

Materials and methods

A systematic analysis of the GOLD 2026 guidelines, "Guidelines of the national consultant in the field of lung diseases and the national consultant in the field of family medicine regarding the diagnosis and treatment of COPD in primary care, taking into account coordinated care," published in the journal Lekarz POZ in February 2025. As well as other articles on the latest findings in the treatment and diagnosis of COPD.

Conclusions

The GOLD 2026 recommendations and the current Polish guidelines for COPD share similar principles regarding diagnosis and initial pharmacological treatment. The main difference comes from classification of exacerbations, as GOLD 2026 assigns patients to group E after single moderate exacerbation, which may promote earlier treatment intensification. GOLD 2026 introduces also new therapeutics, which use in Poland may be limited, due to financial and regulatory limitations.

Keywords: COPD, GOLD 2026, COPD diagnosis, COPD treatment, exacerbations, biologic therapy

INTRODUCTION:

According to the newest research chronic obstructive pulmonary disease (COPD) is the third death cause in the world. [1] This disease is characterized by a permanent, only partly reversible limitation of airflow through the respiratory tract. It is directly connected to chronic inflammatory response of respiratory system to harmful factors. [2]

The mains factors that cause the development and progression of COPD are exposure to tobacco smoke and air pollution. According to recent prognosis the air pollution issue will be increasing [3] what may suggest that the morbidity of COPD will be rising in the following years.

Based on fixed diagnostic COPD indicator of the ratio of FEV1/FVC<70%, which is based on GOLD 2026 [4] estimates indicate that 12,64% of people over age 40 is suffers from this disease. Taking into account the age range of 30-79 the prevalence is 10.3% according to the same criteria, which translates into 392 million patients worldwide. [2]

As it was concluded in study "Global burden of 292 causes of death in 204 countries and territories and 660 subnational locations, 1990–2023: a systematic analysis for the Global Burden of Disease Study 2023" since 1990 count of people dying from COPD is steadily rising and is estimated to be resposible for 3.72 milion deaths wordlwide by 2021. It will translate into a grotwth of 48,8% in comparison to the estimation from year 1990. [1] Newest research suggest that in the year 2050 there will be 600 milion people suffering from COPD, with and particular growth among women and the popluations of developing countries. [5]

Treatment of COPD is mostly based on alleviating the symptoms of the disease, improving exercise tolerance, quality of life and decreasing the frequency of exacerbations, which are directly linked to progression of this disease. Health education is crucial for the effectiveness of treatment, especially making patients aware of the fundamental importance of quitting smoking cigarettes/tobacco products, which remains the only method to reduce mortality associated with COPD[4][6]

Etiology and pathomechanism of COPD

At the current stage of knowledge, it is not possible to identify a single definitive cause of chronic obstructive pulmonary disease (COPD), nor to precisely determine the relative contribution of environmental and genetic factors to its development. The disease is considered to result from a complex interaction of multiple risk factors.[7]

The most important and best-documented risk factor is exposure to tobacco smoke, which plays a key role in initiating and promoting the progression of inflammatory changes within the airways.[6] Environmental factors also play an important role, particularly air pollution, which represents a significant public health problem in developing countries. Occupational exposure to dusts, gases, and chemical fumes may additionally contribute to the development of COPD. Furthermore, several individual factors such as genetic predisposition, sex, airway hyperresponsiveness, respiratory infections, and impaired lung development have been identified as potential contributors to disease susceptibility.[2]

The pathomechanism of COPD is primarily driven by a chronic inflammatory response affecting the airways, lung parenchyma, and pulmonary vasculature.[7] Prolonged exposure to

irritants leads to the activation of inflammatory cells, including neutrophils, macrophages, and T lymphocytes.[8] These cells release numerous inflammatory mediators and proteolytic enzymes, which contribute to tissue damage. An imbalance between proteases and antiproteases, together with increased oxidative stress, further promotes structural damage to pulmonary tissues. As a result, remodeling of the bronchial walls occurs, accompanied by thickening of the mucosal layer and excessive mucus production, ultimately leading to narrowing of the airway lumen. Simultaneously, destruction of the alveolar septa and loss of lung tissue elasticity develop, which are characteristic features of emphysema.[6] These pathological changes lead to persistent airflow limitation and progressive impairment of pulmonary function.

In patients with COPD, arterial hypoxemia may develop, and hypercapnia may also occur.[9] Hypercapnia exerts numerous adverse systemic effects that extend beyond the respiratory system. Chronic elevation of carbon dioxide levels in the blood may lead to skeletal muscle atrophy and reduced anabolic activity, mitochondrial dysfunction, and impaired proliferation of alveolar epithelial cells. Additionally, it may contribute to impaired clearance of alveolar edema and reduced antiviral activity as well as diminished phagocytic function of alveolar macrophages. In approximately 1 in 25 patients, hypercapnia may also contribute to the development of pulmonary hypertension.[10]

GOLD 2026 – what's new?[4]

GOLD 2026 is the newest guidelines for the comprahensive care of patients with COPD. It is published by Global Initiatuve for Chronic Obstructive Lung Disease.

Diagnosis of COPD

The cilincal overwiev of the patient shloud make us think that the patient may be suffering from COPD. The most important symptomast are dyspnoea, chronic cough, expectoration of sputum, wheezing sounds heard over the lungs as well as reccuring lower respiratory tract infections. It is important to remember the risk factors to which the patient is exposed.

Dyspnea will be characterazied by progression in time and aggriviation upon exersize. To asses the serverity od dypsnea, it will be necessary to use modified medical council dyspnea scale (mMRC). This scale will be crutial to asses the stage of COPD and therefor apply appropritate treatement.

Chronic cough is often neglected by patients. Many of them define it as “smoker’s cough’ and decide not to report this sympotm to their doctor. Chronic cough could be one of the symptoms of COPD before shortness of breath develops. Chronic cough is ofIten accompanied by expectoration of sputum, expeccialy in the morning – antoher example of the sympotms of COPD.

A thorough interview regarding the patient's lifestyle and work environment is an important element in helping to establish a diagnosis. It is very imporant to pay attention to factors as:

- Smoking of exposure to tobbaco smoke
- Occupational exposure to dust, fumes and chemicals,
- Air pollution
- Exposure to biomass smoke
- Genetic factors, for example: Alpha-1 antitrypsin deficiency

Most recent GOLD 2026 guidelines indicate that spirometry with bronchodialtor reversibilty test remains the gold standard for COPD diagonosis. To perfmorm the antispasmodic test, the patient should be given 400 micrograms of SABA or 160 micrograms of SAMA or both at the same time. This test allows to determine the deegre of airway obstruction through mesuring lung ventilation parameters. To deifne if the patient suffers from obstruction of airways, it is nesserary to calcualte the ratio of forced expiratory volume in one second (FEV1) to forced vital capacity (FVC). COPD can be diagnosed if the FEV1/FVC ratio is lower than 0,7 or 70% after the administration of bronchodilators. This indicates persistent airway obstruction. GOLD 2026 guidelines maintain the previous findings regarding the fixed FEV1/FVC ratio required to be met in order to diagnose obstruction. It must be noticed that using a fixed FEV1/FVC ratio could result in overdiagosin in elderlty people and underdiagnosing in the group of 50 years old and younger, due to varing FEV1/FVC ratio accoriding to age. A method that could lower the risk of making this error would be adjusting the cutoff point to the Lower Limit of Normal (LLN), which is determinef based on age, height and sex and is defined as a vauleve belowe the 5th percentile of the reference population. Another metod that could prevent the previously methonied problem would be realting the test result to the number of standard deviations from the formerly menthioned reference population, which is referref to as the z-score.

GOLD 2026 guidelines indicate that both of these methodes have lesser clinical vaule due to their complexity. The GOLD 2026 document states that it is prefferd to use the fixed cut-off

point when performig spirometry with bronchodilatatory test. This method with a thorough assessment of the patient, his symptoms and risk factors which he is exposed to, is a basic tool to make a correct diagnosis.[2]

Changes in the ABE classification

The current GOLD 2026 COPD classification is largely based on the same principles as GOLD 2025. The main change concerns the number of exacerbations in the previous year required for assignment to Group "E." Under GOLD 2026, just one moderate exacerbation is sufficient. Previously, the criteria were either two or more moderate exacerbations or one exacerbation requiring hospitalization. Studies have shown that even a single exacerbation significantly increases the risk of future exacerbations and supports earlier treatment escalation. [11] [12]
Assessment using the mMRC scale and CAT questionnaire remains important for classifying patients without exacerbations. Patients with an mMRC score of 0–1 and a CAT score below 10 are assigned to Group A. Those with mMRC ≥2 or CAT ≥10 are assigned to Group B. Correct classification is essential for guiding an effective treatment strategy. [2]

Initial therapy

Initial treatment of COPD is based on the assessment of the patient's symptoms, the risk of exacerbations evaluated according to the ABE classification, and the measurement of the patient's blood eosinophil count. Treatment strategies can therefore be divided according to the ABE classification.

In **Group A**, the initial therapy consists of short-acting or long-acting bronchodilators (SABA or LABA). However, long-acting bronchodilators (LABA) are generally considered the preferred therapeutic option, except in patients who experience dyspnea only rarely. If the applied therapy leads to documented clinical improvement, it should be continued.

In **Group B**, treatment is based on dual bronchodilator therapy combining LABA and LAMA. Clinical studies have demonstrated that this dual therapy provides superior outcomes compared with treatment strategies based solely on LAMA monotherapy.[13]

In **Group E**, defined as patients who experience at least one exacerbation during the year, combination therapy with LABA and LAMA is also recommended. In patients belonging to Group E with blood eosinophil counts exceeding 300 cells per microliter, the addition of inhaled glicocorticosteroids should be considered as part of the therapeutic strategy.

Continuation of Therapy

The decision regarding the treatment regimen for ongoing management of a patient depends on several factors. The GOLD 2026 guidelines outline three main principles aimed at systematizing this process.

Review – This step involves assessing patient symptoms, including dyspnea, as well as the risk of disease exacerbations, based on medical history and peripheral blood eosinophil counts. Essential tools for this stage include the mMRC scale and the COPD Assessment Test (CAT).

Assess – Requires the treating physician to evaluate the inhaler technique, adherence to previous recommendations, and compliance with lifestyle modification guidelines.

Adjust – The final step involves tailoring therapy according to observations made in the previous two stages. This may include switching medications within the same pharmacological class. It is important to note that any change in therapy requires a clinical evaluation.

In cases of persistent dyspnea, treatment should be based on a LABA + LAMA regimen. If dyspnea persists despite therapeutic modification, GOLD 2026 recommends switching to alternative agents within the same class, incorporating non-pharmacological interventions, and considering the addition of dual PDE3/PDE4 inhibitors such as ensifentrine. This agent has demonstrated promising results in clinical trials, significantly improving FEV_1 and reducing dyspnea. However, it should be noted that ensifentrine is not currently available in the European Union. [14]

For patients experiencing exacerbations while on monotherapy with a bronchodilator, a LABA + LAMA regimen is recommended. In patients already receiving LABA + LAMA therapy, GOLD 2026 advises adding inhaled corticosteroids (ICS). Patients with peripheral blood eosinophil counts ≥100 cells/μL are more likely to respond favorably to ICS therapy, with efficacy increasing alongside eosinophil levels. [15]

For patients with lower eosinophil counts, the addition of azithromycin is recommended for non-smoking individuals, whereas roflumilast may be considered for patients with FEV_1 <50% and a history of exacerbations. [16][17]

In cases of recurrent exacerbations in patients receiving triple therapy or in those without elevated eosinophil levels, GOLD 2026 again suggests the use of azithromycin or roflumilast under the conditions described above. For patients with eosinophil counts ≥300 cells/μL, the addition of monoclonal antibodies, such as dupilumab or mepolizumab, may be considered.

Polish Guidelines

Currently, no large-scale studies have been conducted in Poland to assess the prevalence of COPD in the general population; however, available estimates indicate that COPD may affect around 2 million individuals in Poland, which correspond to about 8-10% of adults over 40 years of age. [18,19,20] Therefore, the magnitude of this issue remains undetermined. The Polish recommendations for the diagnosis and management of COPD are outlined in the document *"Guidelines of the National Consultant in Pulmonology and the National Consultant in Family Medicine on the Diagnosis and Treatment of COPD in Primary Care, including Coordinated Care"*, published in *Lekarz POZ* in February 2025. [18]

Diagnosis

Diagnosis is based on spirometry with a bronchodilator test, using 400 micrograms of salbutamol, and the calculation of the FEV_1/FVC ratio. A ratio of <0.70 indicates irreversible airflow obstruction and allows for a diagnosis of COPD. However, it should be noted that the Polish Respiratory Society (PTChP) recommends using the lower limit of normal (LLN) for the reference population to define obstruction. Obstruction is diagnosed when the FEV_1/FVC ratio falls below the fifth percentile, aiming to minimize false-positive results in individuals over 65 years of age and false-negative results in younger adults. [18]

Pharmacological Treatment

Current guidelines emphasize the critical role of patient education on proper inhaler use, which is essential for effective pharmacotherapy. Similar to the GOLD guidelines, pharmacological treatment is stratified according to patient classification. It should be noted that the patient grouping used in the national guidelines aligns with GOLD 2025 recommendations.

- **Group A** – Therapy consists of a bronchodilator from the LABA class.
- **Group B** – Treatment follows the same principles as GOLD 2026, i.e., a combination of LAMA + LABA.
- **Group E** – Therapy also relies on the LAMA + LABA regimen. In patients with blood eosinophil counts >300 cells/μL, the addition of inhaled corticosteroids (ICS) should be considered.

Further Stages of Pharmacological Treatment

According to the recommendations of the "Guidelines of the National Consultant in Pulmonology and the National Consultant in Family Medicine on the Diagnosis and Management of Chronic Obstructive Pulmonary Disease in Primary Care, within Coordinated

Care", treatment modifications should primarily be guided by the predominant clinical symptoms, such as persistent dyspnea or recurrent exacerbations.[18,21]

For patients whose dyspnea does not improve despite monotherapy with a LAMA or LABA, escalation to combination therapy with LAMA + LABA is recommended. If symptoms persist despite therapy escalation, potential causes should be investigated, including incorrect inhaler technique, alternative causes of dyspnea, implementation or intensification of non-pharmacological interventions, and, if appropriate, switching to a different agent within the same drug class.

In patients with ongoing exacerbations despite dual therapy, inhaled corticosteroids (ICS) should be added, particularly in those with peripheral blood eosinophil counts >300 cells/μL. Conversely, frequent exacerbations in patients with low eosinophil counts should prompt consideration of roflumilast or azithromycin. Notably, not all patients are eligible for these therapies. Roflumilast is indicated only for patients with FEV_1 <50% and chronic productive cough, while azithromycin is recommended for individuals who are never-smokers or former smokers. [21]

Summary and conculsions

Comparing the Polish guidelines for the diagnosis and management of COPD [18] with the GOLD 2026 recommendations, several important differences in patient classification and treatment approach can be identified. The GOLD 2026 guidelines adopt a more stringent approach to disease exacerbations: a single moderate exacerbation is sufficient to assign a patient to Group E. In contrast, the Polish guidelines, based on GOLD 2025, classify patients with a single moderate exacerbation into Group A or B, depending on mMRC and CAT scores. Similarly to GOLD 2026, mMRC ≤1 and CAT <10 are assigned to Group A, while mMRC >1 or CAT ≥10 are assigned to Group B.

Initiation of pharmacological therapy follows the same principles, but GOLD 2026 highlights the use of SABA in patients with very infrequent dyspnea.

Both documents emphasize correct inhaler technique, smoking cessation, and patient education during therapy continuation. Regular monitoring using the mMRC scale and CAT questionnaire is essential.

In patients with persistent dyspnea despite dual therapy (LABA + LAMA), GOLD 2026 recommends considering dual PDE3/PDE4 inhibitors (ensifentrine), which is currently unavailable in the EU, with a wholesale price of USD 2,950 per month. [23]

Other differences include biologic therapies: dupilumab and mepolizumab are approved in Poland, but only dupilumab has COPD-specific indications for maintenance treatment in patients with elevated eosinophils, reducing mortality, hospitalizations, severe exacerbations, and lower respiratory tract infections. [24] Mepolizumab currently has no indications for COPD.

Overall, GOLD 2026 provides a broader treatment framework than current Polish guidelines, particularly regarding biologics. High costs limit widespread implementation without reimbursement programs. Many recommendations, particularly in diagnostics, monitoring, and education, are organizational and feasible in Polish practice. The main challenges remain pharmacological management, especially advanced biologic therapies.

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