Gold 2019

Μαρκάτος Μιλτιάδης
Πνευμονολόγος

Δήλωση συμφερόντων

Έχω λάβει τιμητικές αμοιβές για τη παροχή συμβουλευτικών υπηρεσιών, συγγραφή ενημερωτικών εκδόσεων, παρουσίαση επιστημονικού υλικού, από τις εξής φαρμακευτικές εταιρείες τα τελευταία 2 έτη:

AstraZeneca, Chiesi, ELPEN, GSK, Menarini, Novartis, Pharmaten.

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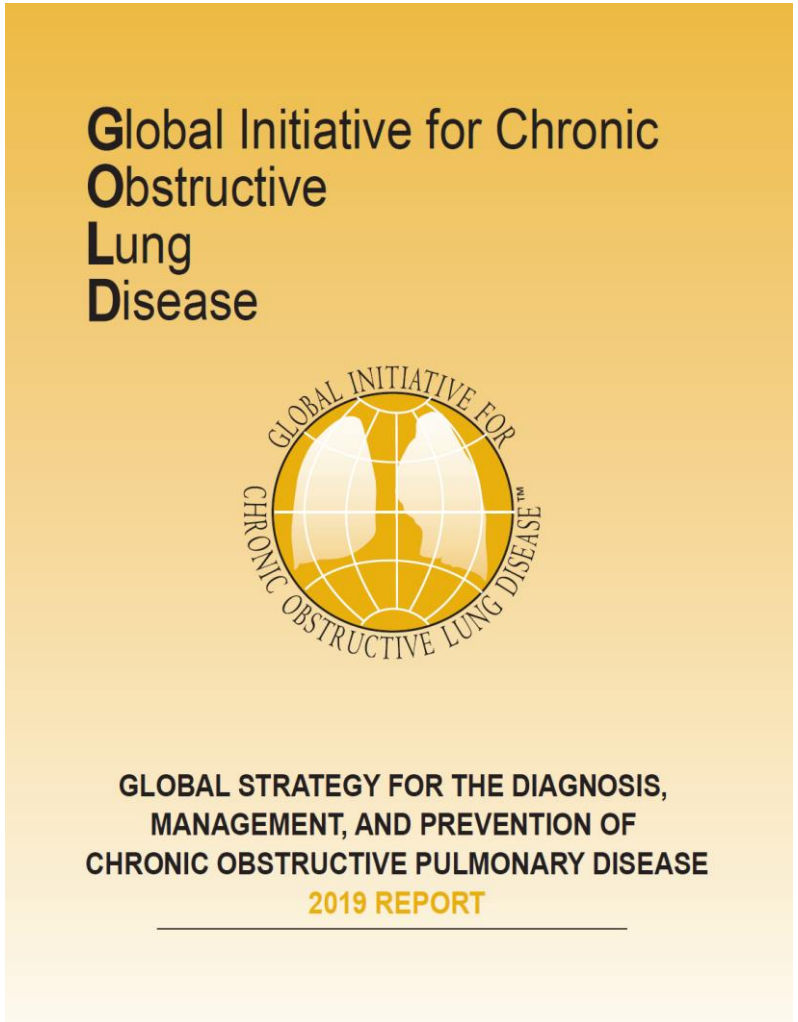

1. Definition and Overview
2. Diagnosis and Initial Assessment
3. Evidence Supporting Prevention & Maintenance Therapy
4. Management of Stable COPD
5. Management of Exacerbations
6. COPD and Comorbidities

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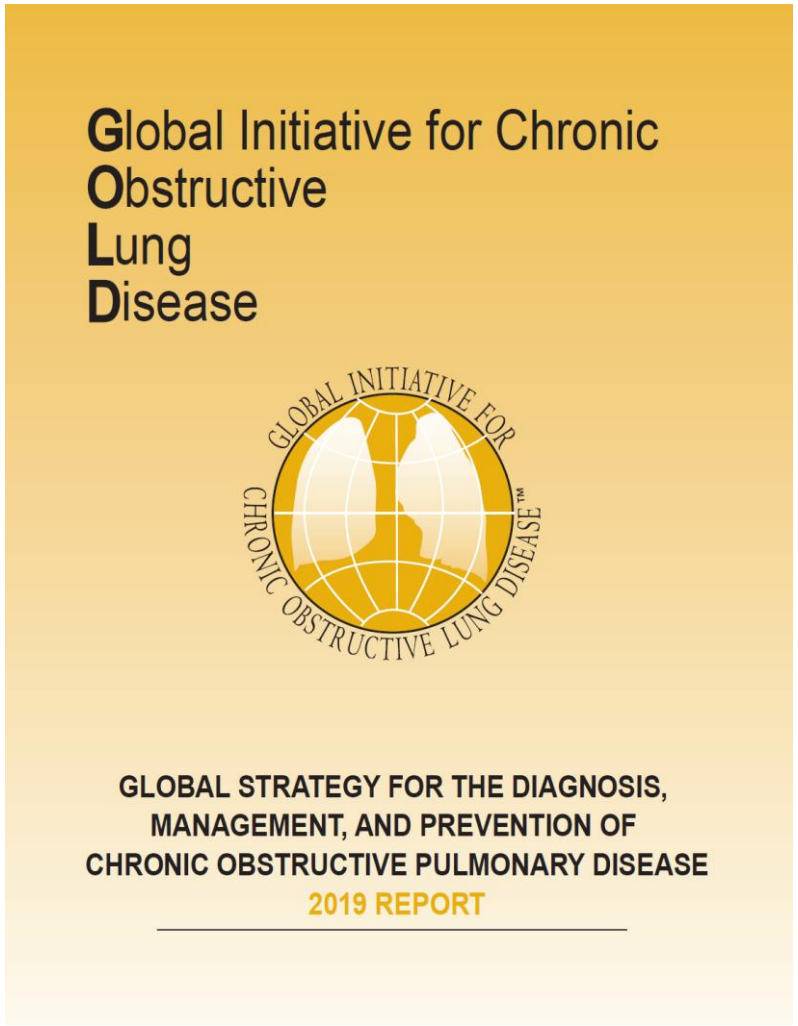

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COPD Definition

- Chronic Obstructive Pulmonary Disease (COPD) is a **common**, **preventable** and **treatable** disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases.

Etiology, pathobiology & pathology of COPD leading to airflow limitation & clinical manifestations

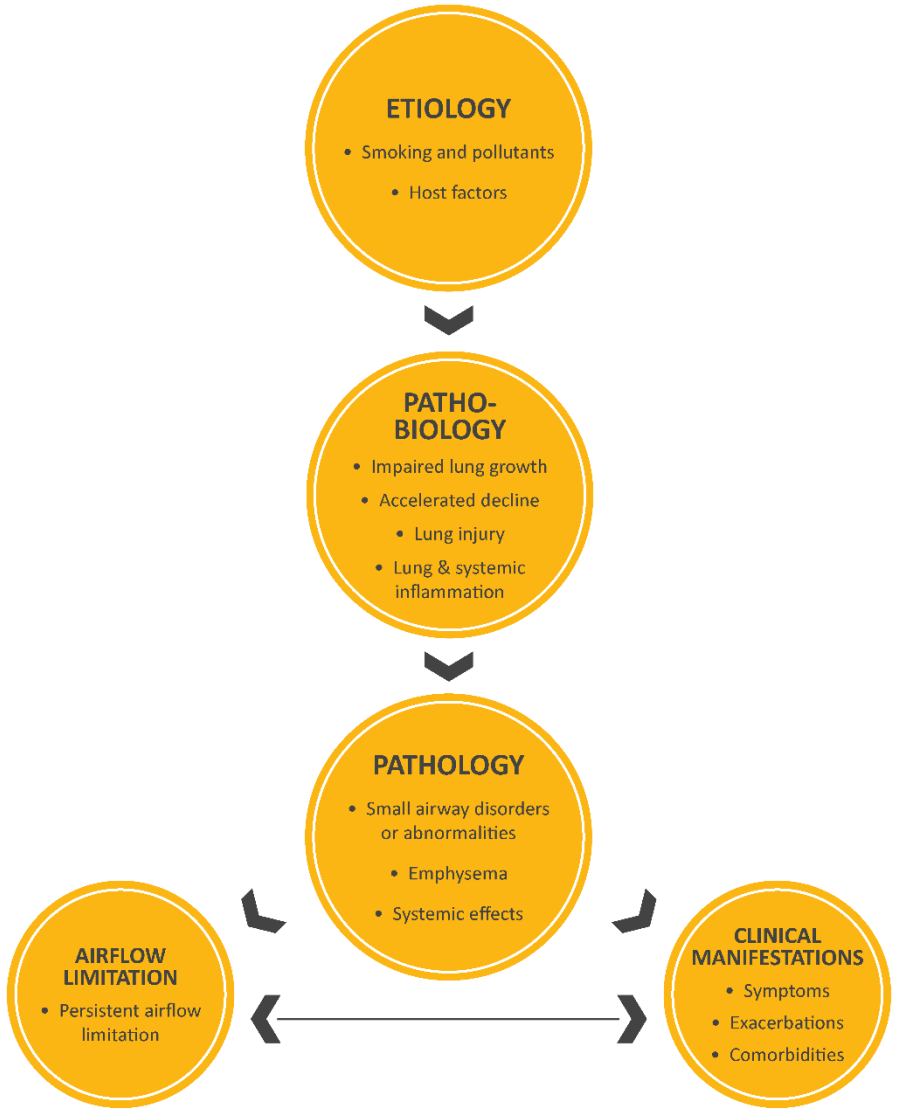

FIGURE 1.1

FEV_1 progression over time

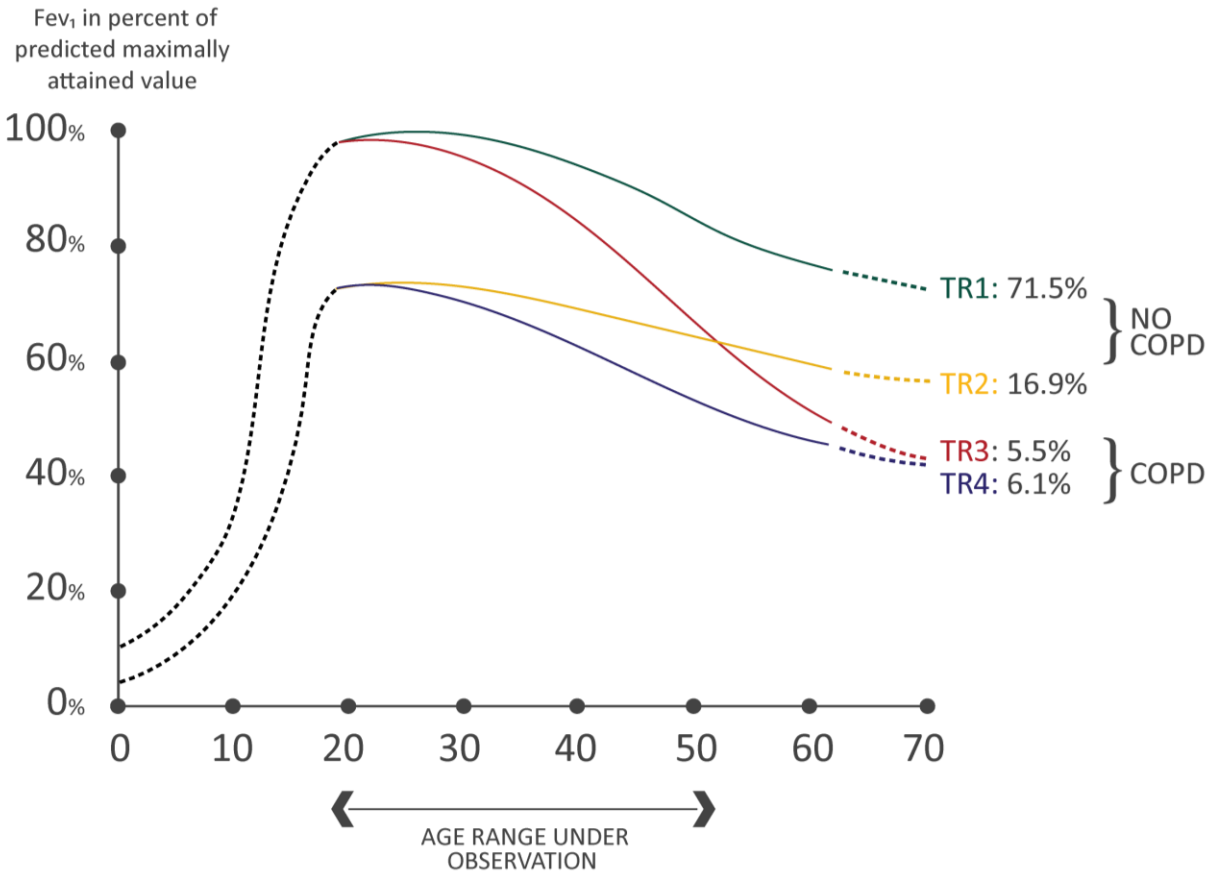

FIGURE 1.2

Prevalence

- Estimated 384 million COPD cases in 2010.
- Estimated global prevalence of 11.7% (95% CI 8.4%–15.0%).
- Three million deaths annually.
- With increasing prevalence of smoking in developing countries, and aging populations in high-income countries, the prevalence of COPD is expected to rise over the next 30 years.
- By 2030 predicted 4.5 million COPD related deaths annually.

Factors that influence disease progression

- Genetic factors
- Age and gender
- Lung growth and development
- Exposure to particles
- Socioeconomic status
- Asthma & airway hyper-reactivity
- Chronic bronchitis
- Infections

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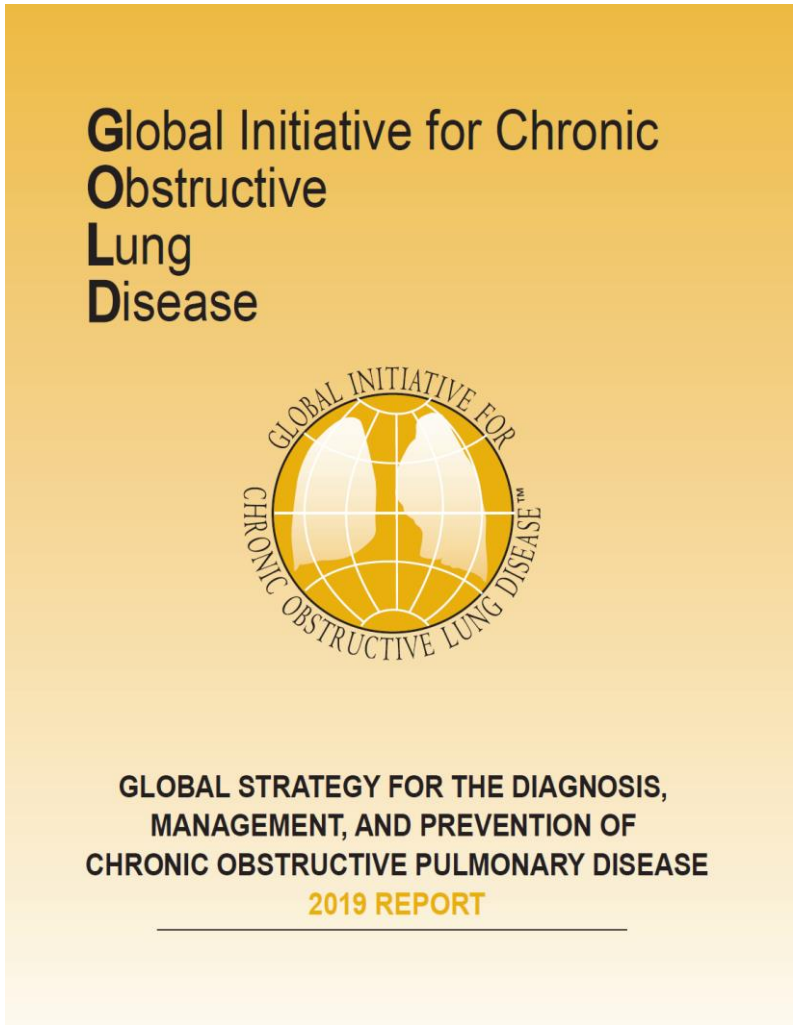

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Diagnosis and Initial Assessment

OVERALL KEY POINTS:

- COPD should be considered in any patient who has dyspnea, chronic cough or sputum production, and/or a history of exposure to risk factors for the disease.

- Spirometry is required to make the diagnosis; the presence of a post-bronchodilator FEV1/FVC < 0.70 confirms the presence of persistent airflow limitation.

- The goals of COPD assessment are to determine the level of airflow limitation, the impact of disease on the patient's health status, and the risk of future events (such as exacerbations, hospital admissions, or death), in order to guide therapy.

Diagnosis and Initial Assessment

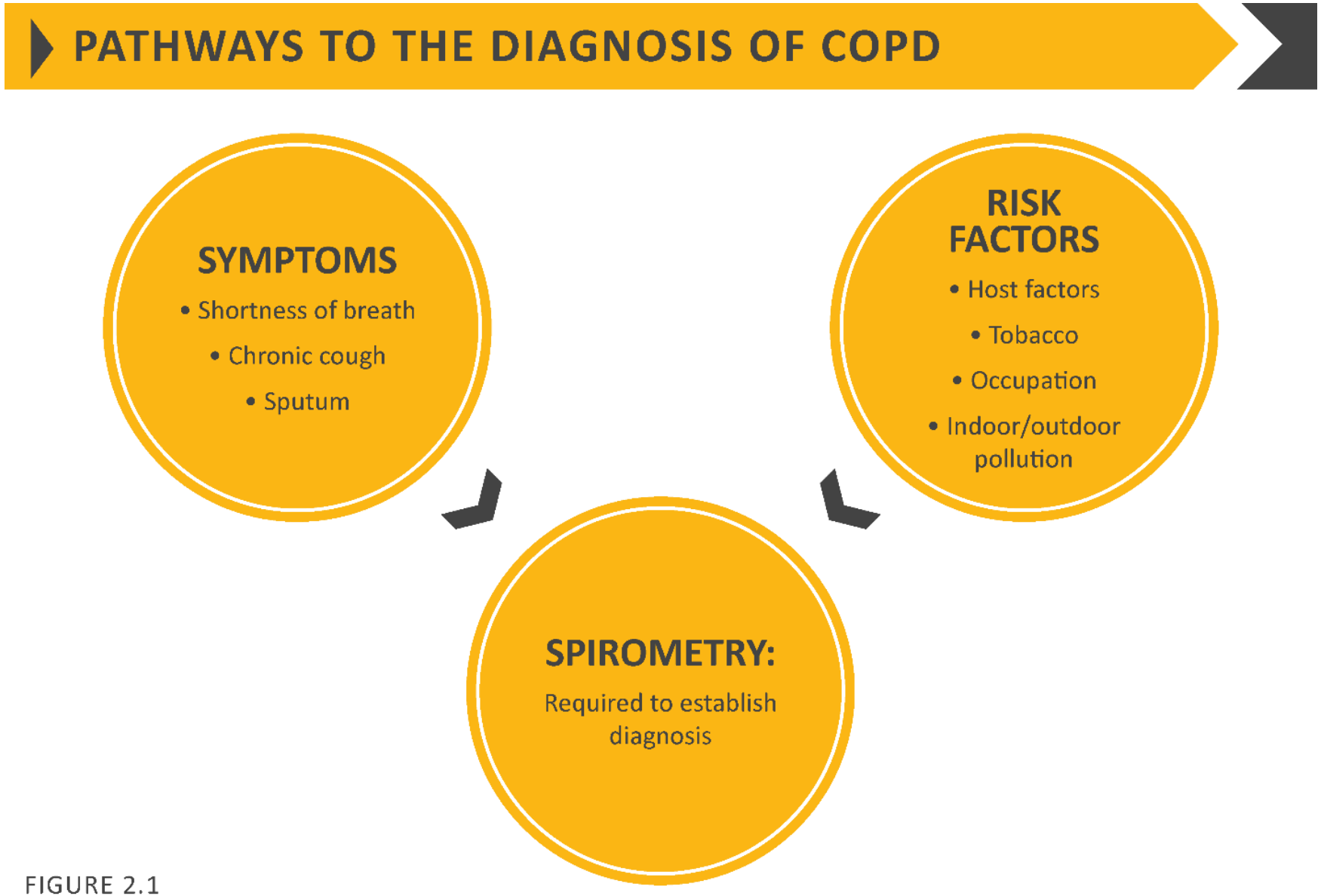

FIGURE 2.1

Post-bronchodilator FEV_1

CLASSIFICATION OF AIRFLOW LIMITATION SEVERITY IN COPD (BASED ON POST-BRONCHODILATOR FEV_1)

In patients with FEV1/FVC < 0.70:

GOLD 1:	Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2:	Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3:	Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4:	Very Severe	$FEV_1 < 30\%$ predicted

TABLE 2.4

Choice of thresholds

- COPD Assessment Test (CAT™)
- Chronic Respiratory Questionnaire (CCQ®)
- St George's Respiratory Questionnaire (SGRQ)
- Chronic Respiratory Questionnaire (CRQ)
- Modified Medical Research Council (mMRC) questionnaire

COPD Assessment Test (CAT™)

CAT™ ASSESSMENT

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.

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

TOTAL SCORE: ◯

Reference: Jones et al. ERJ 2009; 34 (3); 648-54.

FIGURE 2.3

Modified MRC dyspnea scale

MODIFIED MRC DYSPNEA SCALE[a]

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

mMRC Grade 0.	I only get breathless with strenuous exercise.	☐
mMRC Grade 1.	I get short of breath when hurrying on the level or walking up a slight hill.	☐
mMRC Grade 2.	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.	☐
mMRC Grade 3.	I stop for breath after walking about 100 meters or after a few minutes on the level.	☐
mMRC Grade 4.	I am too breathless to leave the house or I am breathless when dressing or undressing.	☐

[a] Fletcher CM. BMJ 1960; 2: 1662.

Assessment of Exacerbation Risk

- COPD exacerbations are defined as an acute worsening of respiratory symptoms that result in additional therapy.

- Classified as:
  - Mild (treated with SABDs only)
  - Moderate (treated with SABDs plus antibiotics and/or oral corticosteroids) or
  - Severe (patient requires hospitalization or visits the emergency room). Severe exacerbations may also be associated with acute respiratory failure.

- Blood eosinophil count may also predict exacerbation rates (in patients treated with LABA without ICS).

ABCD assessment tool

THE REFINED ABCD ASSESSMENT TOOL

Spirometrically Confirmed Diagnosis

Assessment of airflow limitation

Assessment of symptoms/risk of exacerbations

Post-bronchodilator $FEV_1/FVC < 0.7$

Grade	FEV_1 (% predicted)
GOLD 1	≥ 80
GOLD 2	50-79
GOLD 3	30-49
GOLD 4	< 30

Moderate or Severe Exacerbation History

≥2 or ≥ 1 leading to hospital admission

0 or 1 (not leading to hospital admission)

C	D
A	B

mMRC 0-1 CAT < 10 | mMRC ≥ 2 CAT ≥ 10

Symptoms

ABCD Assessment Tool

Example

- Consider two patients:
  - Both patients with FEV_1 < 30% of predicted
  - Both with CAT scores of 18
  - But, one with **0 exacerbations** in the past year and the other with **3 exacerbations** in the past year.

- Both would have been labelled **GOLD D** in the prior classification scheme.
- With the new proposed scheme, the subject with 3 exacerbations in the past year would be labelled **GOLD grade 4, group D**.
- The other patient, who has had no exacerbations, would be classified as **GOLD grade 4, group B**.

ROLE OF SPIROMETRY

- **Diagnosis**
- **Assessment of severity of airflow obstruction (for prognosis)**
- **Follow-up assessment**
  - » Therapeutic decisions.
    - – Pharmacological in selected circumstances (e.g., discrepancy between spirometry and level of symptoms).
    - – Consider alternative diagnoses when symptoms are disproportionate to degree of airflow obstruction.
    - – Non-pharmacological (e.g., interventional procedures).
  - » Identification of rapid decline.

TABLE 2.6

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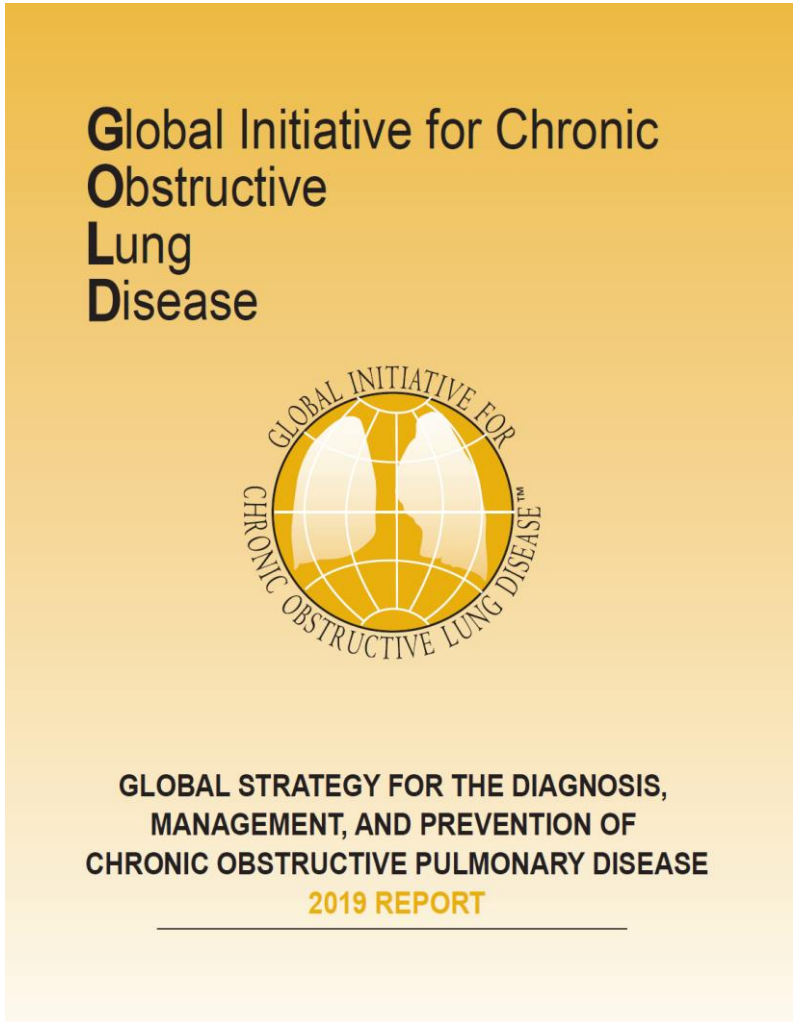

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Management of Stable COPD

GOALS FOR TREATMENT OF STABLE COPD

- **Relieve Symptoms**
- **Improve Exercise Tolerance**
- **Improve Health Status**

→ **REDUCE SYMPTOMS**

and

- **Prevent Disease Progression**
- **Prevent and Treat Exacerbations**
- **Reduce Mortality**

→ **REDUCE RISK**

TABLE 4.1

Management of Stable COPD

IDENTIFY & REDUCE RISK FACTOR EXPOSURE

- Smoking cessation interventions should be actively pursued in all COPD patients **(Evidence A)**.
- Efficient ventilation, non-polluting cooking stoves and similar interventions should be recommended **(Evidence B)**.
- Clinicians should advise patients to avoid continued exposures to potential irritants, if possible **(Evidence D)**.

TABLE 4.3

Treatment of stable COPD

INITIAL PHARMACOLOGICAL TREATMENT

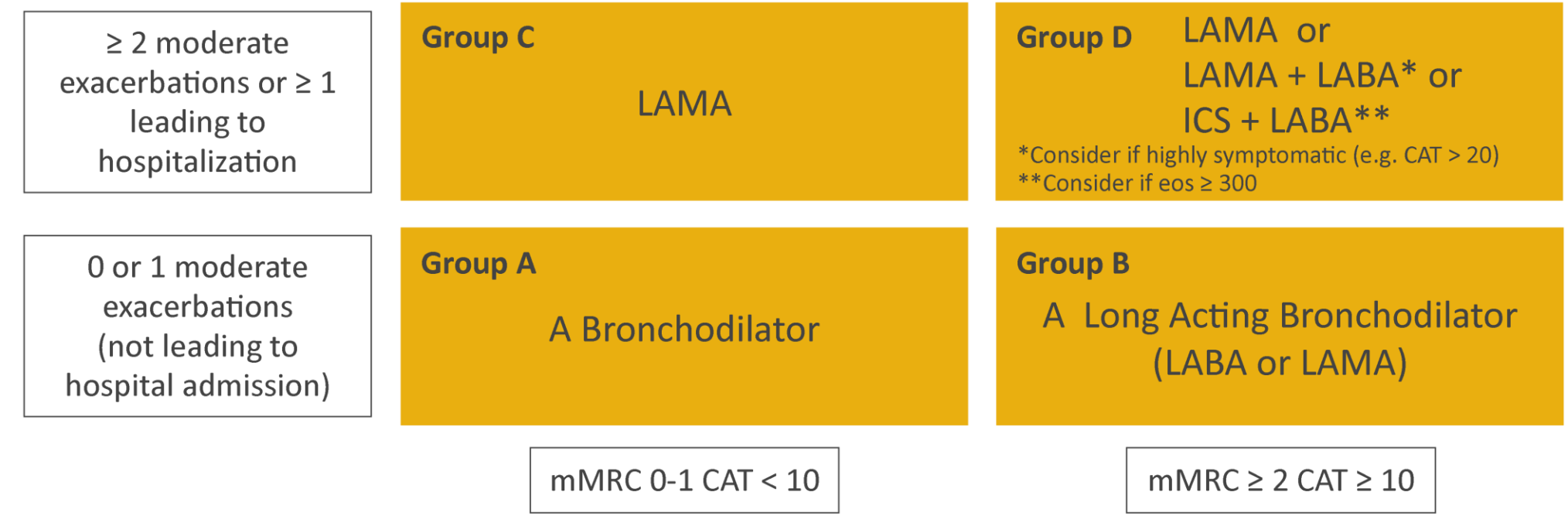


FIGURE 4.1

Definition of abbreviations: eos: blood eosinophil count in cells per microliter; mMRC: modified Medical Research Council dyspnea questionnaire; CAT™: COPD Assessment Test™.

Group A

INITIAL PHARMACOLOGICAL TREATMENT

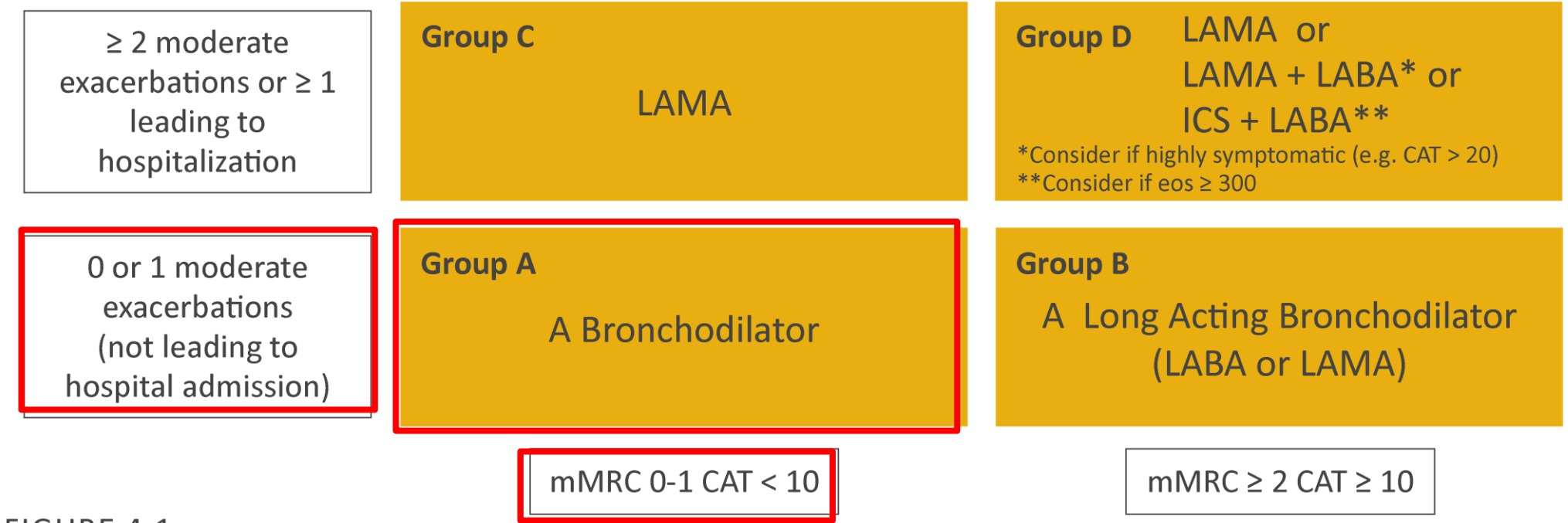


FIGURE 4.1

Group B

INITIAL PHARMACOLOGICAL TREATMENT

≥ 2 moderate exacerbations or ≥ 1 leading to hospitalization	**Group C** LAMA	**Group D** LAMA or LAMA + LABA* or ICS + LABA** *Consider if highly symptomatic (e.g. CAT > 20) **Consider if eos ≥ 300
0 or 1 moderate exacerbations (not leading to hospital admission)	**Group A** A Bronchodilator	**Group B** A Long Acting Bronchodilator (LABA or LAMA)
	mMRC 0-1 CAT < 10	mMRC ≥ 2 CAT ≥ 10

FIGURE 4.1

Group C

INITIAL PHARMACOLOGICAL TREATMENT

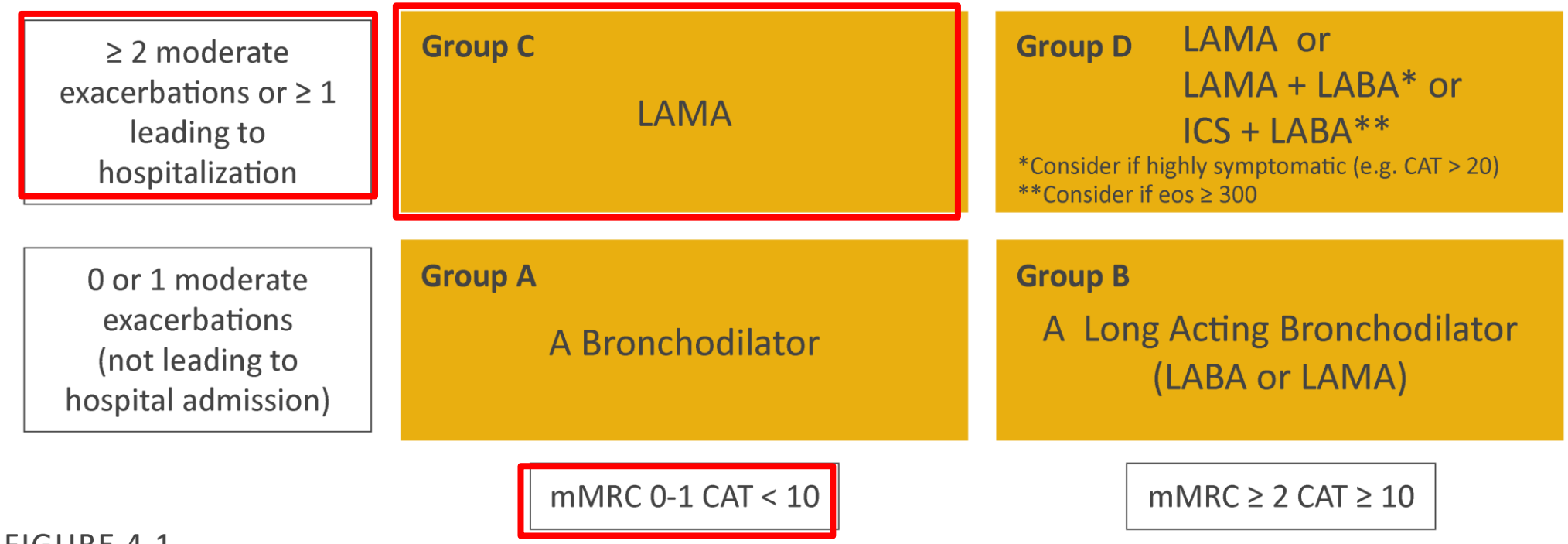
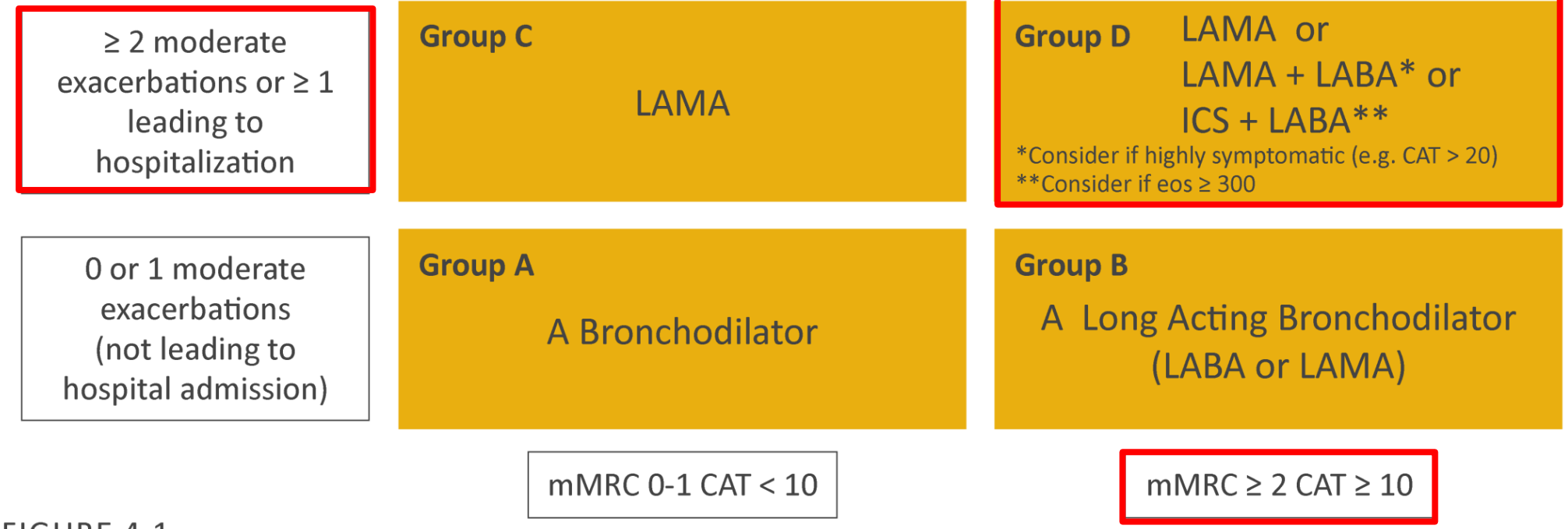


FIGURE 4.1

Group D

INITIAL PHARMACOLOGICAL TREATMENT



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Treatment of stable COPD

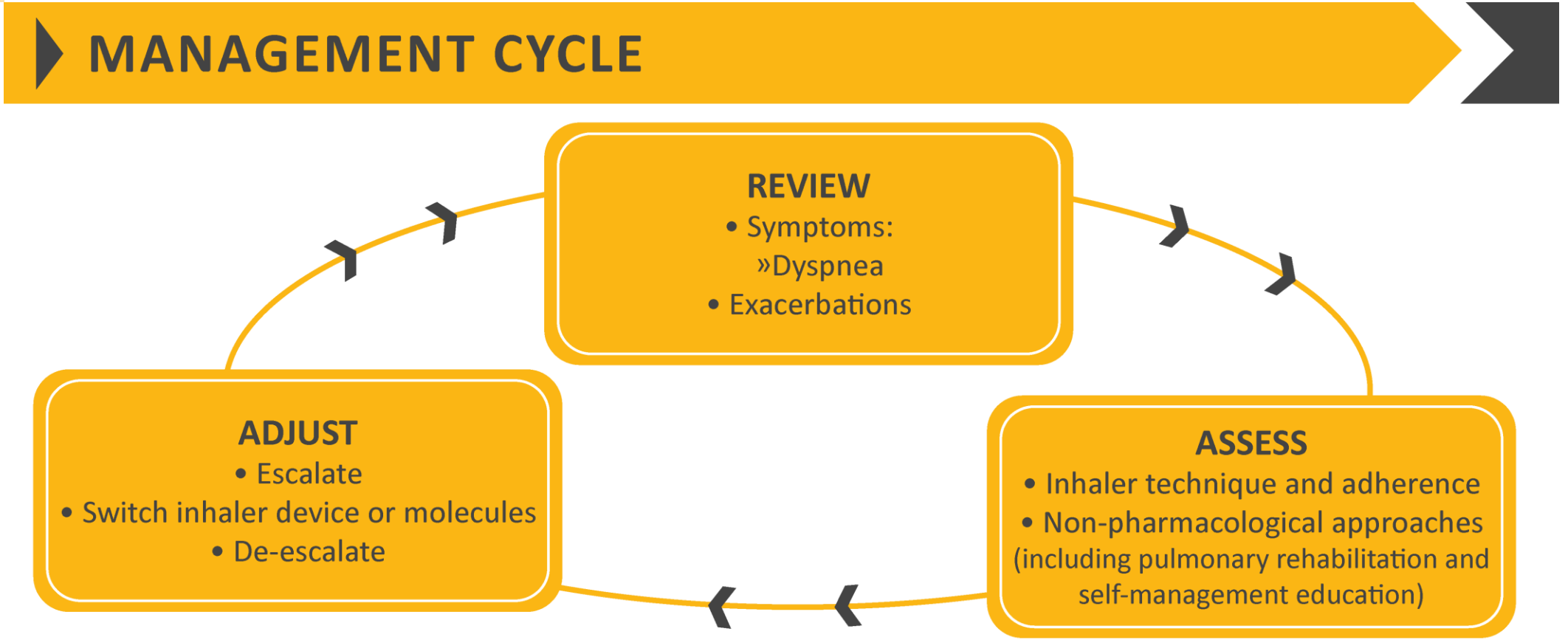


FIGURE 4.2

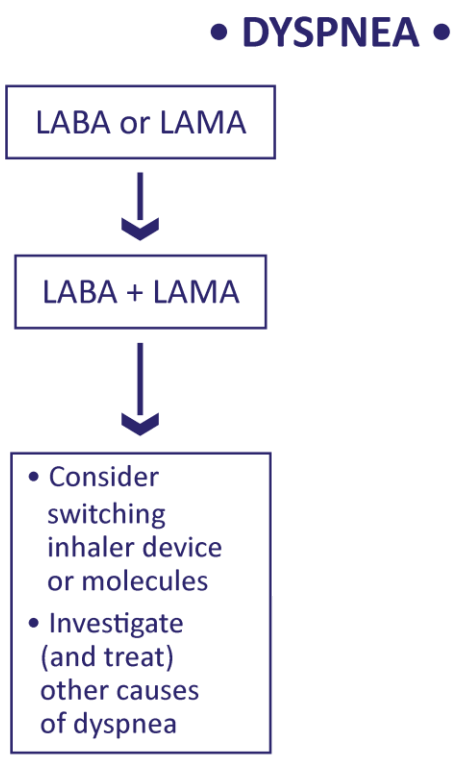
Treatment of stable COPD

Follow-up pharmacological treatment

- A separate algorithm is provided for **FOLLOW-UP** treatment, where the management is still based on symptoms and exacerbations, but the recommendations do not depend on the patient's GOLD group at diagnosis.
- The response to treatment escalation should always be reviewed, and de-escalation should be considered if there is a lack of clinical benefit and/or side effects occur.
- De-escalation may also be considered in COPD patients receiving treatment who return with resolution of some symptoms that subsequently may require less therapy.
- Patients, in whom treatment modification is considered, in particular de-escalation, should be undertaken under close medical supervision.

FOLLOW-UP PHARMACOLOGICAL TREATMENT

1. **IF RESPONSE TO INITIAL TREATMENT IS APPROPRIATE, MAINTAIN IT.**
2. **IF NOT:**
   - ✓ 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 ABCD assessment at diagnosis



eos = blood eosinophil count (cells/µL)
** Consider if eos ≥ 300 or eos ≥ 100 AND ≥2 moderate exacerbations / 1 hospitalization*
*** Consider de-escalation of ICS or switch if pneumonia, inappropriate original indication or lack of response to ICS*

FIGURE 4.3

FOLLOW-UP PHARMACOLOGICAL TREATMENT

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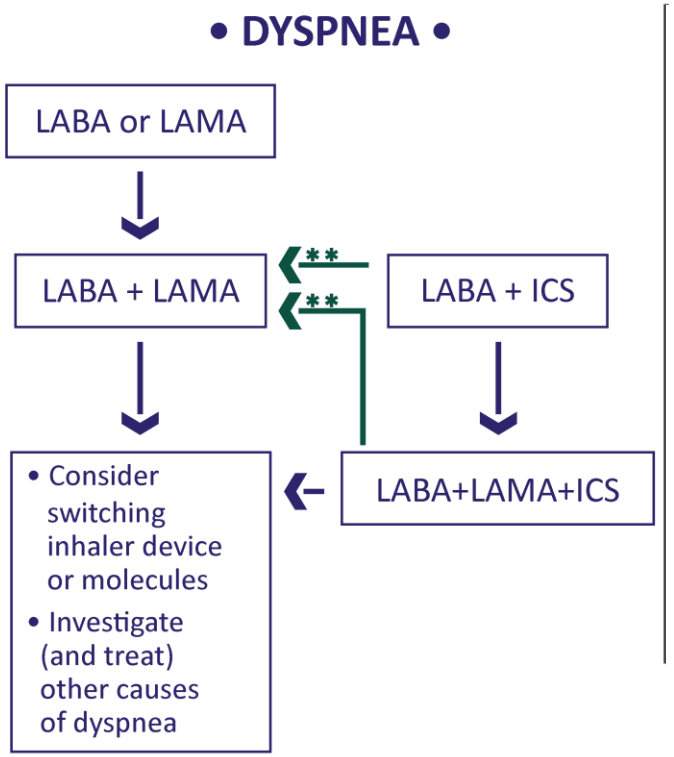

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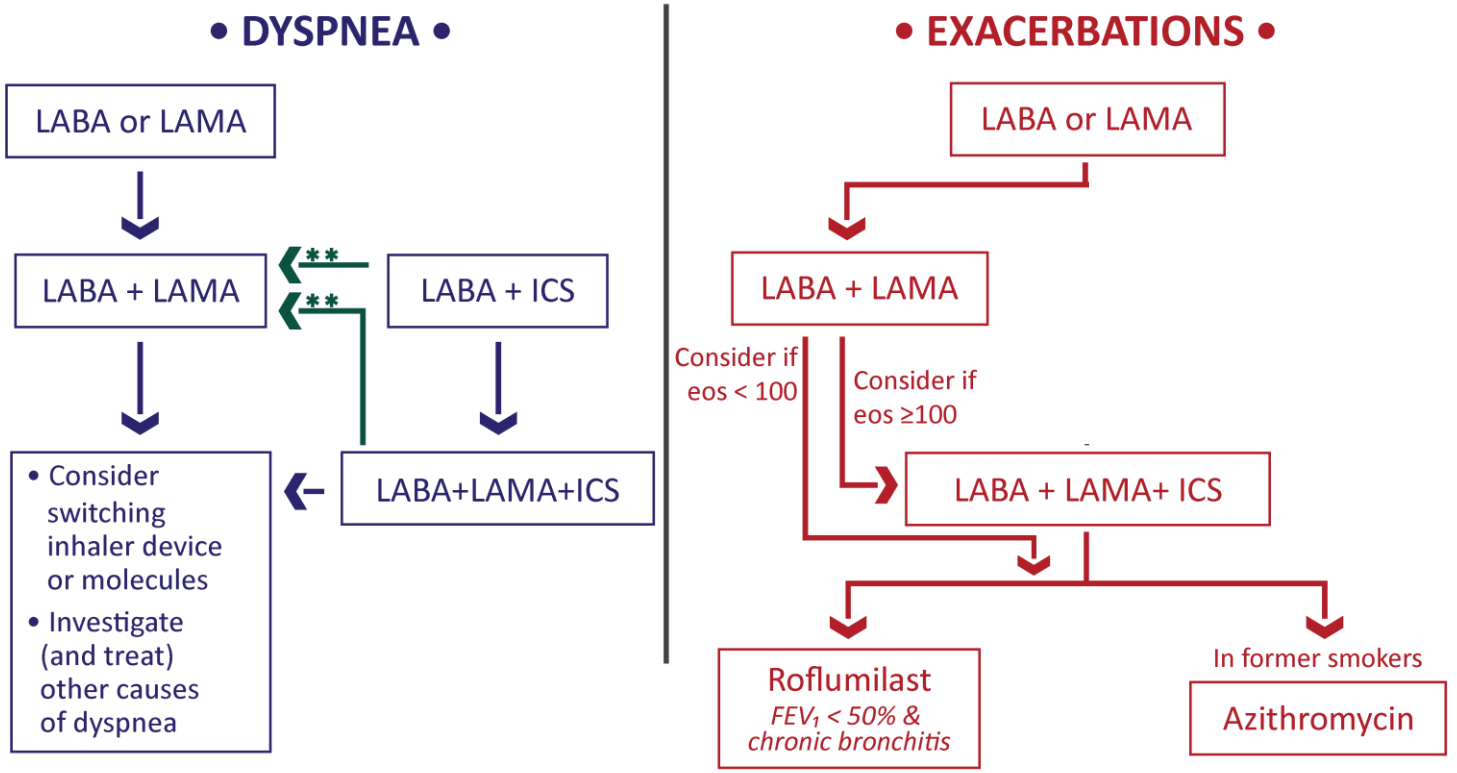

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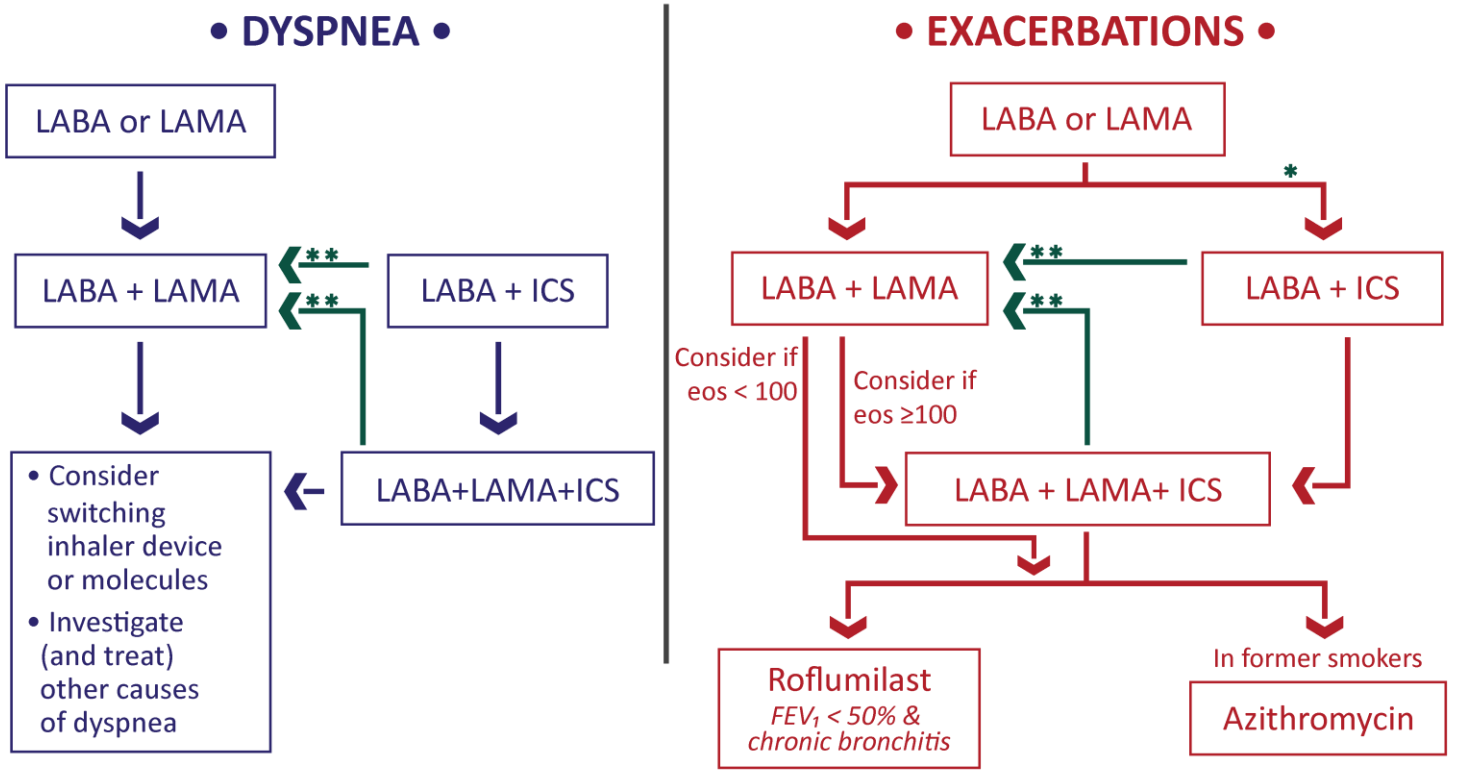

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FIGURE 4.3

Non-Pharmacological Treatment

- Education and self-management
- Physical activity
- Pulmonary rehabilitation programs
- Exercise training
- End of life and palliative care
- Nutritional support
- Vaccination
- Oxygen therapy

Non-pharmacological treatment

NON-PHARMACOLOGIC MANAGEMENT OF COPD

PATIENT GROUP	ESSENTIAL	RECOMMENDED	DEPENDING ON LOCAL GUIDELINES
A	Smoking Cessation (can include pharmacologic treatment)	Physical Activity	Flu Vaccination Pneumococcal Vaccination
B-D	Smoking Cessation (can include pharmacologic treatment) Pulmonary Rehabilitation	Physical Activity	Flu Vaccination Pneumococcal Vaccination

TABLE 4.8

Non-pharmacological treatment

PRESCRIPTION OF SUPPLEMENTAL OXYGEN TO COPD PATIENTS

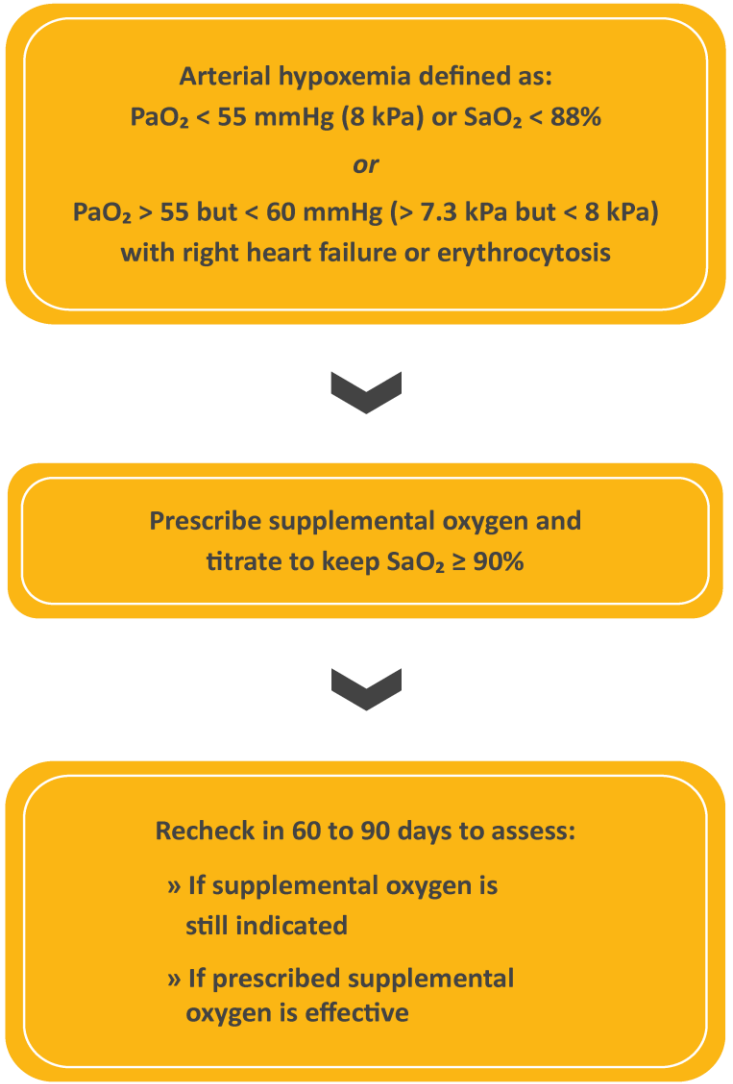
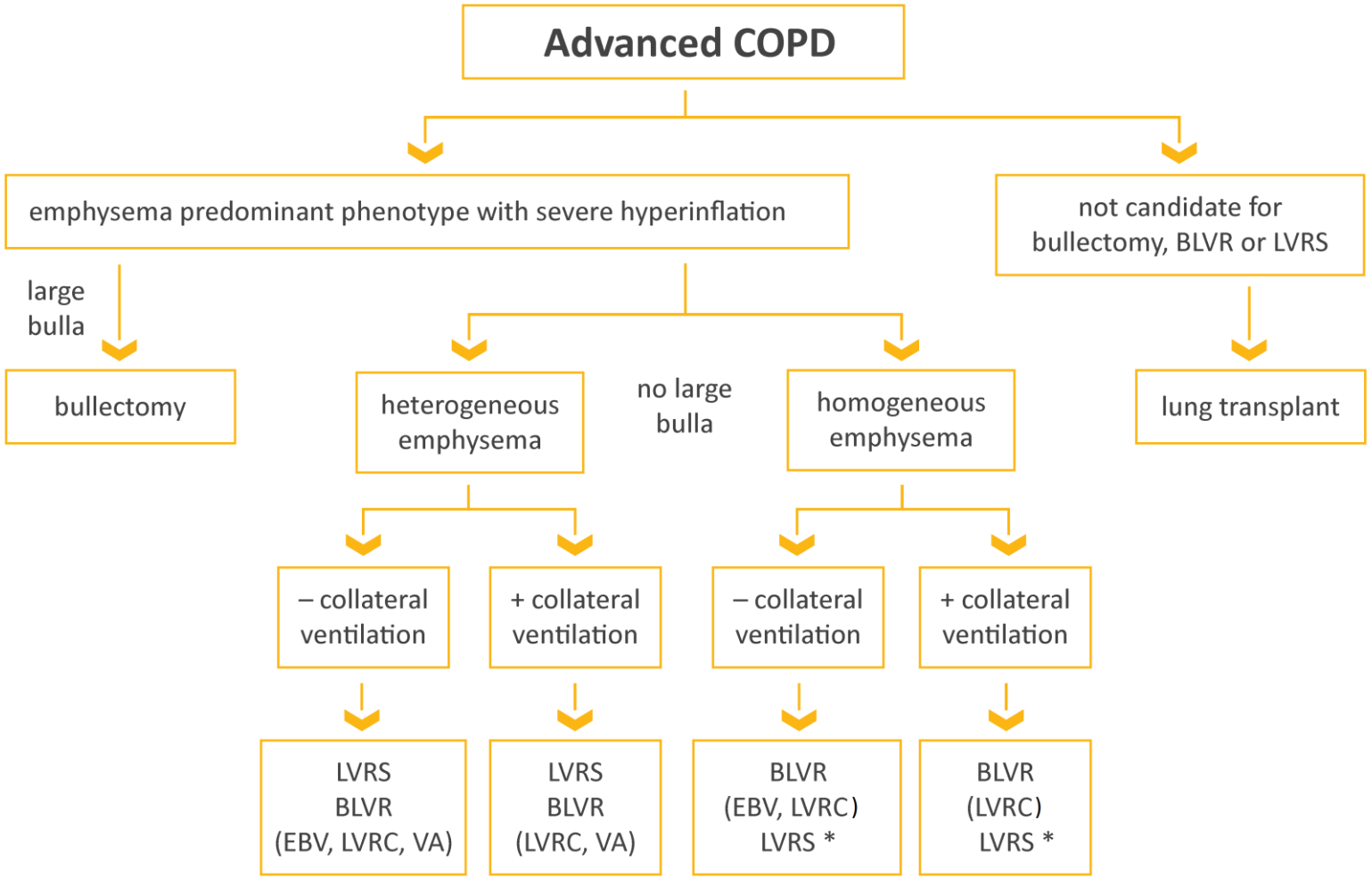


FIGURE 4.4

INTERVENTIONAL BRONCHOSCOPIC AND SURGICAL TREATMENTS FOR COPD

Overview of various therapies used to treat patients with COPD and emphysema worldwide. Note that all therapies are not approved for clinical care in all countries. Additionally, the effects of BLVR on survival or other long term outcomes or comparison to LVRS are unknown.



Definition of Abbreviations: BLVR, Bronchoscopic Lung Volume Reduction, EBV, endobronchial Valve, LVRS, Lung volume reduction surgery, LVRC, Lung volume reduction coil, VA, Vapor ablation

*at some but not all centers

Monitoring and Follow-up

Monitoring disease progression and development of complications and/or comorbidities

- ***Measurements.*** Decline in FEV_1 can be tracked by spirometry performed at least once a year.
- ***Symptoms.*** At each visit, information on symptoms since the last visit should be collected, including cough and sputum, breathlessness, fatigue, activity limitation, and sleep disturbances.
- ***Exacerbations.*** The frequency, severity, type and likely causes of all exacerbations should be monitored.
- ***Imaging.*** If there is a clear worsening of symptoms, imaging may be indicated.
- ***Smoking status.*** At each visit, the current smoking status and smoke exposure should be determined followed

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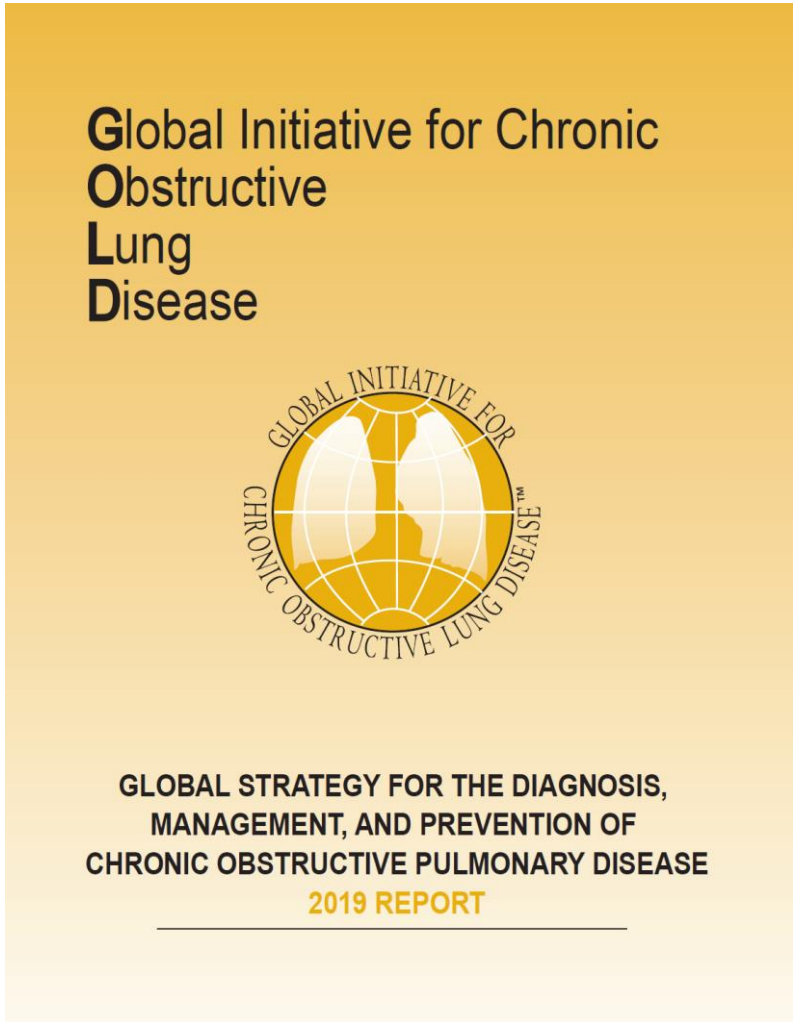

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Management of Exacerbations

MANAGEMENT OF SEVERE BUT NOT LIFE-THREATENING EXACERBATIONS*

- Assess severity of symptoms, blood gases, chest radiograph.
- Administer supplemental oxygen therapy, obtain serial arterial blood gas, venous blood gas and pulse oximetry measurements.
- Bronchodilators:
  - » Increase doses and/or frequency of short-acting bronchodilators.
  - » Combine short-acting beta 2-agonists and anticholinergics.
  - » Consider use of long-active bronchodilators when patient becomes stable.
  - » Use spacers or air-driven nebulizers when appropriate.
- Consider oral corticosteroids.
- Consider antibiotics (oral) when signs of bacterial infection are present.
- Consider noninvasive mechanical ventilation (NIV).
- At all times:
  - » Monitor fluid balance.
  - » Consider subcutaneous heparin or low molecular weight heparin for thromboembolism prophylaxis.
  - » Identify and treat associated conditions (e.g., heart failure, arrhythmias, pulmonary embolism etc.).

Management of Exacerbations

INDICATIONS FOR RESPIRATORY OR MEDICAL INTENSIVE CARE UNIT ADMISSION*

- Severe dyspnea that responds inadequately to initial emergency therapy.
- Changes in mental status (confusion, lethargy, coma).
- Persistent or worsening hypoxemia ($PaO_2 < 5.3$ kPa or 40mmHg) and/or severe/worsening respiratory acidosis (pH < 7.25) despite supplemental oxygen and noninvasive ventilation.
- Need for invasive mechanical ventilation.
- Hemodynamic instability - need for vasopressors.

*Local resources need to be considered.

TABLE 5.4

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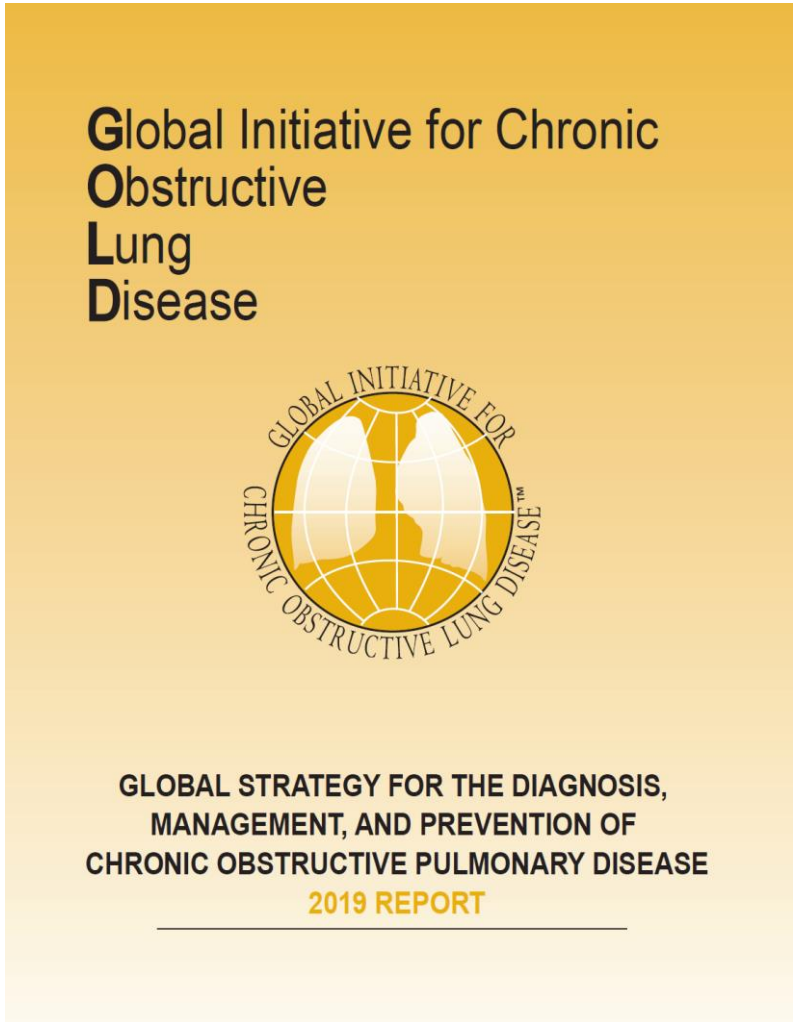

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COPD and Comorbidities

OVERALL KEY POINTS (1 of 2):

- COPD often coexists with other diseases (comorbidities) that may have a significant impact on disease course.
- In general, the presence of comorbidities should not alter COPD treatment and comorbidities should be treated per usual standards regardless of the presence of COPD.
- Lung cancer is frequently seen in patients with COPD and is a main cause of death.
- Cardiovascular diseases are common and important comorbidities in COPD.

COPD and Comorbidities

OVERALL KEY POINTS (2 of 2):

- Osteoporosis and depression/anxiety are frequent, important comorbidities in COPD, are often under-diagnosed, and are associated with poor health status and prognosis.
- Gastroesophageal reflux (GERD) is associated with an increased risk of exacerbations and poorer health status.
- When COPD is part of a multimorbidity care plan, attention should be directed to ensure simplicity of treatment and to minimize polypharmacy.

COPD and Comorbidities

Some common comorbidities occurring in patients with COPD with stable disease:

- Cardiovascular disease (CVD)
- Heart failure
- Ischaemic heart disease (IHD)
- Arrhythmias
- Peripheral vascular disease
- Hypertension
- Osteoporosis
- Anxiety and depression
- COPD and lung cancer
- Metabolic syndrome and diabetes
- Gastroesophageal reflux (GERD)
- Bronchiectasis
- Obstructive sleep apnea

Σας ευχαριστώ!

Gold 2019

Μαρκάτος Μιλτιάδης

Πνευμονολόγος

Back up slides

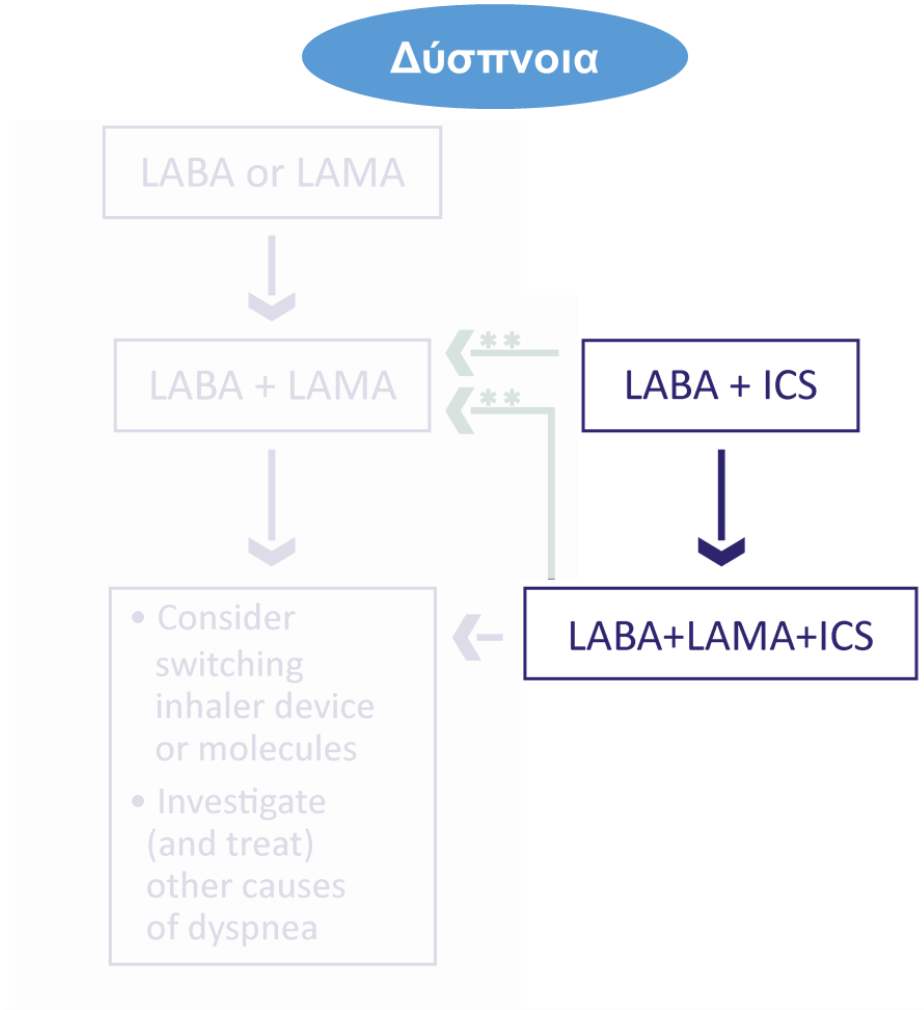
Αναθεώρηση φαρμακευτικής αγωγής συντήρησης

Εμμένοντα συμπτώματα

Επιδείνωση αναπνευστικής λειτουργίας

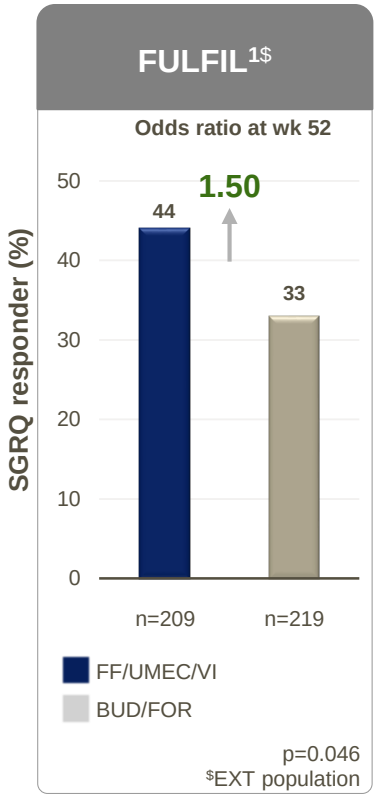
Μέτρια παρόξυνση/εις

Νοσηλεία



Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease. 2019 report. COPD foundation Web site. https://goldcopd.org/gold-reports/ Accessed November 2018

Τριπλή θεραπεία: ποσοστό ανταπόκρισης στην ποιότητα ζωής (SGRQ responder)*



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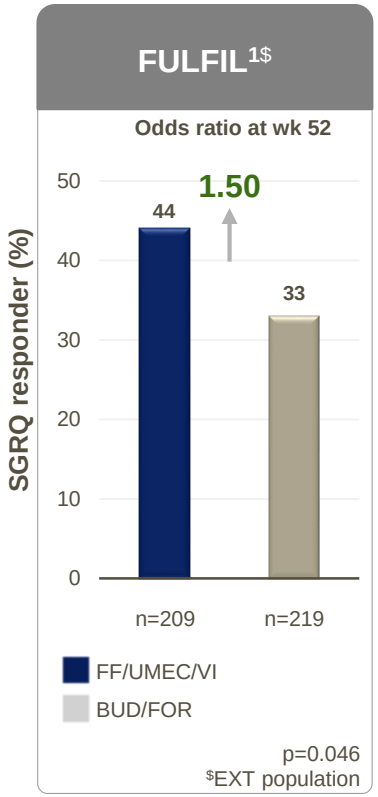

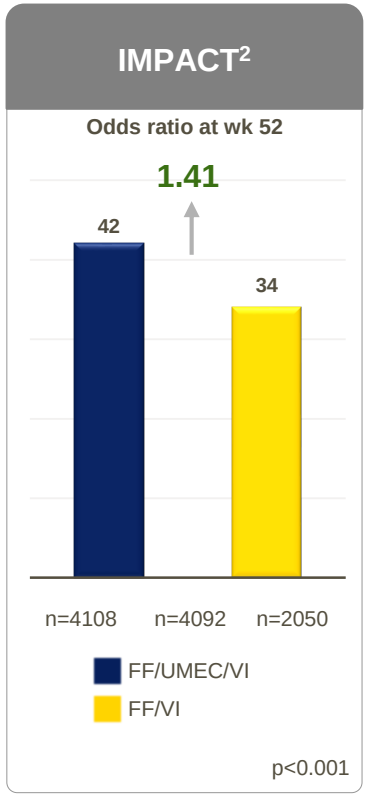

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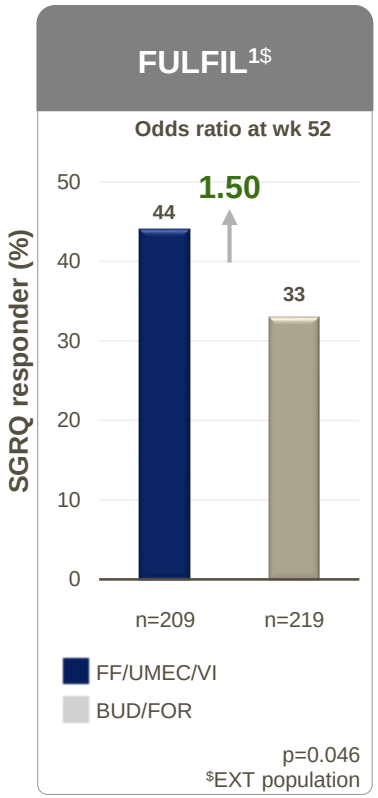

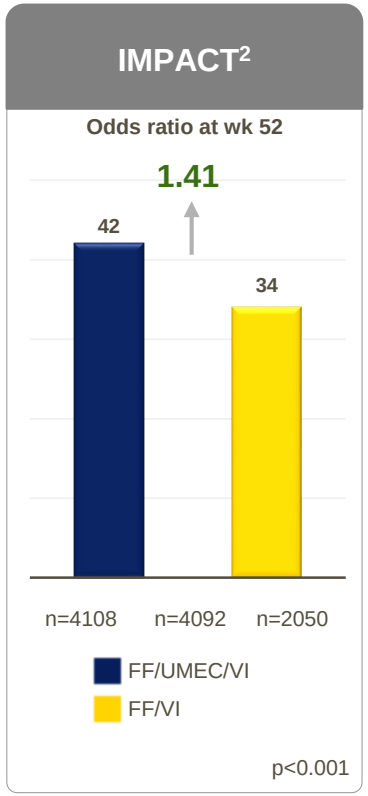

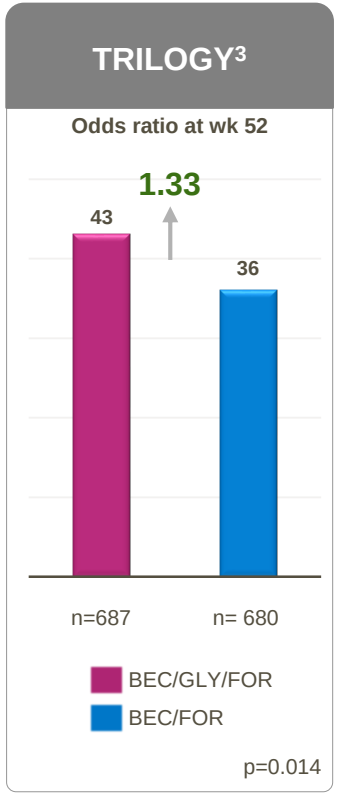

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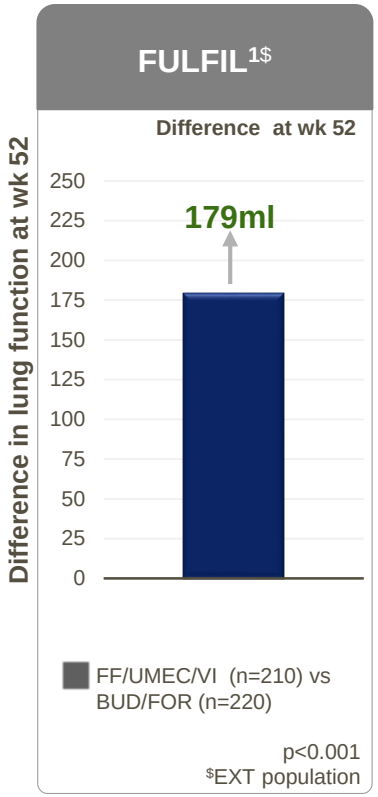

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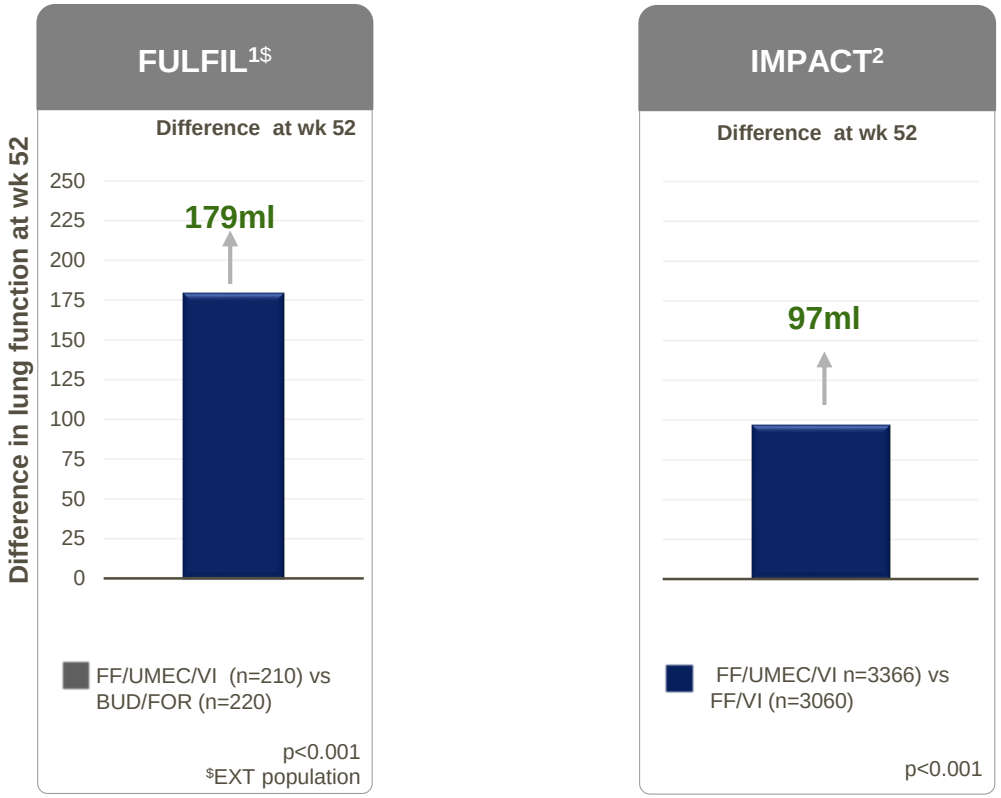

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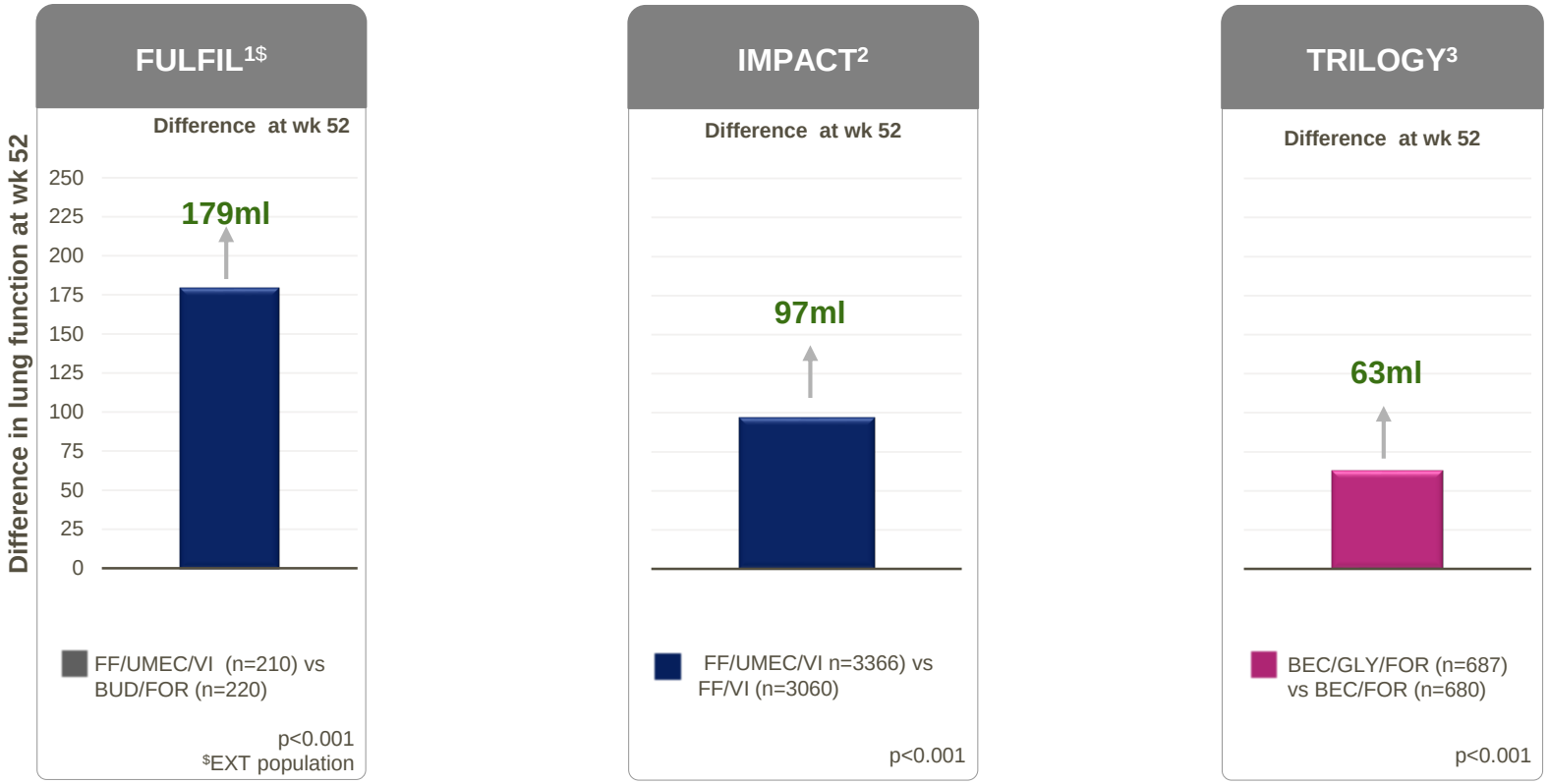

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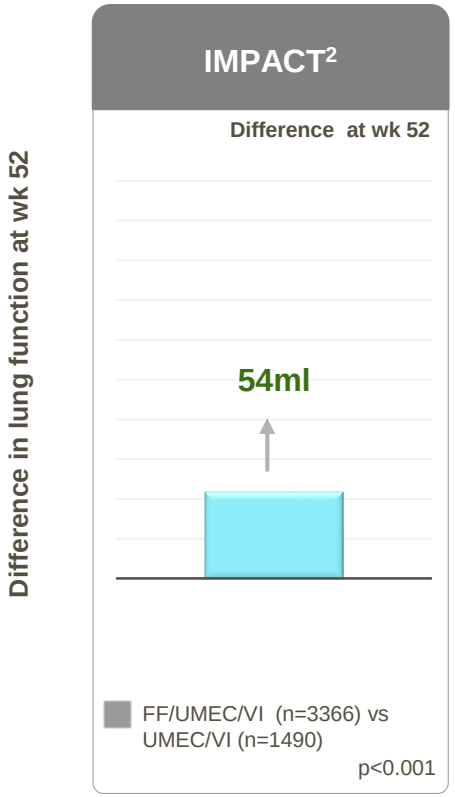

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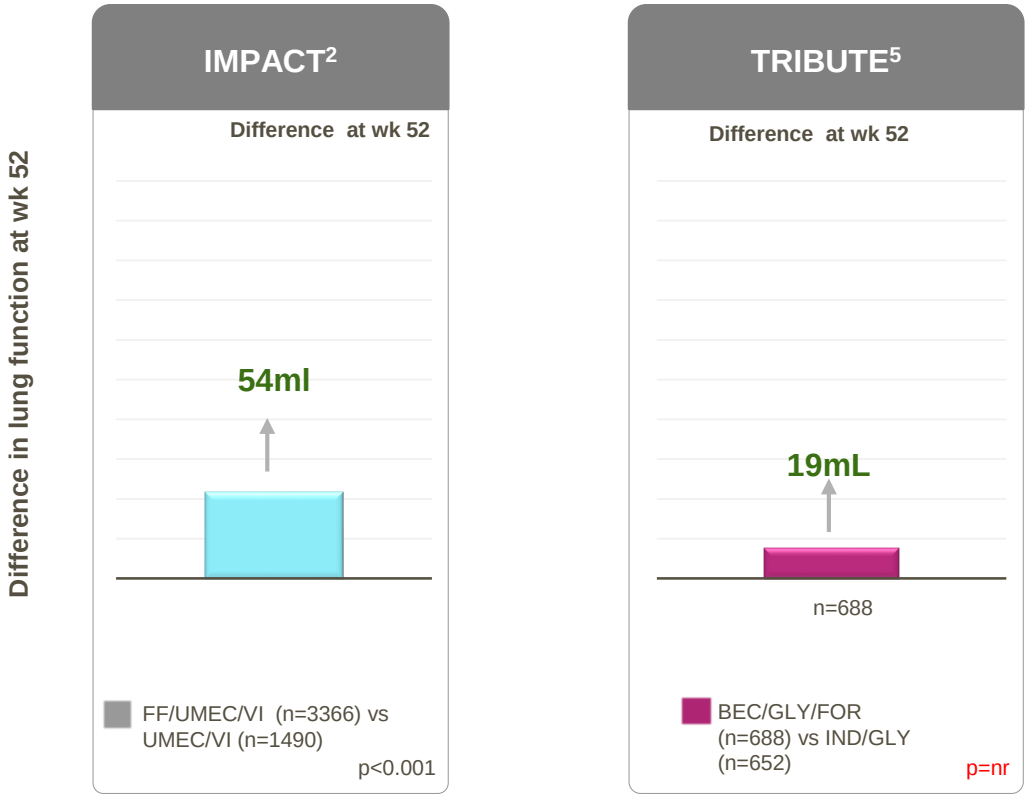

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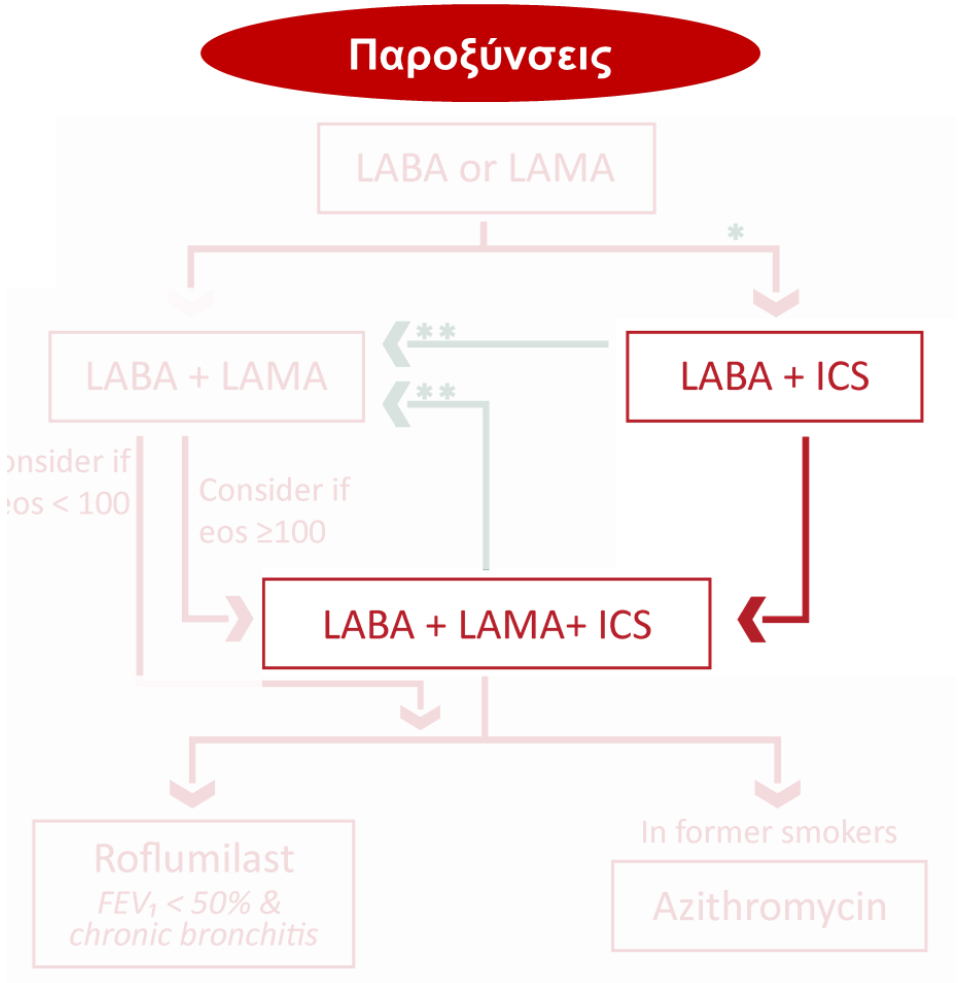

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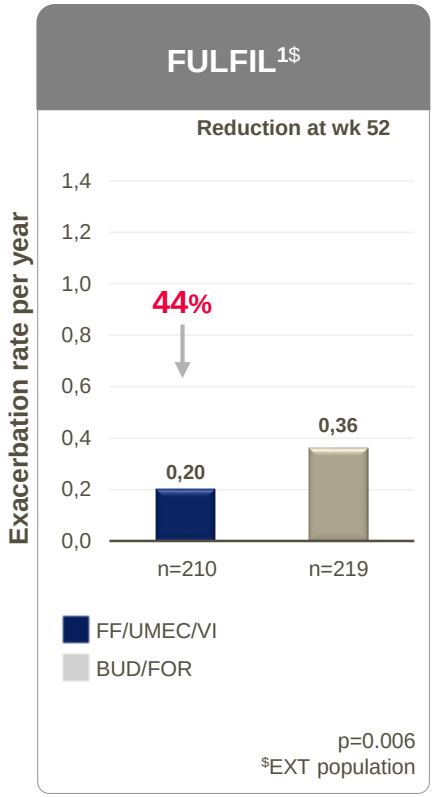
Τριπλή θεραπεία: ποσοστό μείωσης μέτριων/σοβαρών παροξύνσεων*



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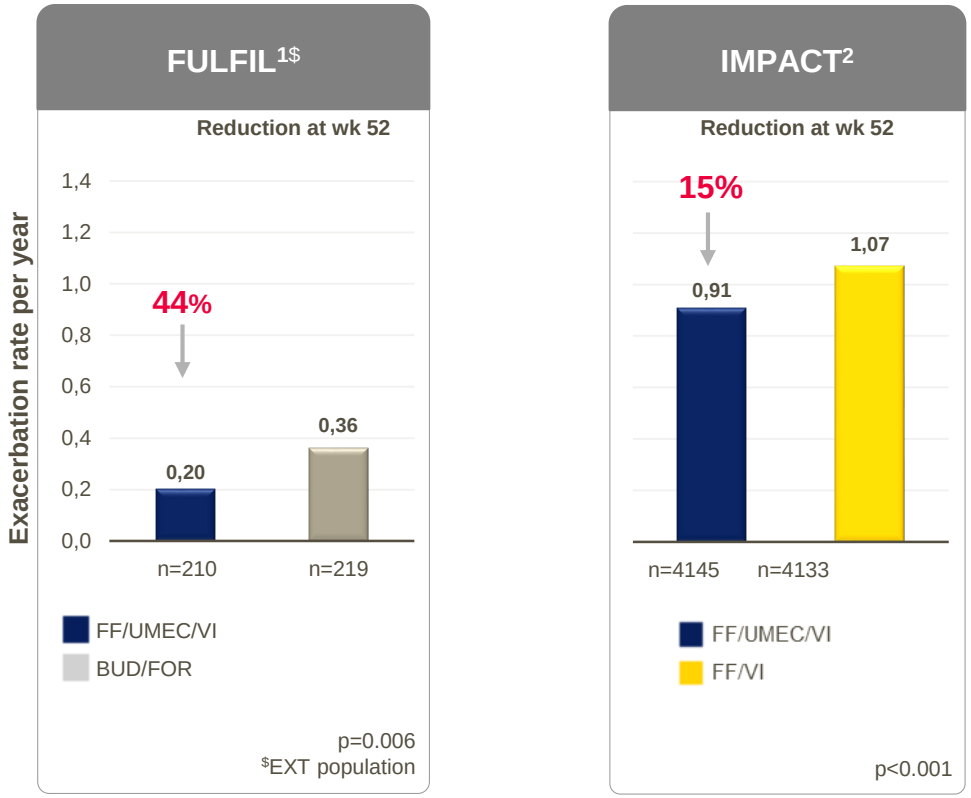

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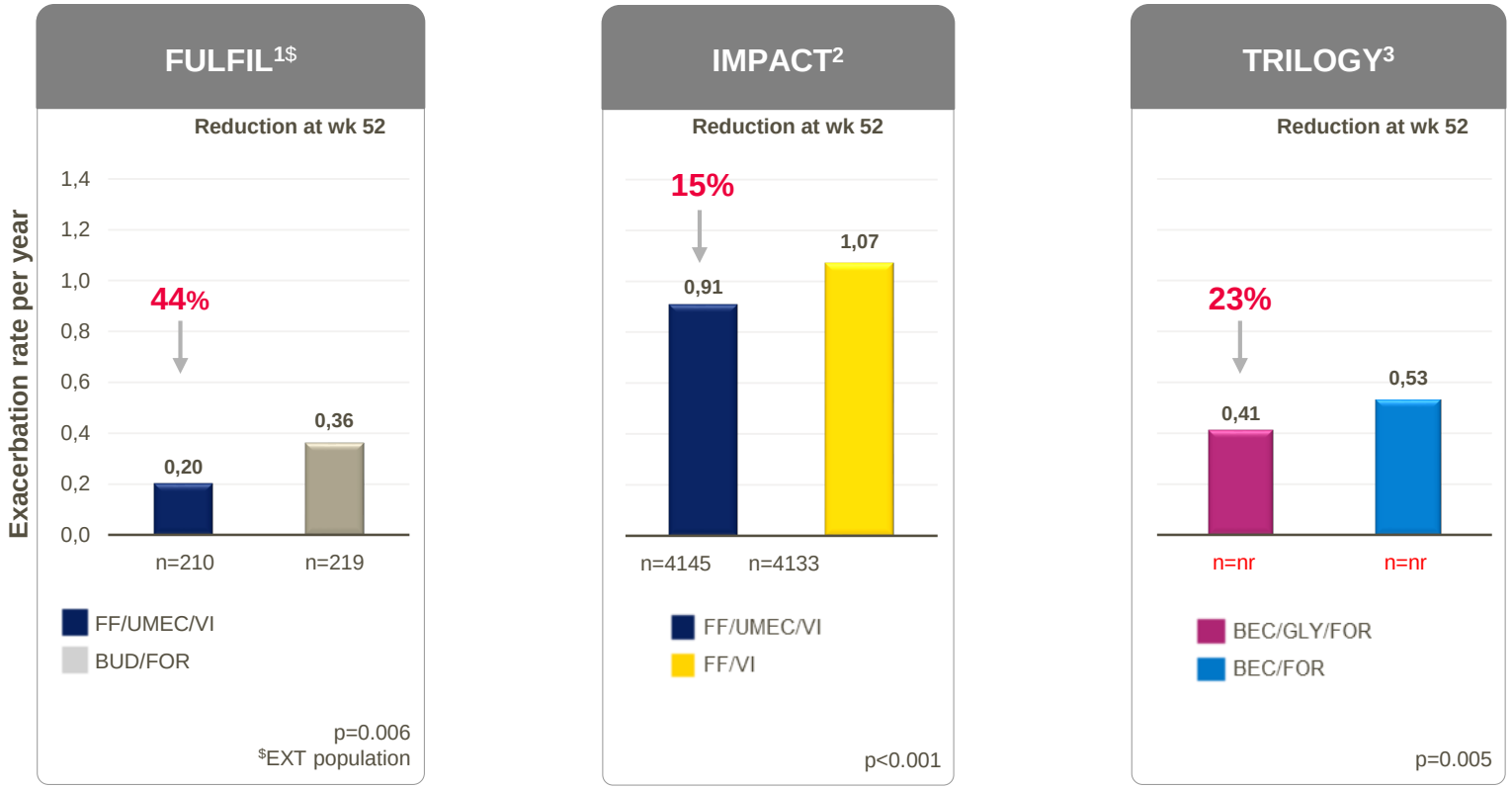

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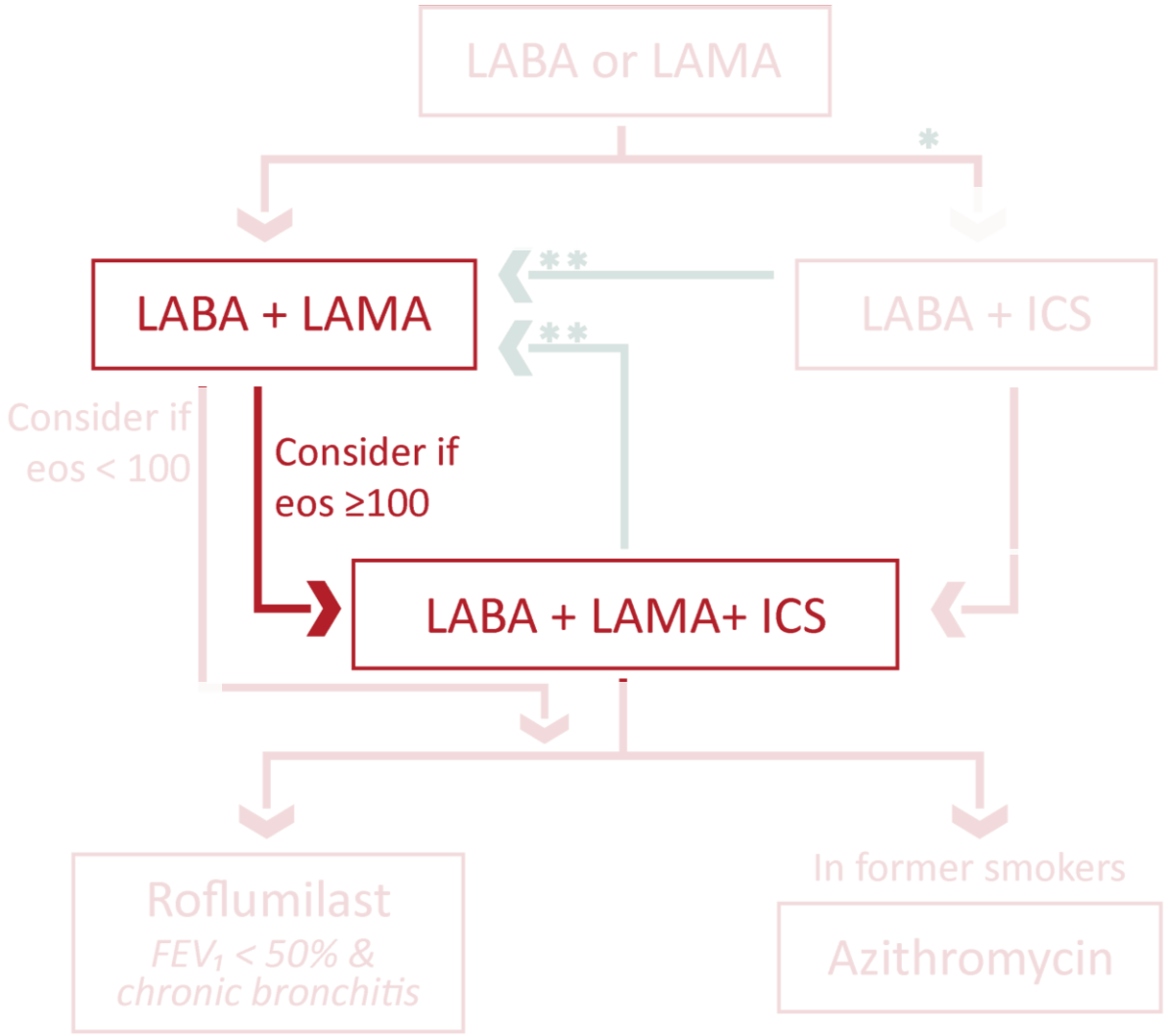
Παροξύνσεις



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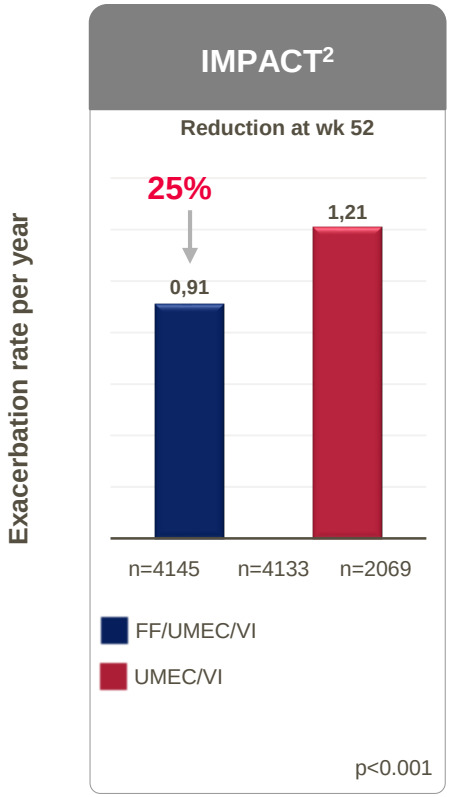
Κλειστή τριπλή θεραπεία: ποσοστό μείωσης μέτριων/σοβαρών παροξύνσεων*



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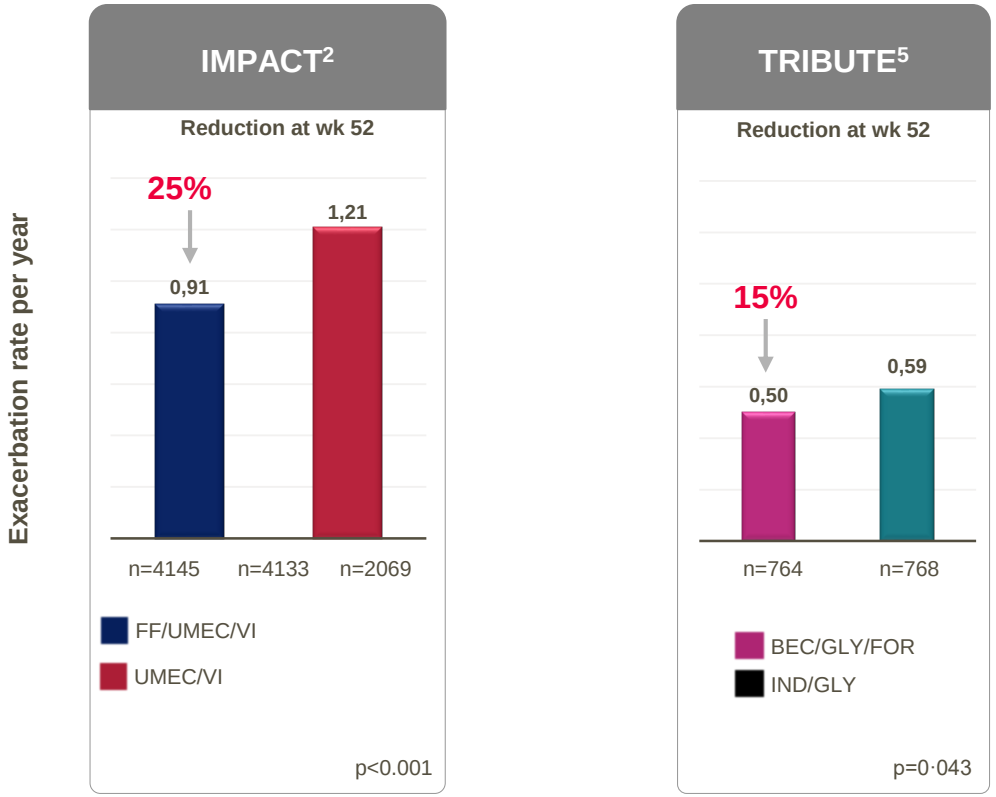

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