Global Initiative for Chronic Obstructive Lung Disease

2024 REPORT

Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease

GOLD 2024 | Definição de DPOC

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- Doença pulmonar **heterogénea**
- Caracterizada por sintomas crónicos (**dispneia, tosse, expetoração e/ou exacerbações**)
- Provocada por anomalias das vias aéreas (**bronquite, bronquiolite**) e/ou alvéolos (**enfisema**)
- Caracterizada por obstrução do fluxo de ar, **persistente**, muitas vezes progressiva.

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Proposed Taxonomy (Etiotypes) for COPD

Figure 1.2

Classification	Description
Genetically determined COPD (COPD-G)	Alpha-1 antitrypsin deficiency (AATD) Other genetic variants with smaller effects acting in combination
COPD due to abnormal lung development (COPD-D)	Early life events, including premature birth and low birthweight, among others
Environmental COPD	
Cigarette smoking COPD (COPD-C)	• Exposure to tobacco smoke, including *in utero* or via passive smoking • Vaping or e-cigarette use • Cannabis
Biomass and pollution exposure COPD (COPD-P)	Exposure to household pollution, ambient air pollution, wildfire smoke, occupational hazards
COPD due to infections (COPD-I)	Childhood infections, tuberculosis-associated COPD, HIV-associated COPD
COPD & asthma (COPD-A)	Particularly childhood asthma
COPD of unknown cause (COPD-U)	

*Adapted from Celli et al. (2022) and Stolz et al. (2022)

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A exacerbação na DPOC é definida como um evento caracterizado por **aumento da dispneia e/ou tosse** e **expetoração** que piora em ≤ 14 dias, podendo ser acompanhada **de taquipneia e/ou taquicardia** e é frequentemente associada ao aumento local e sistémico da **inflamação** causada por infeção, poluição ou outro agressor das vias aéreas.

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Exacerbação ligeira	Tratada apenas com broncodilatadores de curta duração de ação (SABAs)
Exacerbação moderada	Tratada com SABAs e corticosteróides orais e/ou antibióticos
Exacerbação grave	Requer hospitalização ou visita ao serviço de urgência. Pode estar também associada a insuficiência respiratória aguda

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Classification of the Severity of COPD Exacerbations

Figure 4.3

COPD Patient with Suspected Exacerbation

Confirm ECOPD Diagnosis and Episode Severity

Severity	Variable thresholds to determine severity
Mild (default)	• Dyspnea VAS < 5 • RR < 24 breaths/min • HR < 95 bpm • Resting SaO_2 ≥ 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 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 ≤ 60 mmHg) and/or hypercapnia ($PaCO_2$ > 45 mmHg) but no acidosis
Severe	• Dyspnea, RR, HR, SaO_2 and CRP same as moderate • ABG show new onset/worsening hypercapnia and acidosis ($PaCO_2$ > 45 mmHg and pH <7.35)

Consider Differential Diagnosis

- Heart failure
- Pneumonia
- Pulmonary embolism

- Appropriate testing and treatment

Determine etiology:
viral testing, sputum culture, other

Adapted from: The ROME Proposal, Celli et al. (2021) Am J Respir Crit Care Med. 204(11): 1251-8.

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.

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GOLD ABE Assessment Tool

Figure 2.10

Spirometrically confirmed diagnosis → Assessment of airflow obstruction → Assessment of symptoms/risk of exacerbations

Post-bronchodilator FEV1/FVC < 0.7

GRADE	FEV1 (% predicted)
GOLD 1	≥ 80
GOLD 2	50-79
GOLD 3	30-49
GOLD 4	< 30

EXACERBATION HISTORY (PER YEAR)

	SYMPTOMS: mMRC 0-1 CAT < 10	SYMPTOMS: mMRC ≥ 2 CAT ≥ 10
≥ 2 moderate exacerbations or ≥ 1 leading to hospitalization	E	
0 or 1 moderate exacerbations (not leading to hospitalization)	A	B

GOLD 2024 | Tratamento Farmacológico inicial

Avaliação combinada dos sintomas, da espirometria e do risco de exacerbações.

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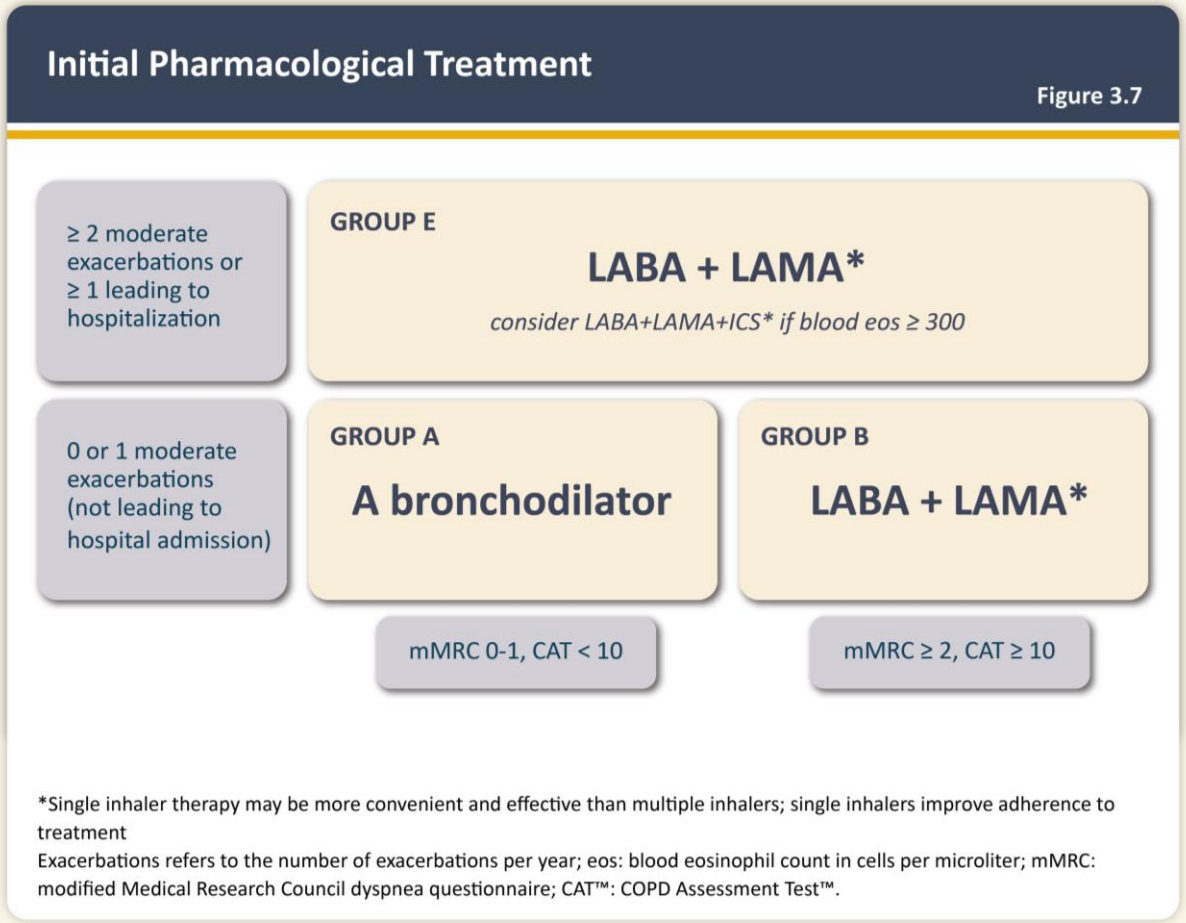

Avaliação Inicial categoriza doentes em GOLD ABE - GOLD E (exacerbadores)

Terapêutica Inalatória em único inalador mais eficaz e conveniente do que em múltiplos inaladores. Terapêutica em único inalador melhora adesão ao tratamento.

O uso de LABA+ICS na DPOC não é incentivado. Se houver indicação de ICS, então LABA+LAMA+ICS demonstrou ser superior ao LABA+ICS e, portanto é a escolha preferencial.

FF/UMEC/VI está indicado como tratamento de manutenção em doentes adultos com DPOC moderada a grave, que não estejam adequadamente tratados com uma associação ICS/LABA ou uma associação LABA/LAMA. FF/UMEC/VI não se encontra indicado para tratamento inicial da DPOC.

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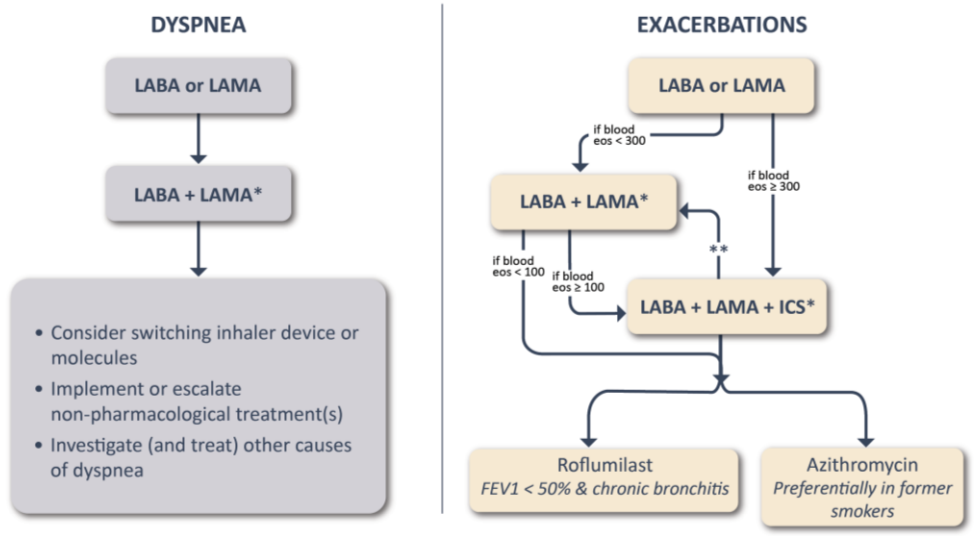
Follow-up Pharmacological Treatment

Figure 3.9

1. IF RESPONSE TO INITIAL TREATMENT IS APPROPRIATE, MAINTAIN IT.
2. IF NOT:
   - Check adherence, inhaler technique and possible interfering comorbidities
   - Consider the predominant treatable trait to target (dyspnea or exacerbations)
     - Use exacerbation pathway if both exacerbations and dyspnea need to be targeted
   - Place patient in box corresponding to current treatment & follow indications
   - Assess response, adjust and review
   - These recommendations do not depend on the ABE assessment at diagnosis



*Single inhaler therapy may be more convenient and effective than multiple inhalers; single inhalers improve adherence to treatment

**Consider de-escalation of ICS if pneumonia or other considerable side-effects. In case of blood eos ≥ 300 cells/µl de-escalation is more likely to be associated with the development of exacerbations

Exacerbations refers to the number of exacerbations per year

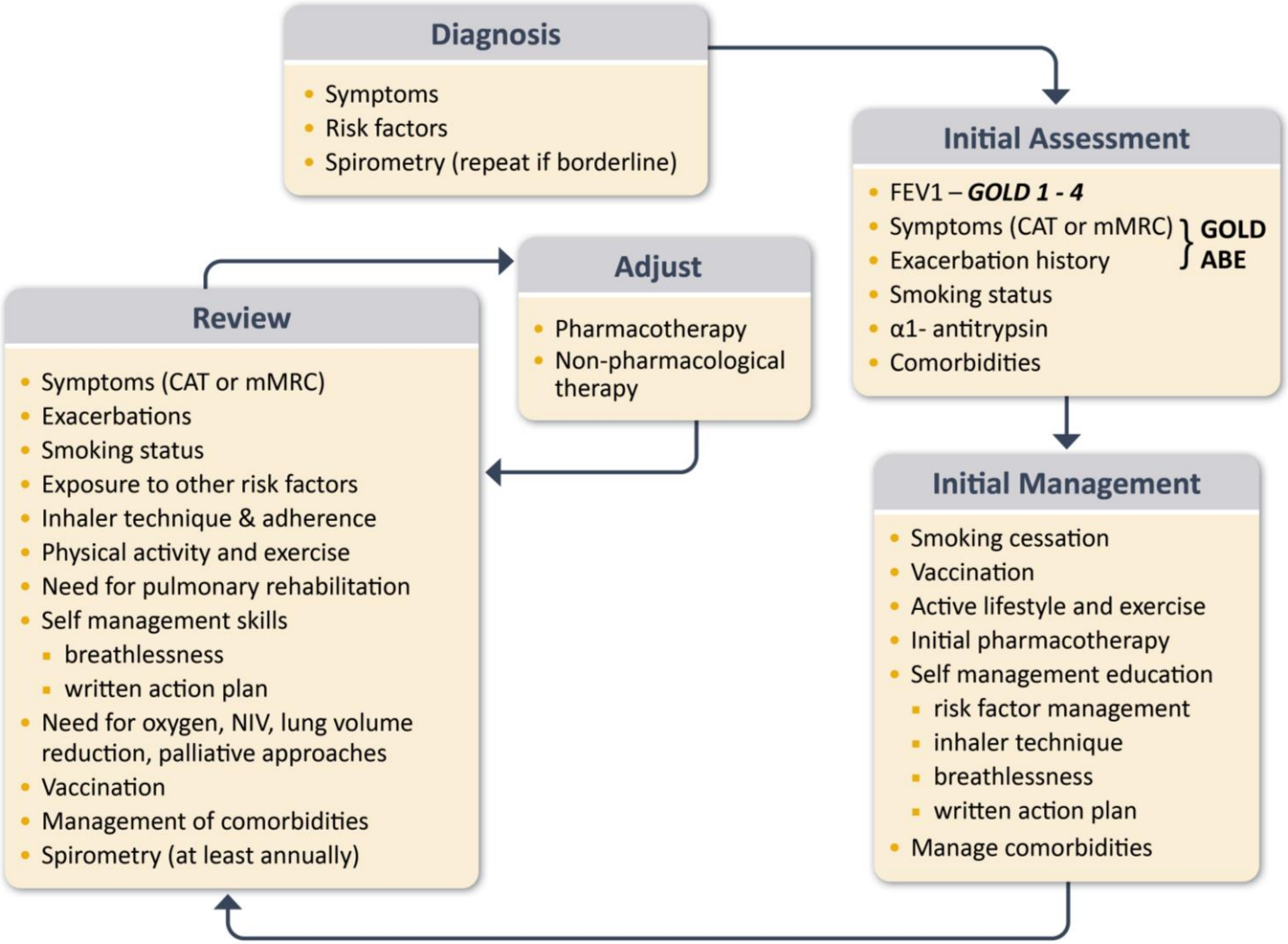
Doentes com DPOC sem caracteristicas de asma e que estejam com ICS+LABA que estejam controlados a nivel de sintomas e de exacerbações podem continuar com ICS+LABA.

No entanto, caso:

- **Exacerbações adicionais**: terapêutica deve ser escalada para LABA+LAMA+ICS se eos ≥ 100 células/µL ou trocado para LABA+LAMA se eos < 100 células /µL.
- **Sintomas major:** deve ser considerada a mudança para LABA+LAMA

Management of COPD

Figure 3.2



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Key Points for Inhalation of Drugs

Figure 3.10

- When a treatment is given by the inhaled route, the importance of education and training in inhaler device technique cannot be over-emphasized
- The choice of inhaler device has to be individually tailored and will depend on access, cost, prescriber, and most importantly, patient's ability and preference
- It is essential to provide instructions and to demonstrate the proper inhalation technique when prescribing a device, to ensure that inhaler technique is adequate and to re-check at each visit that patients continue to use their inhaler correctly
- Inhaler technique (and adherence to therapy) should be assessed before concluding that the current therapy is insufficient

Basic Principles for Appropriate Inhalation Device Choice

Figure 3.11

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- Availability of the drug in the device
- Patients' beliefs, satisfaction with current and previous devices and preferences need to be assessed and considered
- The number of different device types should be minimized for each patient. Ideally, only one device type should be used
- Device type should not be switched in the absence of clinical justification nor without proper information, education and medical follow-up
- Shared decision-making is the most appropriate strategy for inhalation device choice
- Patient's cognition, dexterity and strength must be taken into account
- Patient's ability to perform the correct specific inhalation maneuver for the device must be assessed:
  - Dry powder inhalers are appropriate only if the patient can make a forceful and deep inhalation. Check visually that the patient can inhale forcefully through the device - if there is doubt assess objectively or choose alternative device
  - Metered-dose inhalers and, to a lesser extent, soft mist inhalers require coordination between device triggering and inhalation and patients need to be able to perform a slow and deep inhalation. Check visually that the patient can inhale slowly and deeply from the device - if there is doubt consider adding a spacer/VHC or choose an alternative device
  - For patients unable to use an MDI (with or without spacer/VHC), SMI or DPI a nebulizer should be considered
- Other factors to consider include size, portability, cost
- Smart inhalers may be useful if there are issues with adherence/persistence or inhalation technique (for devices that can check it)
- Physicians should prescribe only devices they (and the other members of the caring team) know how to use

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Escolha de dispositivo inalatório

Devices differ in their size and portability. They also differ in the number of steps required to prepare them,[578] in the force needed to load or actuate them,[579] in the time taken to deliver the drug, and in the need for cleaning and maintenance, as well as in the inspiratory manoeuvre required to use them effectively.[576] Increased steps reduces the ease of use and likelihood that patients use the inhaler correctly.[580] There may also be quite significant differences in the carbon footprint of devices reflecting whether or not they contain a propellant gas, what they are made from, how they are manufactured and transported, and whether they can be reused or recycled.[581] The proper use of an inhaler has a positive environmental impact through the reduction of exacerbations and their CO_2 footprint (especially when hospitalization is required).[581] Smart inhalers incorporate sensors that detect the date and time of use, and for some inspiratory flow and inspired volume. These allow the identification of problems and feedback in real time[582] and can provide objective data on adherence and technique.[583,584]

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Escolha de dispositivo inalatório

Choice of inhaler device

If a patient is currently taking inhaled therapy and able to use their current device correctly, new therapy is best prescribed in the same device. If a new device is required, either because the patient is not using their current device correctly or the drug is not available in the same device, a systematic iterative process should be used to select a

Appropriate education must be provided by health care professionals, including physical, video- or be-based demonstration of the proper technique and live verification that the patient masters this technique. It is crucial to check regularly (ideally, at each visit) that patients continue to use their device correctly. Lack of placebo devices within clinical areas is often a limitation and barrier to providing quality inhaler technique instruction to patients. Encouraging a patient to bring their own devices to clinic is a useful alternative.

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Non-Pharmacological Management of COPD*

Figure 3.12

Patient Group	Essential	Recommended	Depending on Local Guidelines
A	Smoking cessation (can include pharmacological treatment)	Physical activity	Influenza vaccination COVID-19 vaccinations Pneumococcal vaccination Pertussis vaccination Shingles vaccination RSV vaccination
B and E	Smoking cessation (can include pharmacological treatment) Pulmonary rehabilitation	Physical activity	Influenza vaccination COVID-19 vaccinations Pneumococcal vaccination Pertussis vaccination Shingles vaccination RSV vaccination

*Can include pharmacological treatment