Global Initiative for Chronic Obstructive Lung Disease

2025 REPORT

COPD: (GOLD) update 2025

Jo Raskin
dienst longziekten UZA

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

Universiteit Antwerpen UZA

KARVA lentesymposium - zaterdag 22 maart 2024

COPD: (GOLD) update 2025

Definitie

Wat is COPD?

Behandeling

Hoe starten en aanpassen van de behandeling?

Diagnose

Hoe stel ik de diagnose op een correcte manier?

Exacerbaties

Hoe behandel ik een exacerbatie?

Classificatie

Wat is al dat gedoe met 1, 2, 3, 4, A, B, C, D, E, …?

Comorbiditeiten

Welke comorbiditeiten zijn relevant?

Universiteit Antwerpen UZA

Definitie van COPD anno 2025

COPD is a heterogeneous lung condition characterized by chronic respiratory symptoms due to abnormalities of the airways (bronchitis, bronchiolitis) and/or alveoli (emphysema) that cause persistent, often progressive, **airflow obstruction**

GOLD Strategy for COPD 2025 Report

Diagnose COPD

Clinical Indicators for Considering a Diagnosis of COPD

Figure 2.1

Consider the diagnosis of COPD, and perform spirometry, if any of these clinical indicators are present:
(these indicators are not diagnostic themselves, but the presence of multiple key indicators increases the probability of the presence of COPD; in any case, spirometry is required to establish a diagnosis of COPD)

Dyspnea that is	Progressive over time Worse with exercise Persistent
Recurrent wheeze	
Chronic cough	May be intermittent and may be non-productive
Recurrent lower respiratory tract infections	
History of risk factors	Tobacco smoke (including popular local preparations) Smoke from home cooking and heating fuels Occupational dusts, vapors, fumes, gases and other chemicals Host factors (e.g., genetic factors, developmental abnormalities, low birthweight, prematurity, childhood respiratory infections etc.)

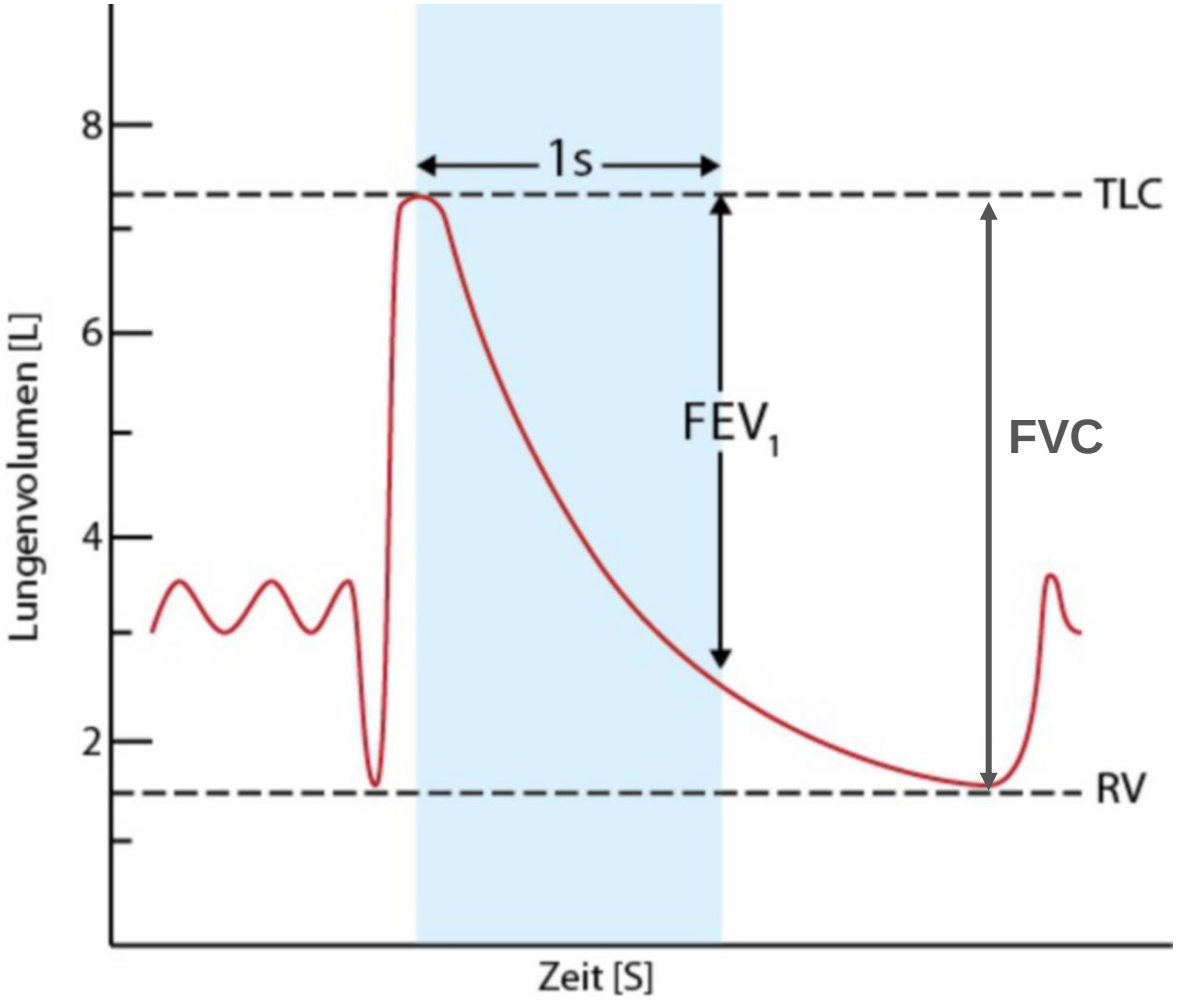
Differential Diagnosis of COPD

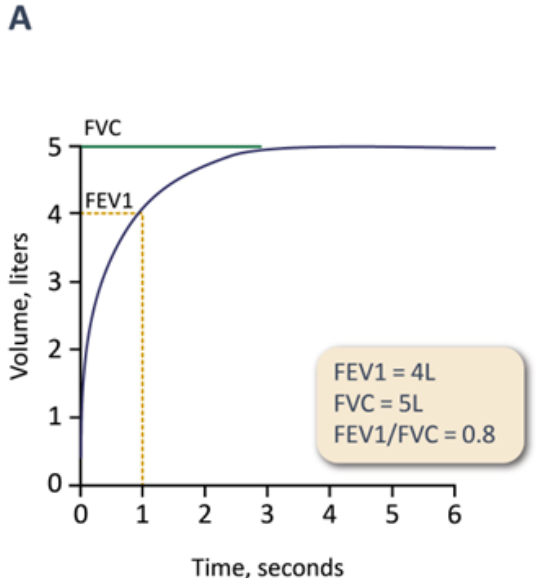
Figure 2.3

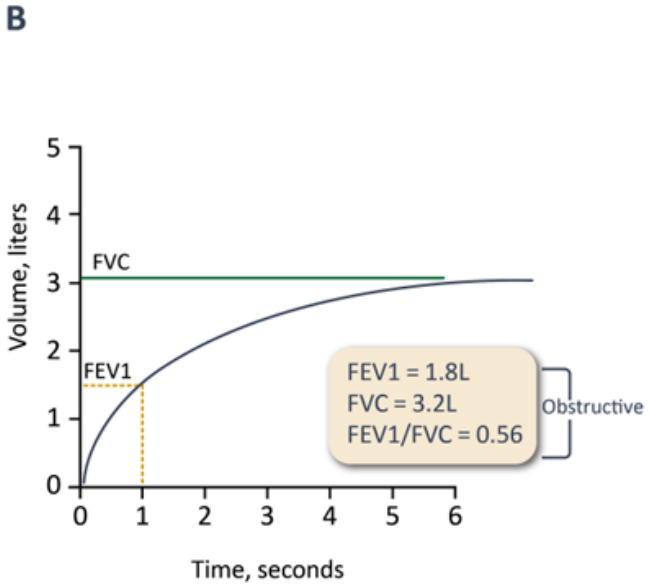
Diagnosis	Suggestive Features
COPD	Symptoms slowly progressive History of tobacco smoking or other risk factors
Asthma	Variable airflow obstruction Symptoms vary widely from day to day Symptoms worse at night/early morning Allergy, rhinitis, and/or eczema also present Often occurs in children Family history of asthma
Congestive heart failure	Chest X-ray shows dilated heart, pulmonary edema Pulmonary function tests indicate volume restriction, not airflow obstruction
Bronchiectasis	Large volumes of purulent sputum Commonly associated with bacterial infection Chest X-ray/HRCT shows bronchial dilation
Tuberculosis	Onset at all ages Chest X-ray shows lung infiltrate Microbiological confirmation High local prevalence of tuberculosis
Obliterative bronchiolitis	Can occur in children Seen after lung or bone marrow transplantation HRCT on expiration shows hypodense areas
Diffuse panbronchiolitis	Predominantly seen in patients of Asian descent Most patients are male and nonsmokers Almost all have chronic sinusitis Chest X-ray & HRCT show diffuse small centrilobular nodular opacities & hyperinflation

These features tend to be characteristic of the respective diseases, but are not mandatory. For example, a person who has never smoked may develop COPD (especially in LMICs where other risk factors may be more important than cigarette smoking).

FEV1/FVC-ratio



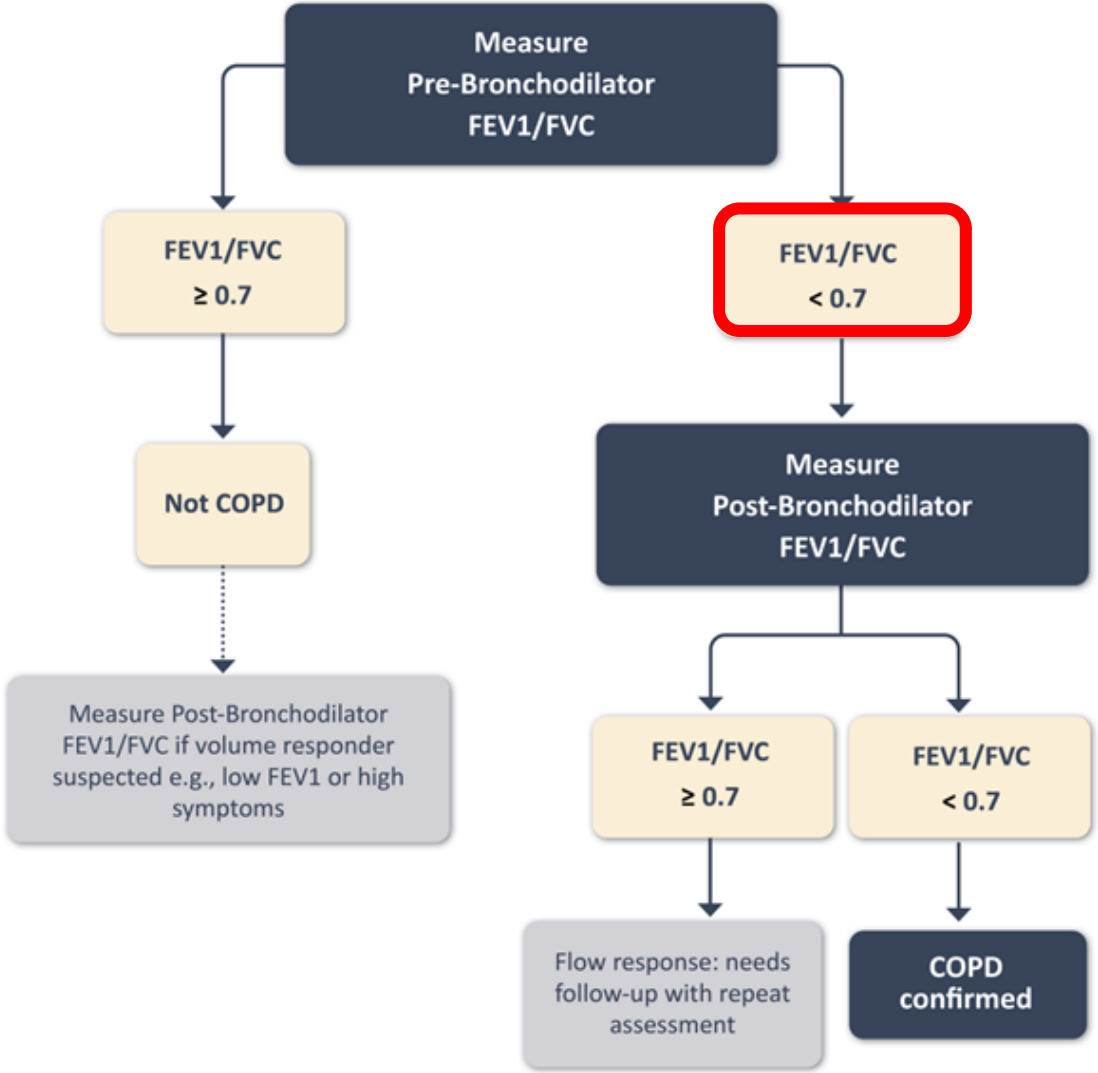


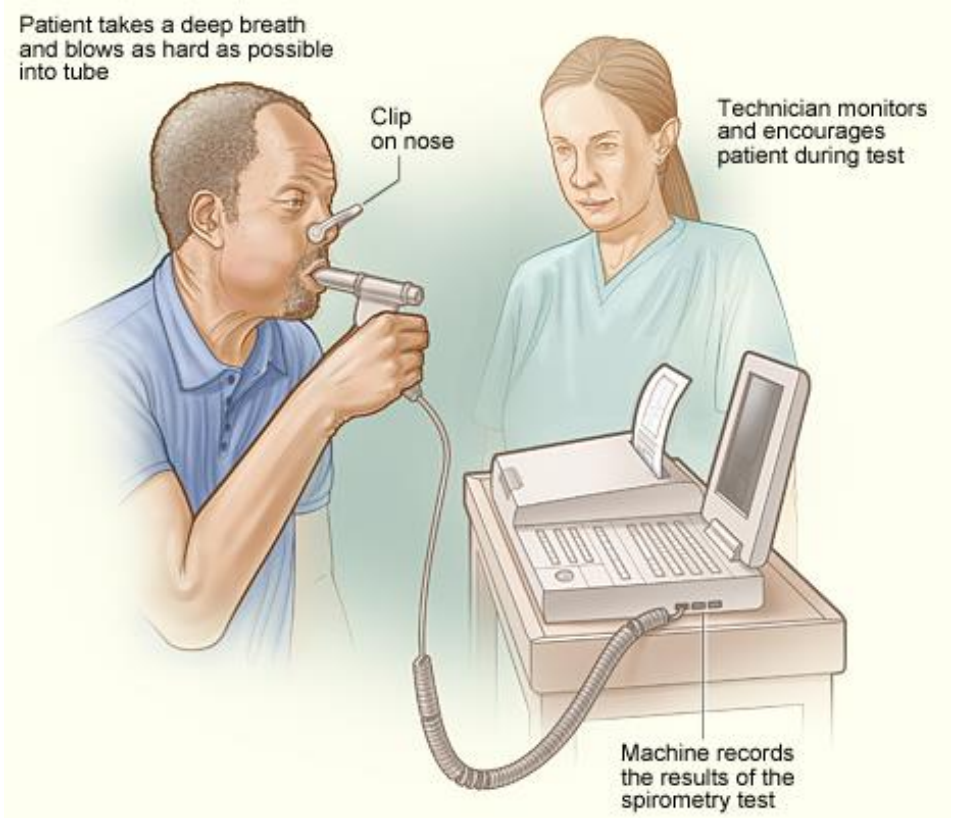


FVC =

FEV1 =

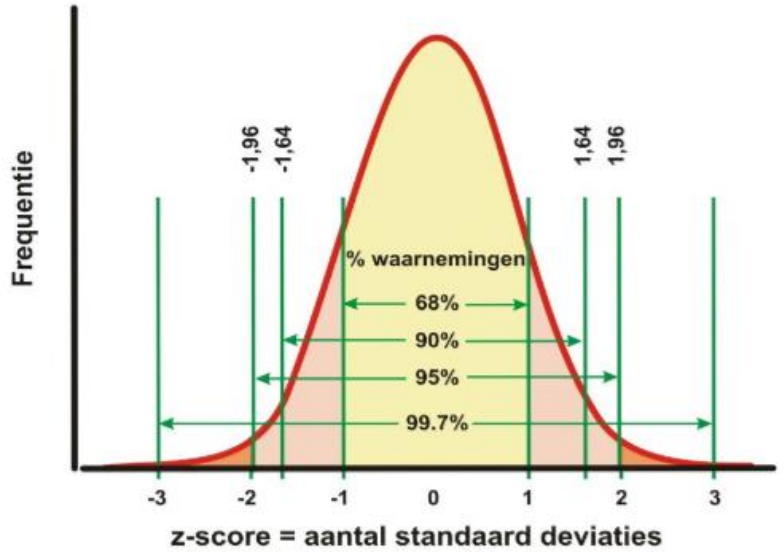
Spirometrische diagnose COPD

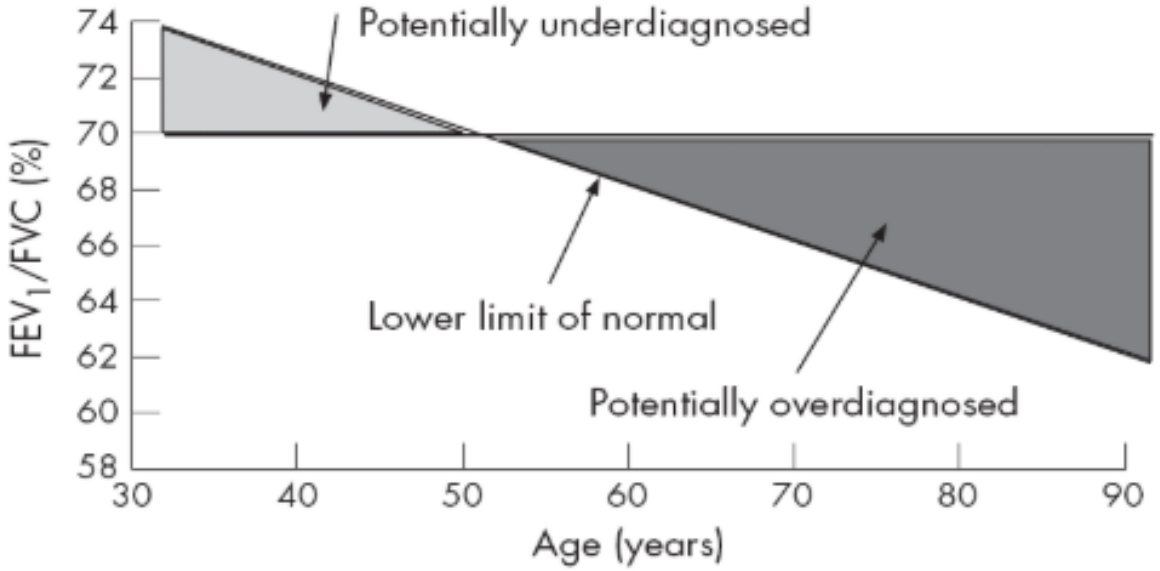




GOLD Strategy for COPD 2025 Report

Spirometrische diagnose COPD





Datum onderzoek	19.12.24	Pred.	Gemeten	%Pred	Z-score
SPIROMETRIE/FLOW-VOLUME					
FVC	L	3.53	2.89	82	-1.15
FEV 1	L	2.70	1.02	38	-3.43
FEV 1 % VC MAX	%	77	35		-4.23
PEF	L/s	7.25	3.13	43	-3.40
MFEF 75/25	L/s	2.12	0.26	12	-3.10
FEF 75	L/s	0.55	0.10	19	-2.67

Mannino. Thorax 2007

Kwantificatie van de ernst van de symptomen

Modified MRC Dyspnea Scale

Figure 2.9

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 ☐

Reference: ATS (1982) Am Rev Respir Dis. Nov;126(5):952-6.

CAT™ Assessment

Figure 2.10

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	

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

TOTAL SCORE: ☐

Classificatie van COPD

1 Spirometrically confirmed diagnosis → **2** Assessment of airflow obstruction → **3** 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

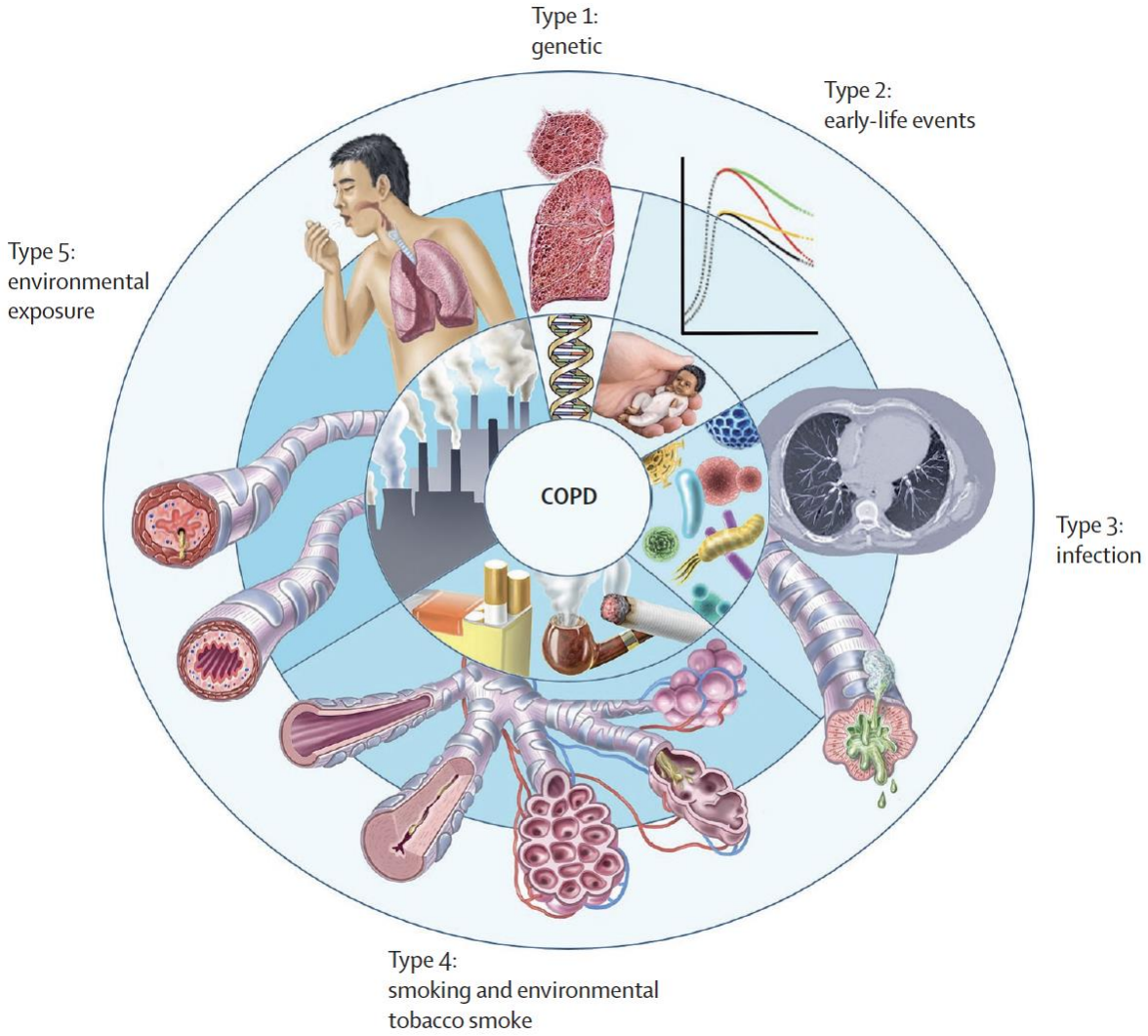
EXACERBATION HISTORY (PER YEAR)	mMRC 0-1 CAT < 10	mMRC ≥ 2 CAT ≥ 10
≥ 2 moderate exacerbations or ≥ 1 leading to hospitalization	E	
0 or 1 moderate exacerbations (not leading to hospitalization)	A	B

SYMPTOMS

≥2 mod-severe exacerbations or ≥1 leading to hospital admission	C	D
0 or 1 exacerbations (not leading to hospital admission)	A	B
	mMRC 0-1, CAT <10	mMRC ≥2, CAT ≥10

GOLD Strategy for COPD 2025 Report

Etiotypes van COPD



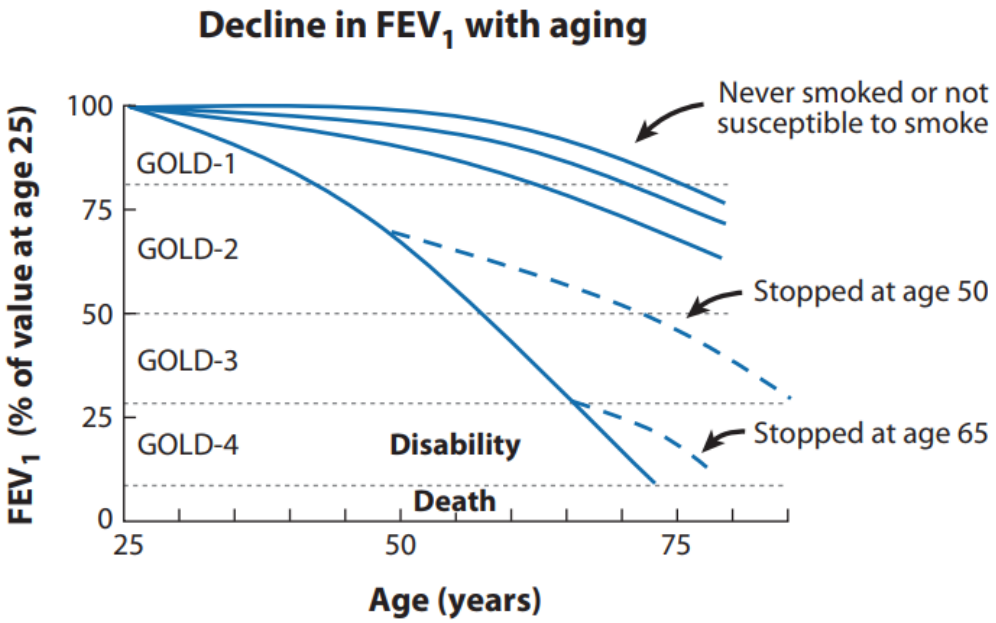
Proposed Taxonomy (Etiotypes) for COPD

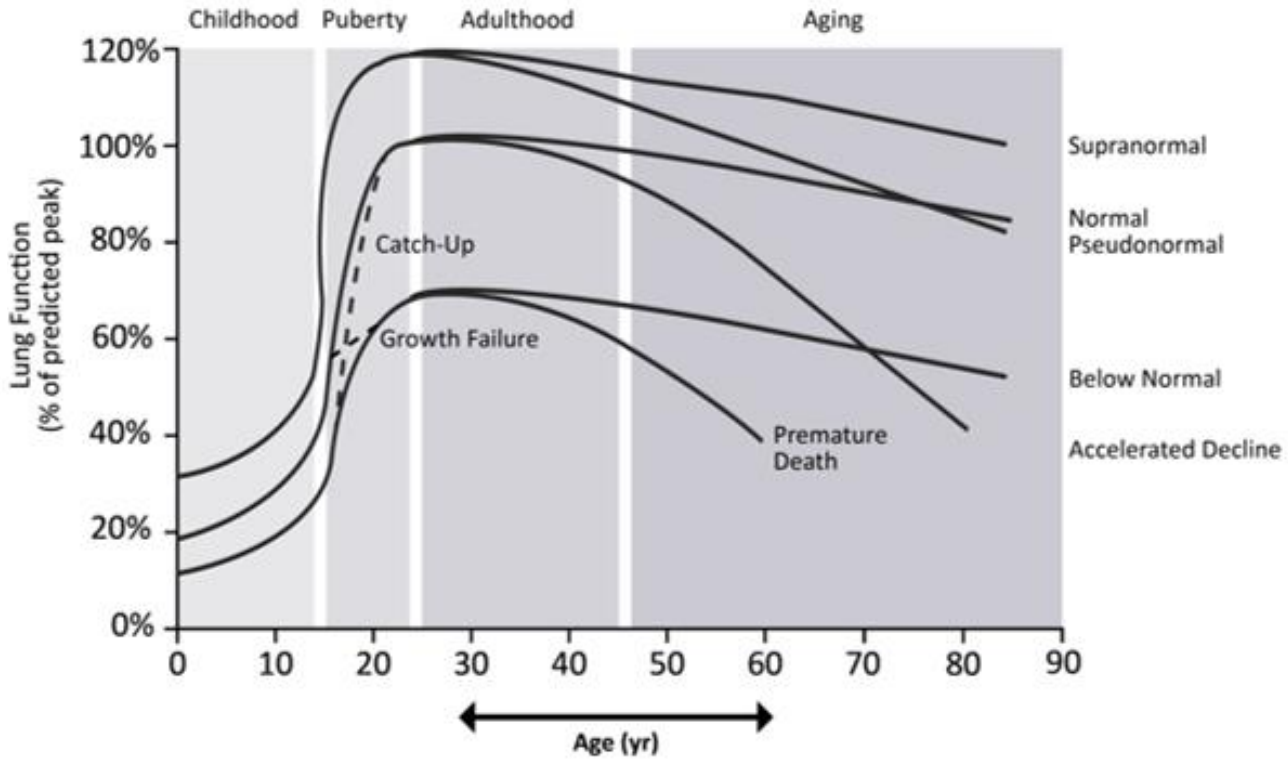
Figure 1.2

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)

Ziektetraject van COPD





GOLD Strategy for COPD 2025 Report

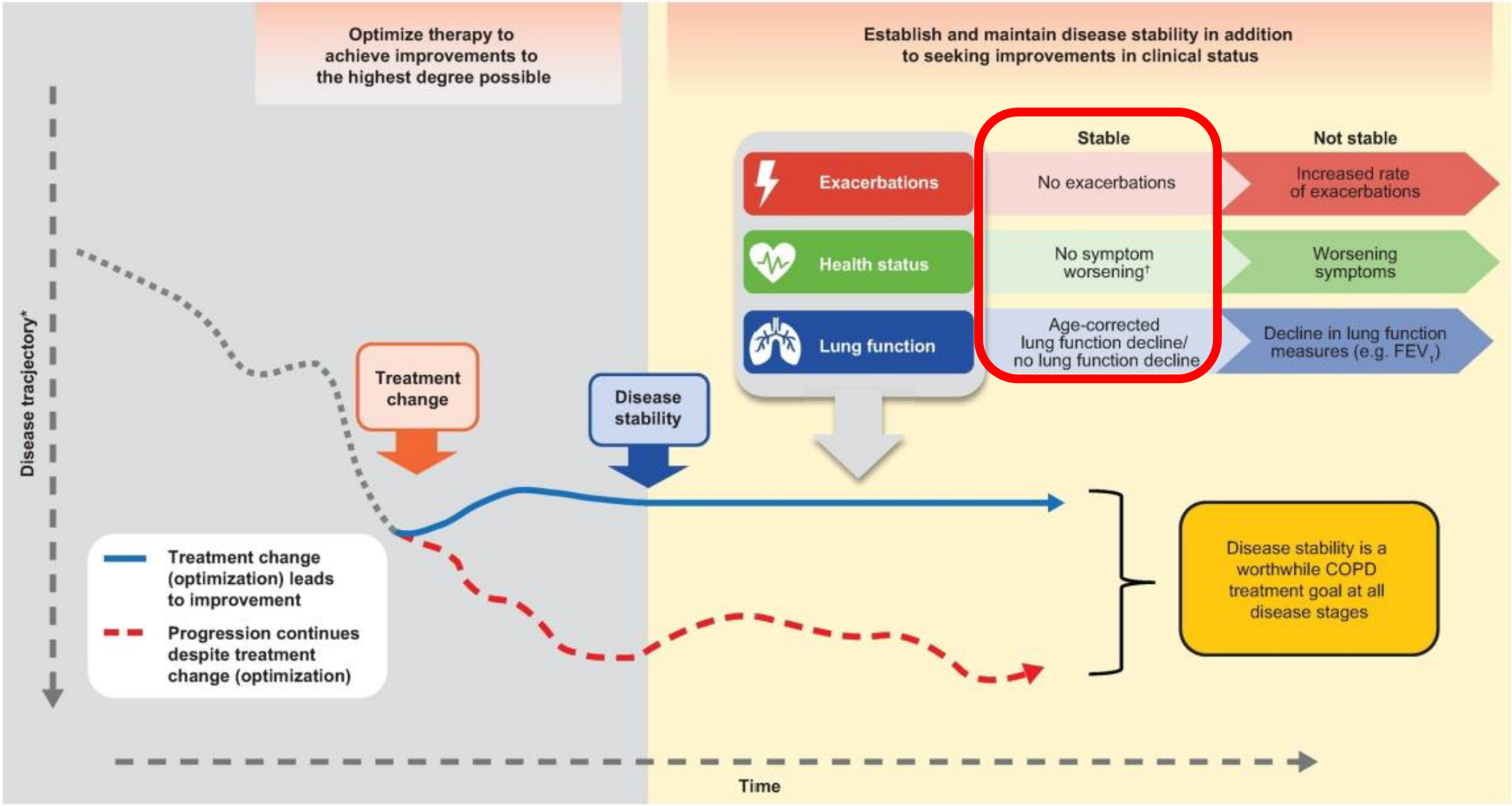
Nieuwe terminologie

A: Early COPD	“near the beginning of a process” “biological” first steps of the disease in an experimental setting
B: Mild COPD	we propose that “mild” should not be used to identify “early” COPD and used only to describe the severity of airflow obstruction measured spirometrically
C: Young COPD	we propose to operationally consider “young COPD” in patients aged 20–50 years.
D: Pre-COPD	individuals (importantly, of any age) who have respiratory symptoms and/or other detectable structural and/or functional abnormalities, in the absence of airflow obstruction on forced spirometry.
E: PRISM	preserved ratio impaired spirometry FEV1/FVC >0.7 + FEV1 <80%vv

Lancet Commission Proposal 2022 | GOLD Strategy for COPD 2025 Report

Doelstellingen behandeling

Nieuw concept: ziektestabiliteit



Singh. Am J Respir Crit Care Med 2024

Classificatie van COPD

Difficult COPD
(ICS/LABA/LAMA or LABA/LAMA during >12 months)

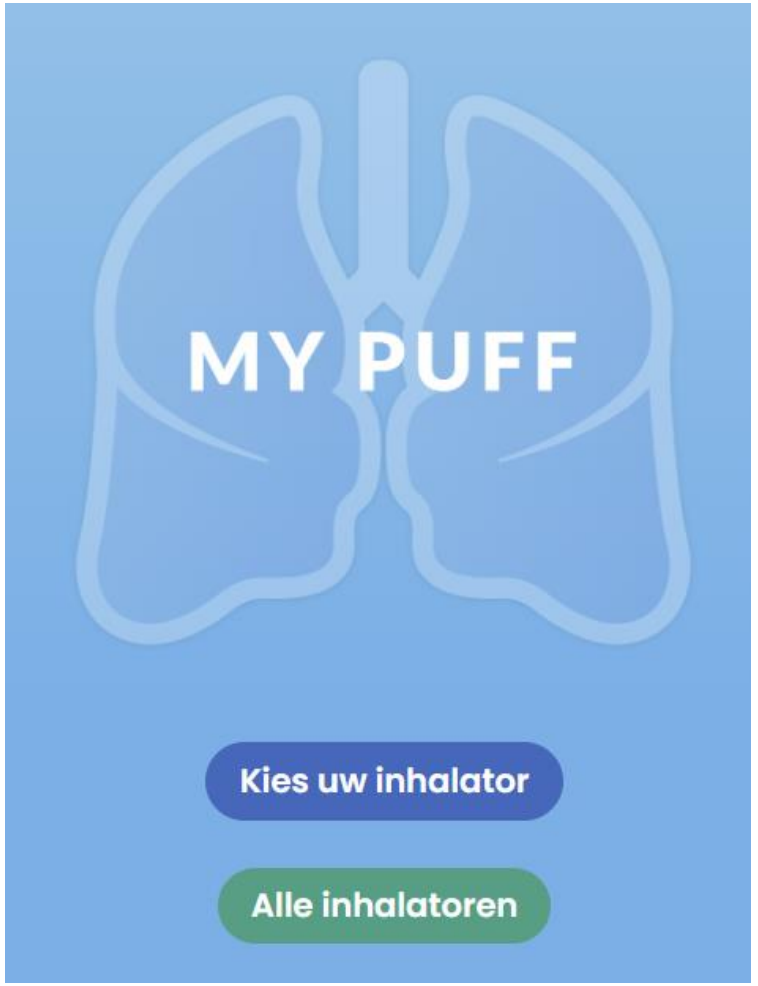
Systematic assessment

Difficult-to-treat COPD

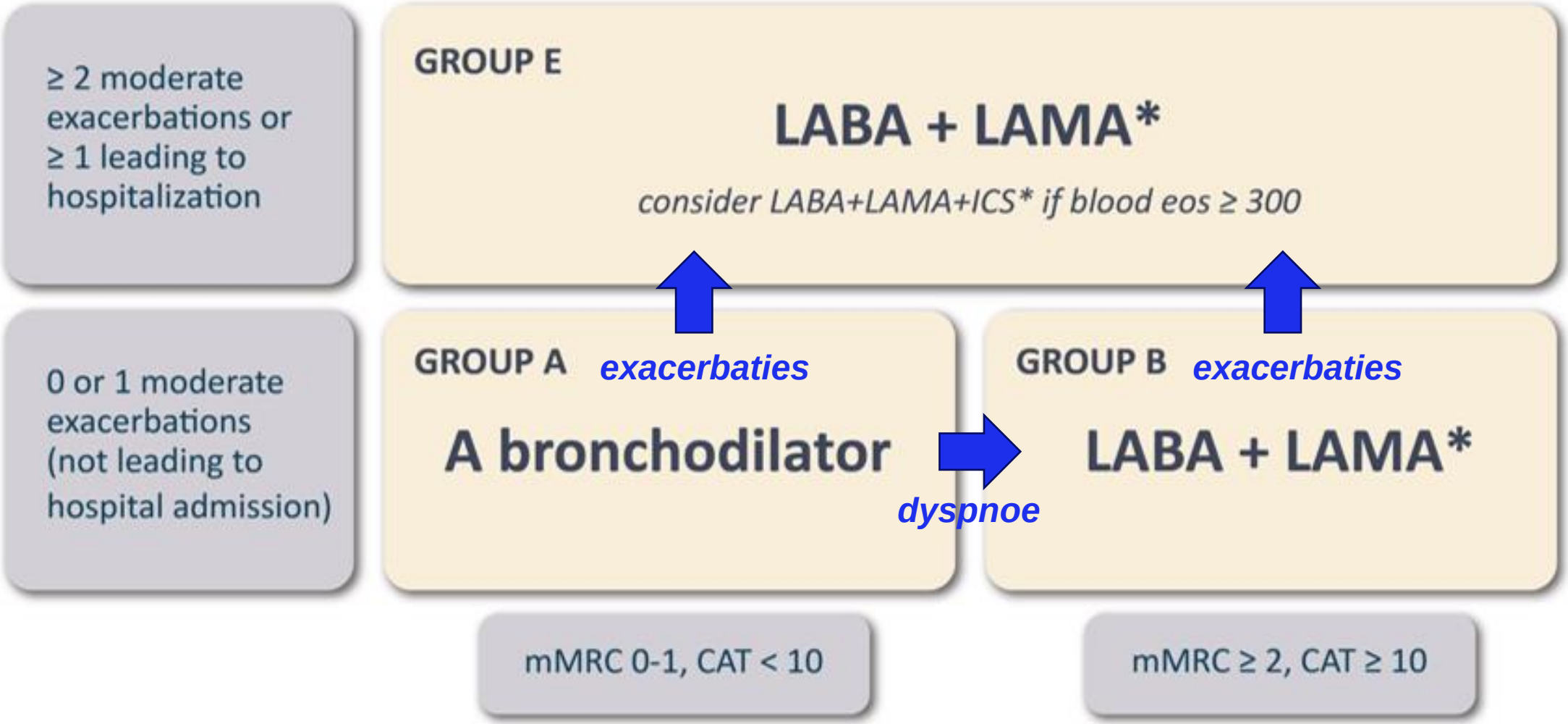
Poor control related to:
- Poor adeherence
- Suboptimal inhalation technique
- Exposure to cigarette smoke, …
- Co-morbidities

Severe COPD

Poor control despite:
- Good adherence
- Optimal inhalation technique
- Management of exposures
- Management of co-morbidities

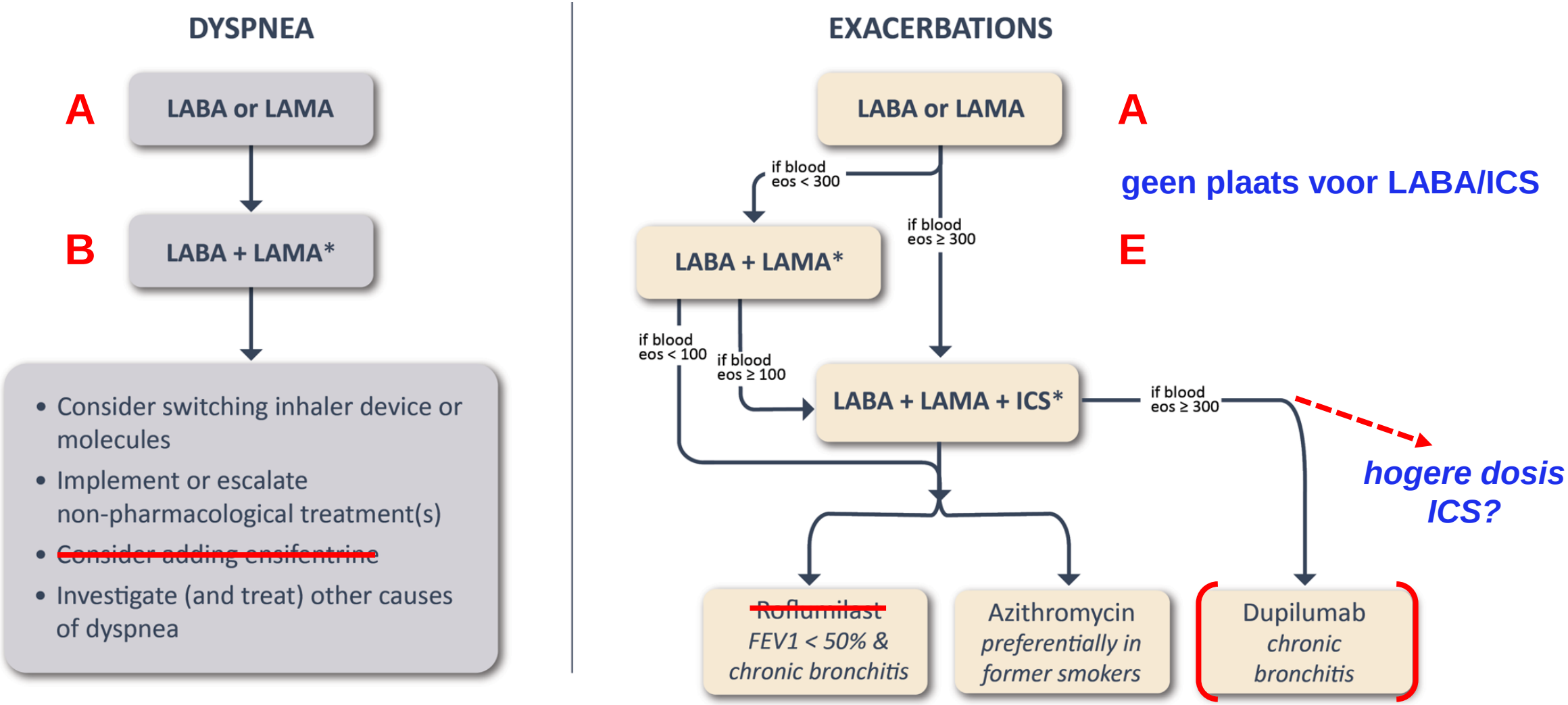


Chronische behandeling van COPD



GOLD Strategy for COPD 2025 Report

Step-up behandeling



GOLD Strategy for COPD 2025 Report

Rol van inhalatiecorticoïden

Factors to Consider when Initiating ICS Treatment

Figure 3.21

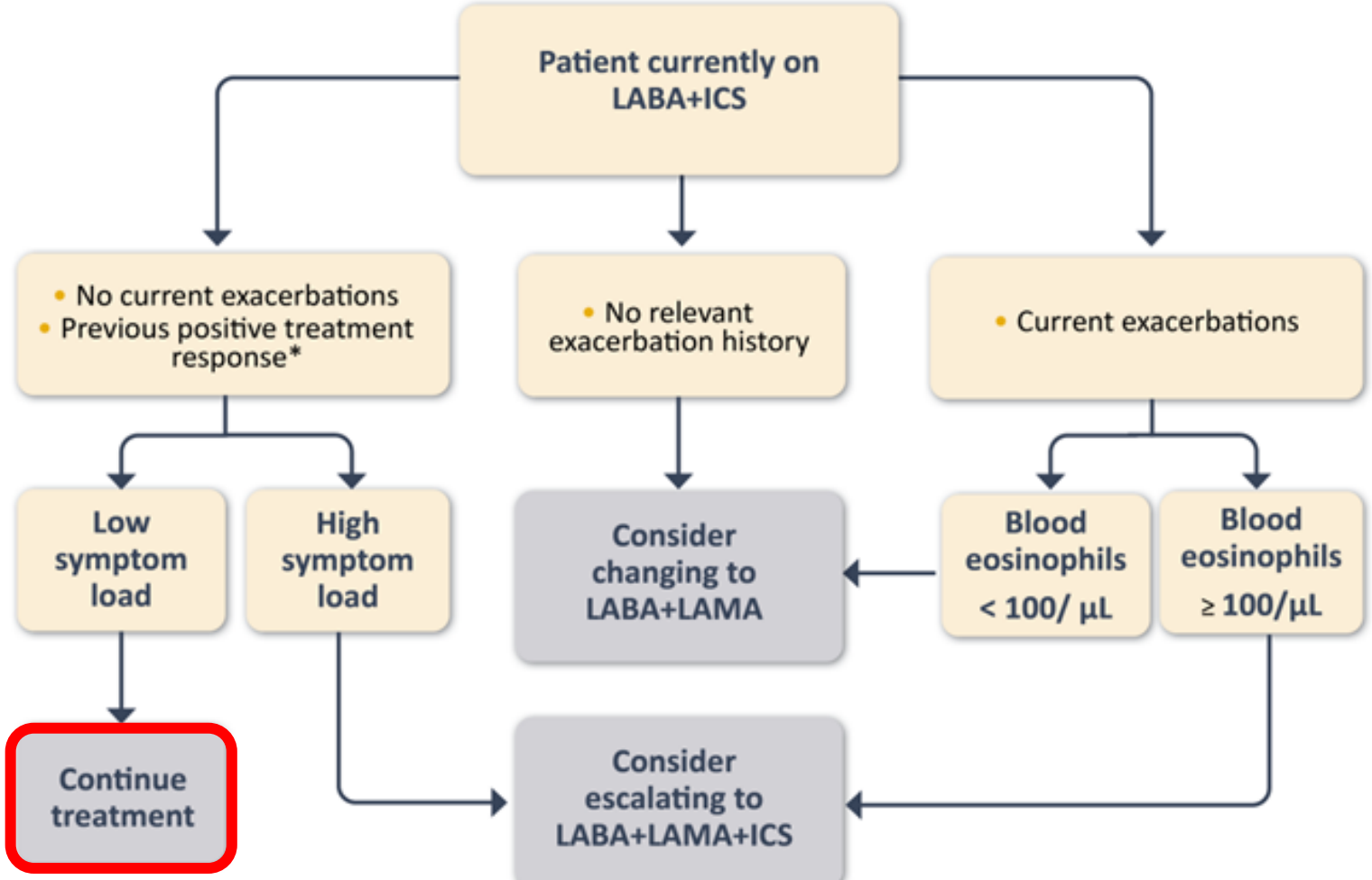
Factors to consider when adding ICS to long-acting bronchodilators:

(note the scenario is different when considering ICS withdrawal)

STRONGLY FAVORS USE	History of hospitalization(s) for exacerbations of COPD[#]
	≥ 2 moderate exacerbations of COPD per year[#]
	Blood eosinophils ≥ 300 cells/µL
	History of, or concomitant asthma
FAVORS USE	1 moderate exacerbation of COPD per year[#]
	Blood eosinophils 100 to < 300 cells/µL
AGAINST USE	Repeated pneumonia events
	Blood eosinophils < 100 cells/µL
	History of mycobacterial infection

[#]despite appropriate long-acting bronchodilator maintenance therapy (see Figures 3.7 & 3.18 for recommendations); *note that blood eosinophils should be seen as a continuum; quoted values represent approximate cut-points; eosinophil counts are likely to fluctuate.

Wat met patiënten op LABA/ICS?

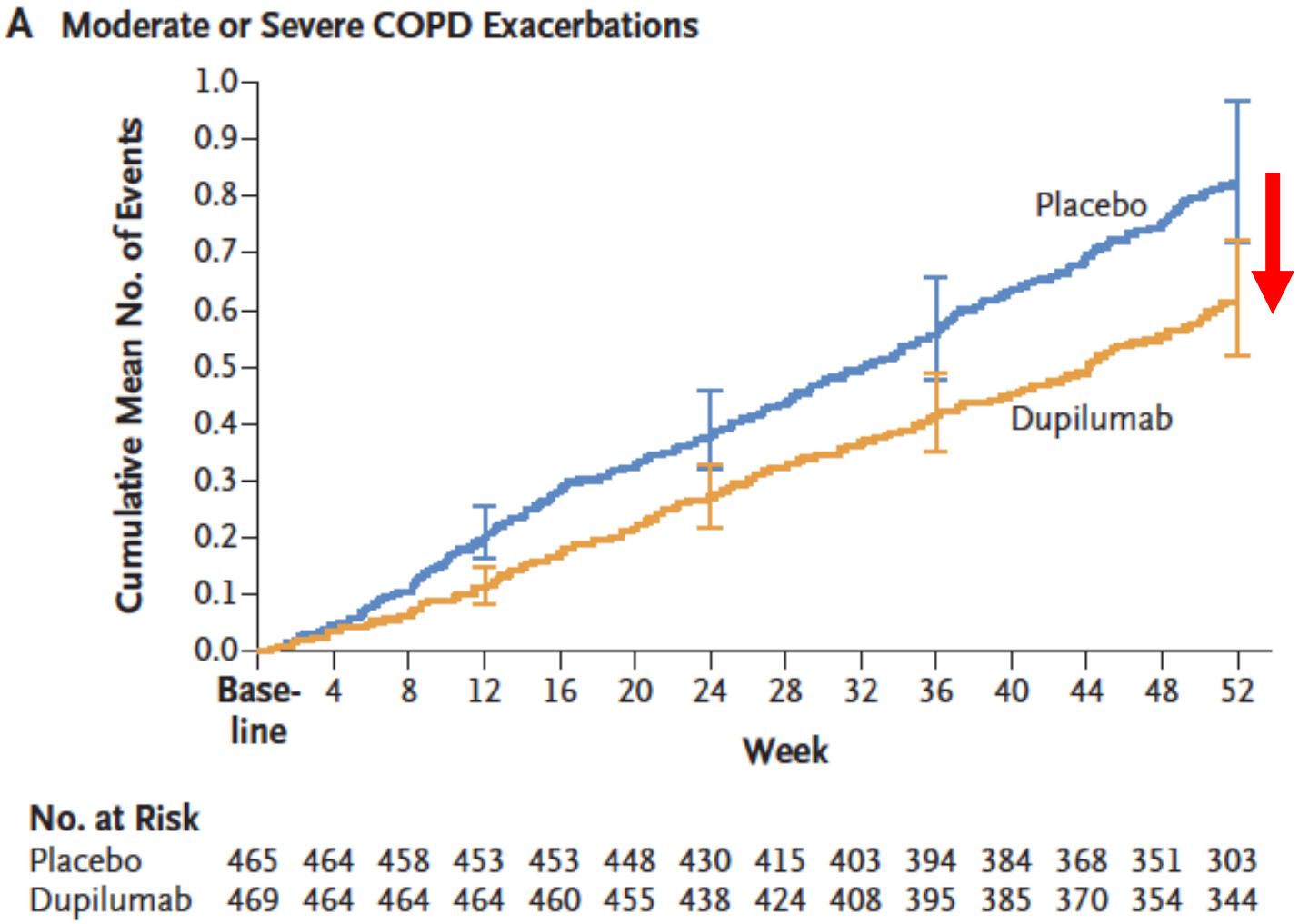


goede controle

•Patient previously had exacerbations and responded to LABA+ICS treatment

GOLD Strategy for COPD 2025 Report

Dupilumab (anti IL-4 en IL-13)



34% reductie in exacerbaties

EOS ≥300/µl
2 matige of 1 ernstige AE

NOTUS-studie. Bhatt. New Engl J Med 2024

Andere farmacologische behandelingen

Other Pharmacological Treatments

Figure 3.23

Alpha-1 Antitrypsin Augmentation Therapy	• Intravenous augmentation therapy may slow down the progression of emphysema **(Evidence B)**
Antitussives	• There is no conclusive evidence of a beneficial role of antitussives in people with COPD **(Evidence C)**
Vasodilators	• Vasodilators do not improve outcomes and may worsen oxygenation **(Evidence B)**
Opioids	• Low-dose long acting oral and parenteral opioids may be considered for treating dyspnea in COPD patients with severe disease (**Evidence B**)
Pulmonary Hypertension Therapy	• Drugs approved for primary pulmonary hypertension are not recommended for patients with pulmonary hypertension secondary to COPD (**Evidence B**)

Niet-farmacologische behandeling

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

GOLD Strategy for COPD 2025 Report

Niet-farmacologische behandeling

Vaccination for Stable COPD

Figure 3.6

People with COPD should receive all recommended vaccinations in line with the relevant local guidelines:

- Yearly influenza vaccination **(Evidence B)**
- SARS-CoV-2 (COVID-19) vaccination based on WHO and CDC updated recommendations **(Evidence B)**
- Either one dose of 21-valent pneumococcal conjugate vaccine (PCV21) or one dose PCV20, as recommended by the CDC **(Evidence B)**. Pneumococcal vaccination has been shown to reduce the incidence of community-acquired pneumonia and exacerbations for people with COPD **(Evidence B)**
- Respiratory syncytial virus (RSV) vaccination for individuals aged ≥ 60 years and/or with chronic heart or lung disease, as recommended by the CDC **(Evidence A)**
- Tdap (dTaP/dTPa) vaccination to protect against pertussis (whooping cough) for people with COPD that were not vaccinated in adolescence, as recommended by the CDC **(Evidence B)**
- Zoster vaccine to protect against shingles for people with COPD aged > 50 years, as recommended by the CDC **(Evidence B)**

Zuurstof en thuisventilatie

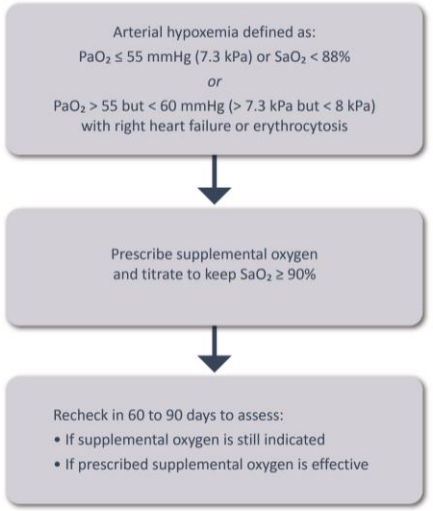
Oxygen Therapy and Ventilatory Support in Stable COPD

Figure 3.14

Oxygen Therapy	• The long-term administration of oxygen increases survival in patients with severe chronic resting arterial hypoxemia **(Evidence A)** • In patients with stable COPD and moderate resting or exercise-induced arterial desaturation, prescription of long-term oxygen does not lengthen time to death or first hospitalization or provide sustained benefit in health status, lung function and 6-minute walk distance **(Evidence A)** • Resting oxygenation at sea level does not exclude the development of severe hypoxemia when traveling by air **(Evidence C)**
Ventilatory Support	• NPPV may improve hospitalization-free survival in selected patients after recent hospitalization, particularly in those with pronounced daytime persistent hypercapnia ($PaCO_2$ > 53 mmHg) **(Evidence B)** • In patients with severe chronic hypercapnia and a history of hospitalization for acute respiratory failure, long-term noninvasive ventilation may be considered **(Evidence B)**

Prescription of Supplemental Oxygen to COPD Patients

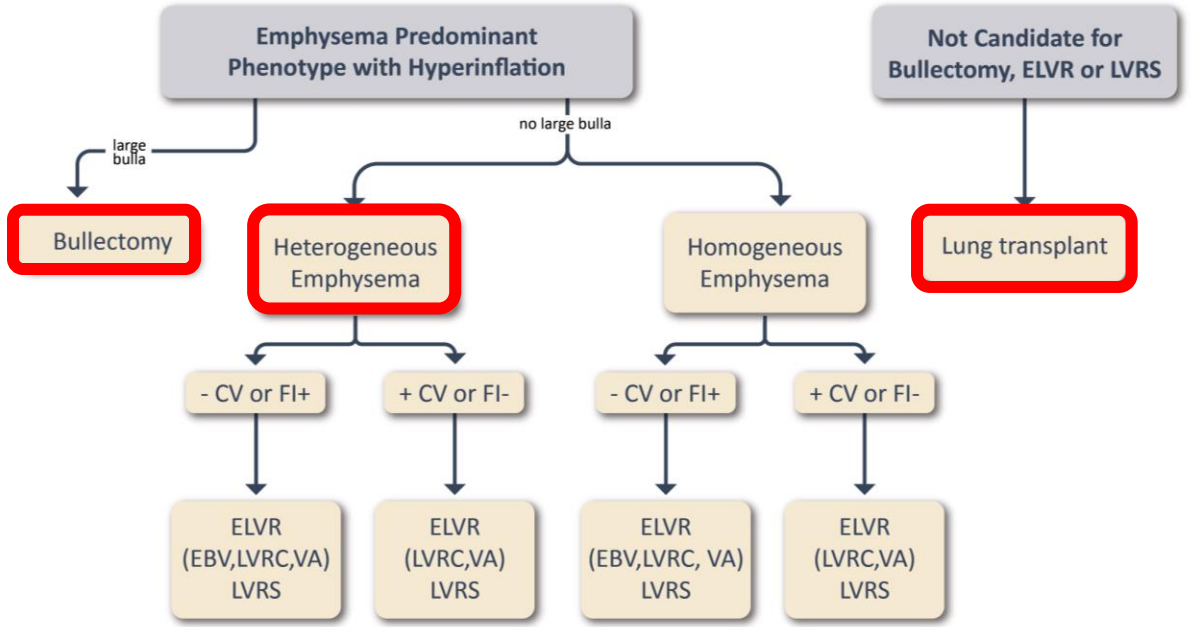
Figure 3.15



Interventionele behandelingen

Surgical and Interventional Therapies in Advanced Emphysema

Figure 3.26

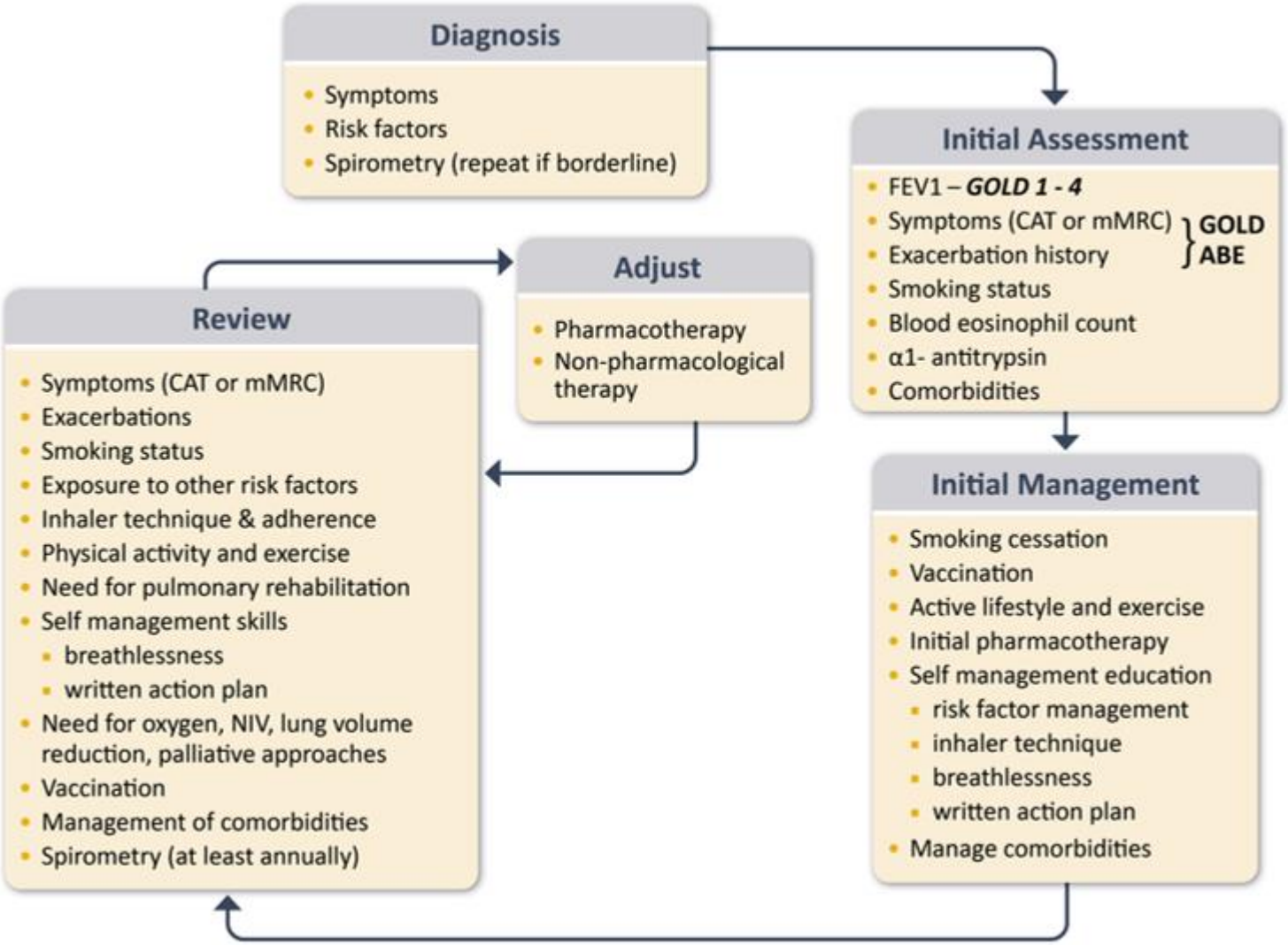


Note: not all therapies are clinically available in all countries. Long term ELVR outcomes or direct comparisons to LVRS are unknown.

Definition of abbreviations: CV, collateral ventilation measure by Chartis; FI + fissure integrity > 90% by HRCT; FI-, fissure integrity < 90% by HRCT; ELVR, Endoscopic Lung Volume Reduction, EBV, Endobronchial Valve; VA, Vapor Ablation; LVRC, Lung Volume Reduction Coil; LVRS, Lung Volume Reduction Surgery. Modified from Vogelmeier, AJRCCM, 2017.

GOLD Strategy for COPD 2025 Report

Opvolging van COPD



GOLD Strategy for COPD 2025 Report

Behandeling van exacerbaties

Management of Severe but not Life-threatening Exacerbations*

Figure 4.5

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-acting 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

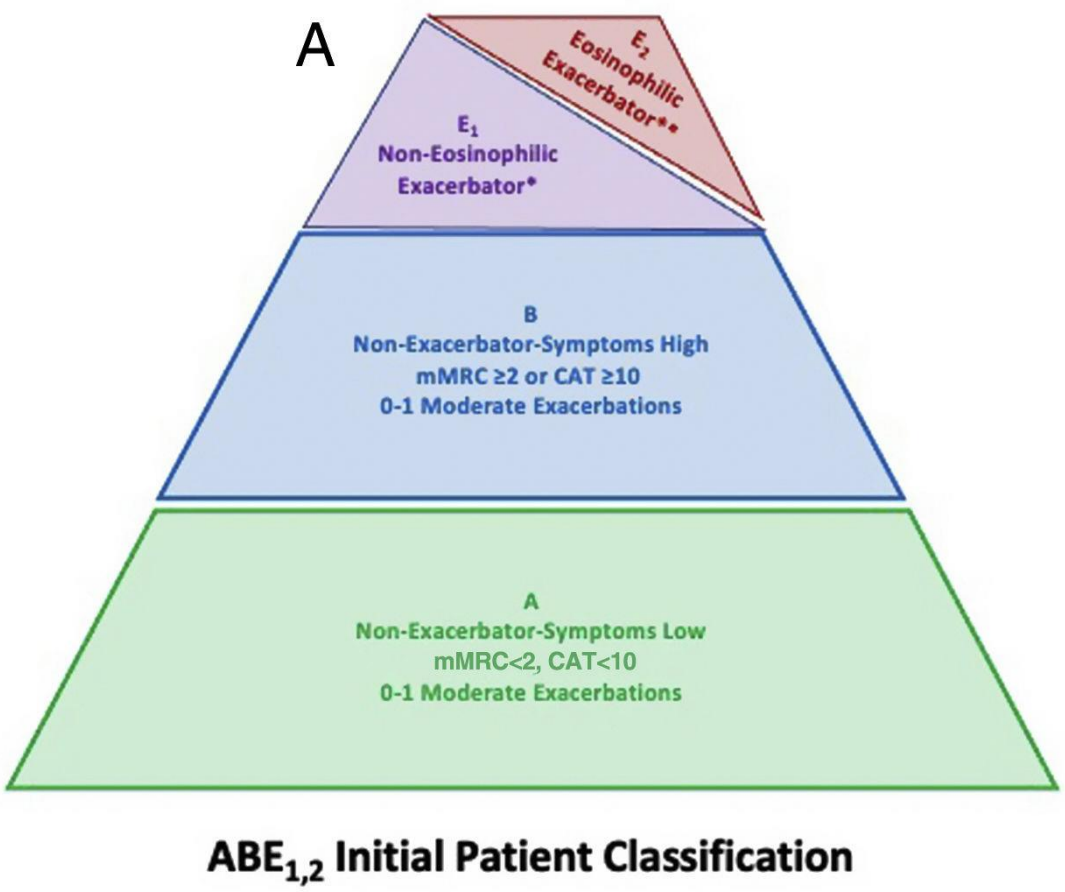
Consider noninvasive mechanical ventilation (NIV)

At all times:

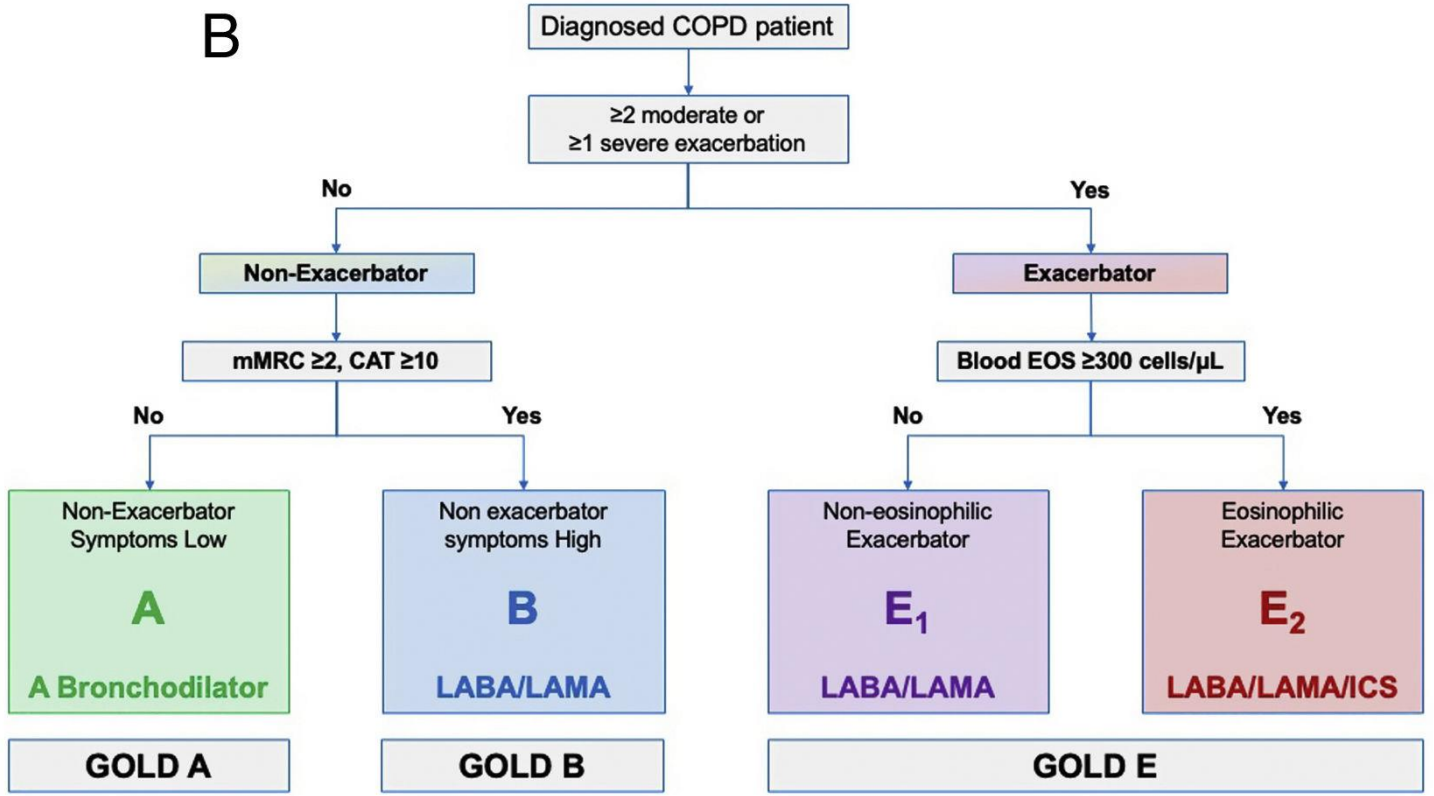
- Monitor fluid balance
- Consider subcutaneous heparin or low molecular weight heparin for thromboembolism prophylaxis
- Identify and treat associated conditions (e.g., heart failure, arrhythmias, pulmonary embolism etc.)

*Local resources need to be considered

Eosinofiele en niet-eosinofiele exacerbaties



$ABE_{1,2}$ Initial Patient Classification



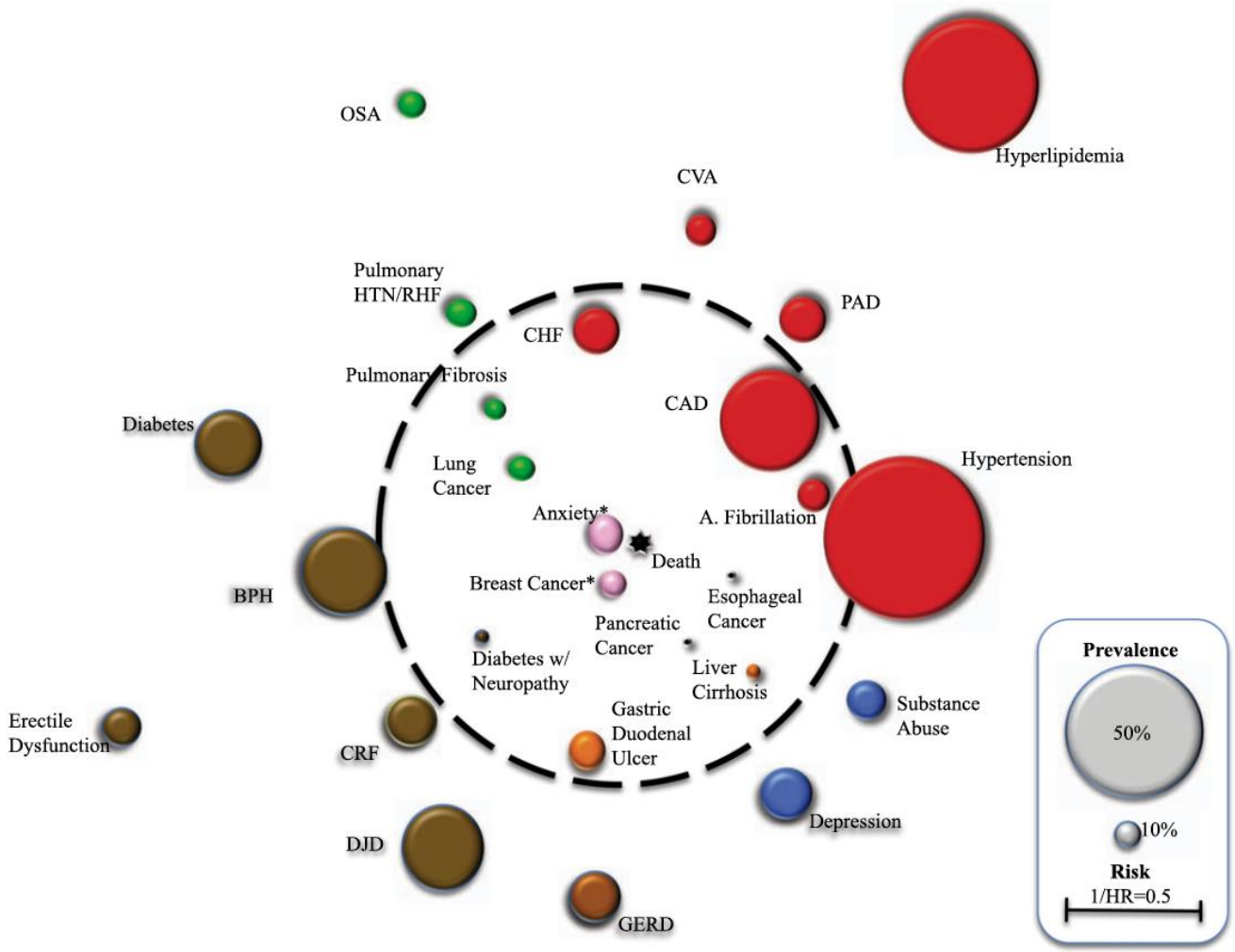
Preventie van exacerbaties

Interventions that Reduce the Frequency of COPD Exacerbations

Figure 4.11

Intervention Class	Intervention
Bronchodilators	LABAs LAMAs LABA + LAMA
Corticosteroid-containing regimens	LABA + ICS LABA + LAMA + ICS
Anti-inflammatory (non-steroid)	~~Roflumilast~~ Dupilumab
Anti-infectives	Vaccines Long Term Macrolides
Mucoregulators	N-acetylcysteine Carbocysteine Erdosteine
Various others	Smoking Cessation Rehabilitation Lung Volume Reduction Vitamin D Shielding measures (e.g., mask wearing, minimizing social contact, frequent hand washing)

Mortaliteit als gevolg van 12 comorbiditeiten

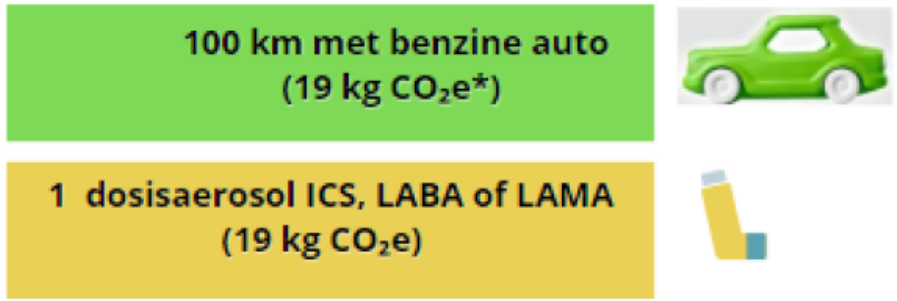


Divo. Am J Respir Crit Care Med 2012

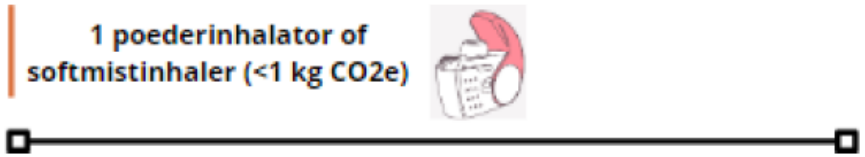
Milieuaspecten van inhalatiemedicatie

CO_2 uitstoot dosisaerosol vs poederinhalator

- 1 dosisaerosol ICS, LABA of LAMA = **19kg CO_2e** = 100km met een benzine auto



- 1 poederinhalator = **1kg CO_2e**



Slide ontleend aan NVALT – De groene longarts

Contactgegevens

pneumologie@uza.be

www.uza.be/longziekten

longziekten_uza