



# المستجدات في تدبير COPD

د. غانيا جديد

عضو هيئة تدريسية في كلية الطب البشري  
بجامعة البعث

رئيس قسم الأمراض الباطنة  
نائب عميد كلية الطب للشؤون العلمية



# **UPDATES IN STABLE COPD MANAGEMENT**

**DR GHANIA JDID  
DEPUTY DEAN FOR SCIENTIFIC AFFAIRS  
FACULTY OF MEDECINE  
UNIVERSITY AL BAATH**

**Dyspnea**

**Chronic cough**

**Family history of COPD  
and /or childhood factors**

**Consider  
COPD >40  
years if  
any of:**

**Chronic sputum**

**History of risk  
factors**


**Recurrent Lower  
respiratory tract  
infections**

# Diagnosis

**FEV1/FVC < 0.7**  
Post - Bronchodilator



# Classification

- **Severity of airflow limitation**  **GOLD**
- **Moderate or Severe Exacerbation History**
- **Assessment of symptoms:**

**Dyspnea**

**CAT -SCORE**

## CLASSIFICATION OF AIRFLOW LIMITATION SEVERITY IN COPD (BASED ON POST-BRONCHODILATOR FEV<sub>1</sub>)

In patients with FEV<sub>1</sub>/FVC < 0.70:

**GOLD 1:** Mild FEV<sub>1</sub> ≥ 80% predicted

---

**GOLD 2:** Moderate 50% ≤ FEV<sub>1</sub> < 80% predicted

---

**GOLD 3:** Severe 30% ≤ FEV<sub>1</sub> < 50% predicted

---

**GOLD 4:** Very Severe FEV<sub>1</sub> < 30% predicted

## ▶ MODIFIED MRC DYSPNEA SCALE<sup>a</sup>

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.

<sup>a</sup> Fletcher CM. BMJ 1960; 2: 1662.

# 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	<input type="radio"/> 0 <input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	I am very sad	SCORE
I never cough	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	I cough all the time	
I have no phlegm (mucus) in my chest at all	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	My chest is completely full of phlegm (mucus)	
My chest does not feel tight at all	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	My chest feels very tight	
When I walk up a hill or one flight of stairs I am not breathless	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 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	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	I am very limited doing activities at home	
I am confident leaving my home despite my lung condition	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	I am not at all confident leaving my home because of my lung condition	
I sleep soundly	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	I don't sleep soundly because of my lung condition	
I have lots of energy	<input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5	I have no energy at all	

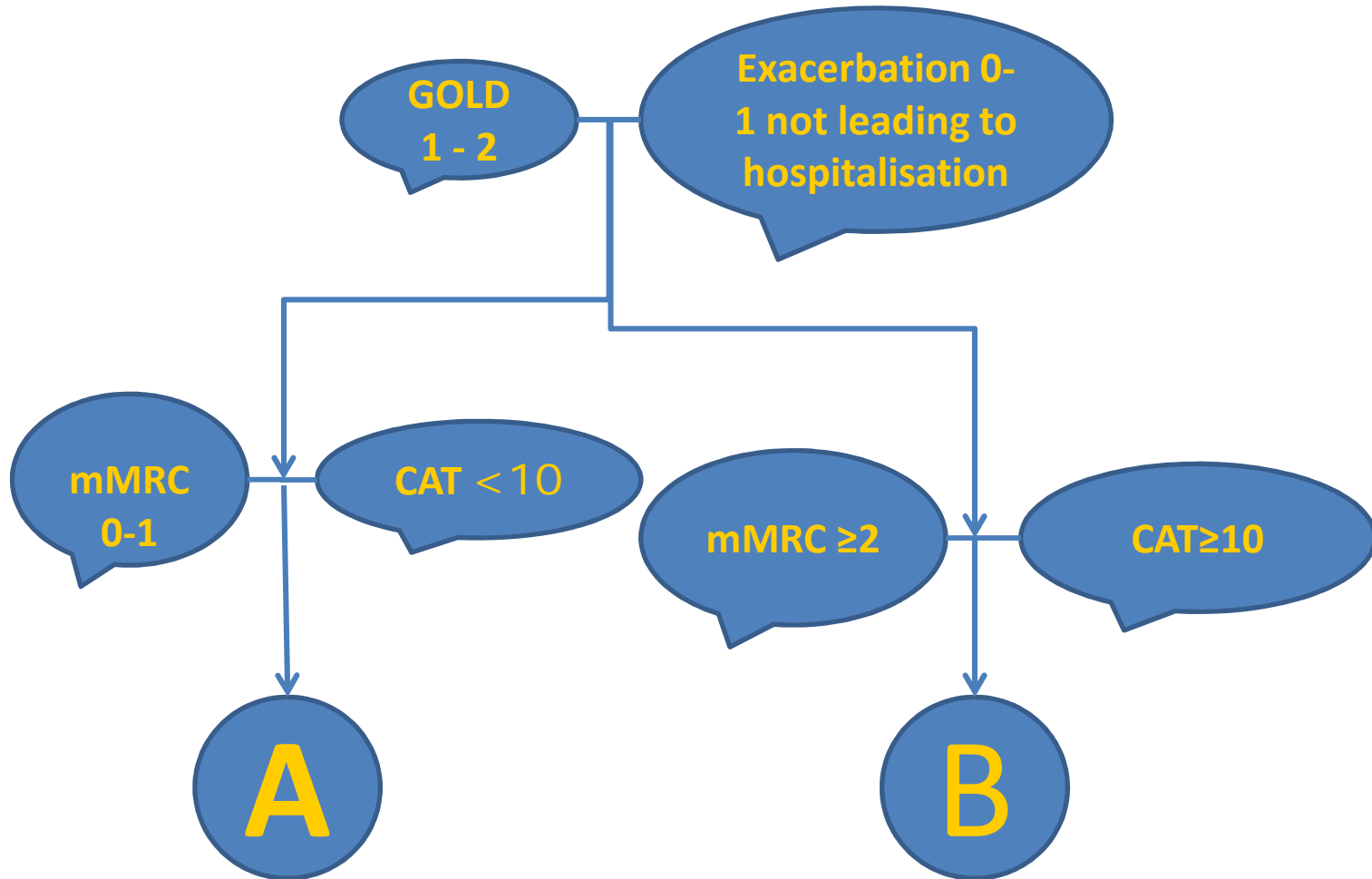
Reference: Jones et al. ERJ 2009; 34 (3); 648-54.

TOTAL SCORE:



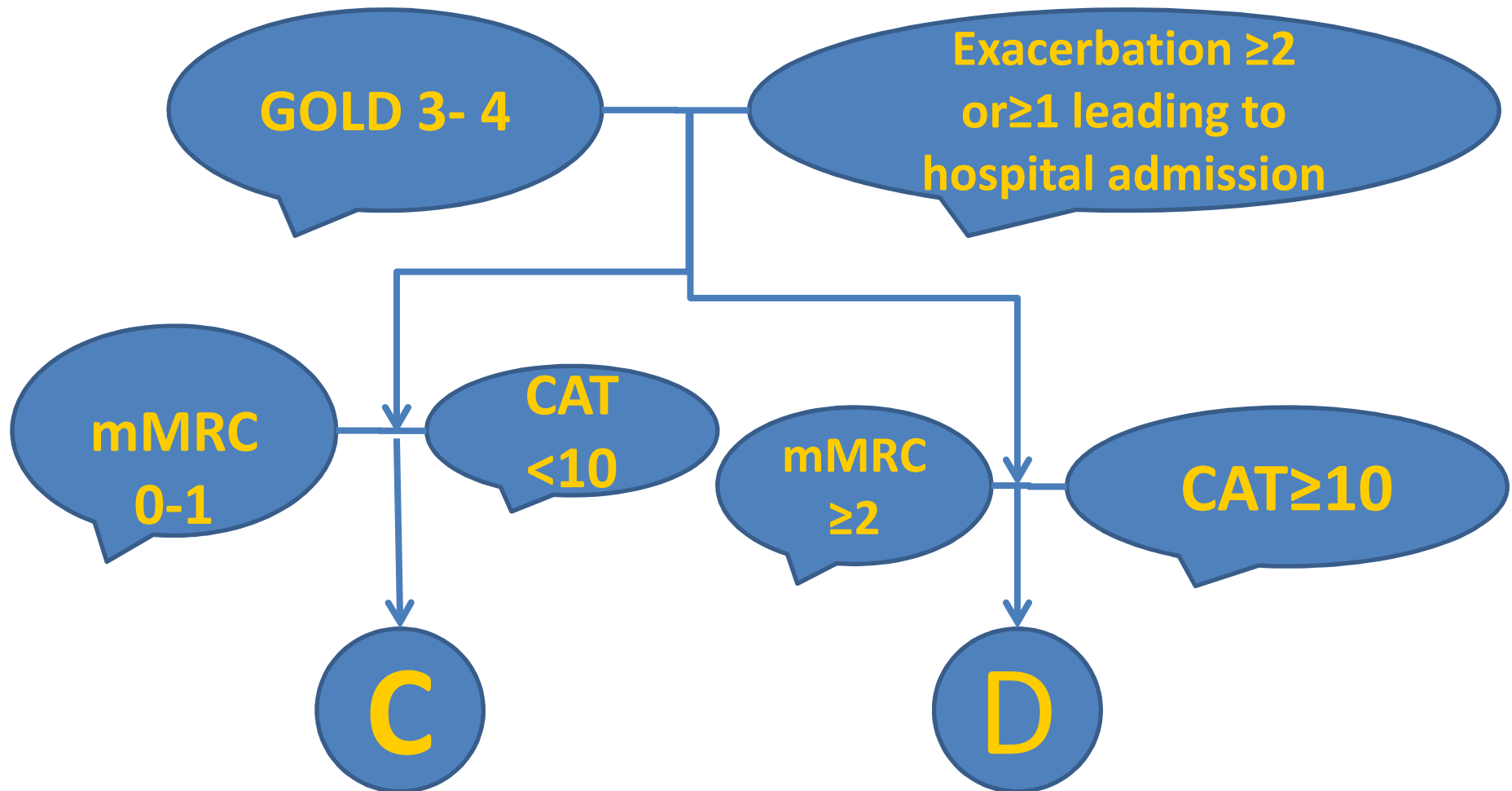
# CLASSIFICATION

A B C D



# CLASSIFICATION

A B C D



# MANEGEMENT OF STABLE COPD



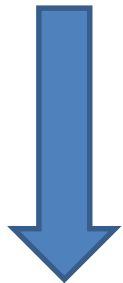
**Improve patient symptoms**

**patient function**

**quality of life**



**AIMES**



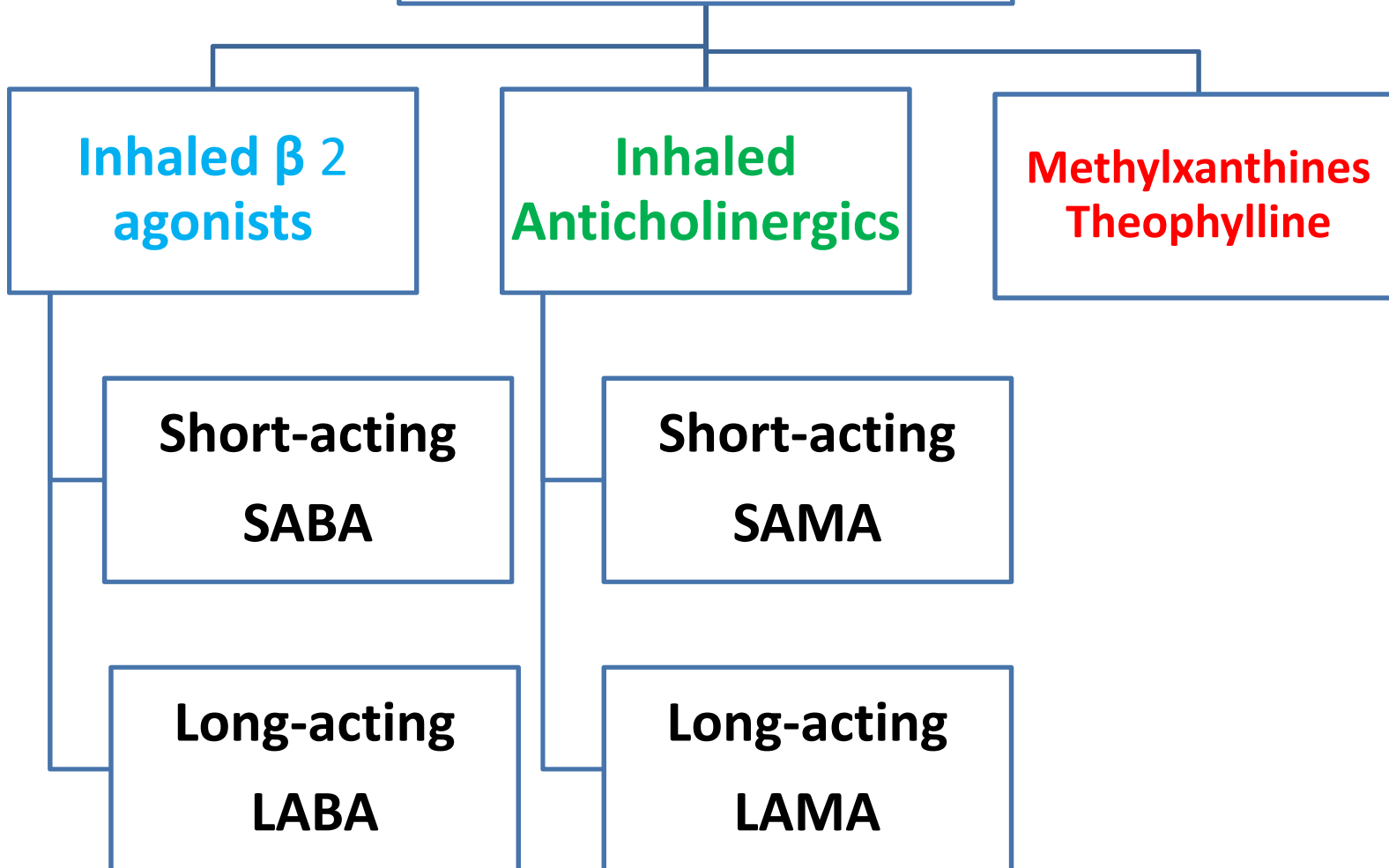
**exacerbations**

**mortality**

# Pharmacological Treatment



# Bronchodilators



## Combination bronchodilator therapy:

- SABA + SAMA → improving FEV<sub>1</sub> and symptoms
- LABA + LAMA → improved lung function symptoms and quality of life
- LABA + LAMA → ↓↓ exacerbations compared LABA or LABA+ICS

# Anti-inflammatory agents

- **Inhaled corticosteroids (ICS)**
- **Not as monotherapy**
- (LABA/LAMA/ICS and LABA/ICS:
- with high exacerbation risk
- blood eosinophil counts



## ▶ FACTORS TO CONSIDER WHEN INITIATING ICS TREATMENT

• STRONG SUPPORT •	• CONSIDER USE •	• AGAINST USE •
<ul style="list-style-type: none"><li>• History of hospitalization(s) for exacerbations of COPD<sup>#</sup></li><li>• ≥ 2 moderate exacerbations of COPD per year<sup>#</sup></li><li>• Blood eosinophils ≥ 300 cells/<math>\mu</math>L</li><li>• History of, or concomitant, asthma</li></ul>	<ul style="list-style-type: none"><li>• 1 moderate exacerbation of COPD per year<sup>#</sup></li><li>• Blood eosinophils ≥ 100 to &lt; 300 cells/<math>\mu</math>L</li></ul>	<ul style="list-style-type: none"><li>• Repeated pneumonia events</li><li>• Blood eosinophils &lt;100 cells/<math>\mu</math>L</li><li>• History of mycobacterial infection</li></ul>

# Anti-inflammatory agents

- **Oral corticosteroids not recommended**
- **Phosphodiesterase-4 (PDE4) inhibitors**
- (Roflumilast) → in addition to LABA or LABA+ICS →
- FEV1 < 50%,
- chronic bronchitis and exacerbations

# Other Pharmacological Treatment

- Alpha 1 antitrypsin → Emphysema + severe hereditary alpha-1 antitrypsin deficiency
- Anti tussive → not recommended
- Drugs of primary HTAP → → not recommended

# 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

# Non Pharmacological Treatment

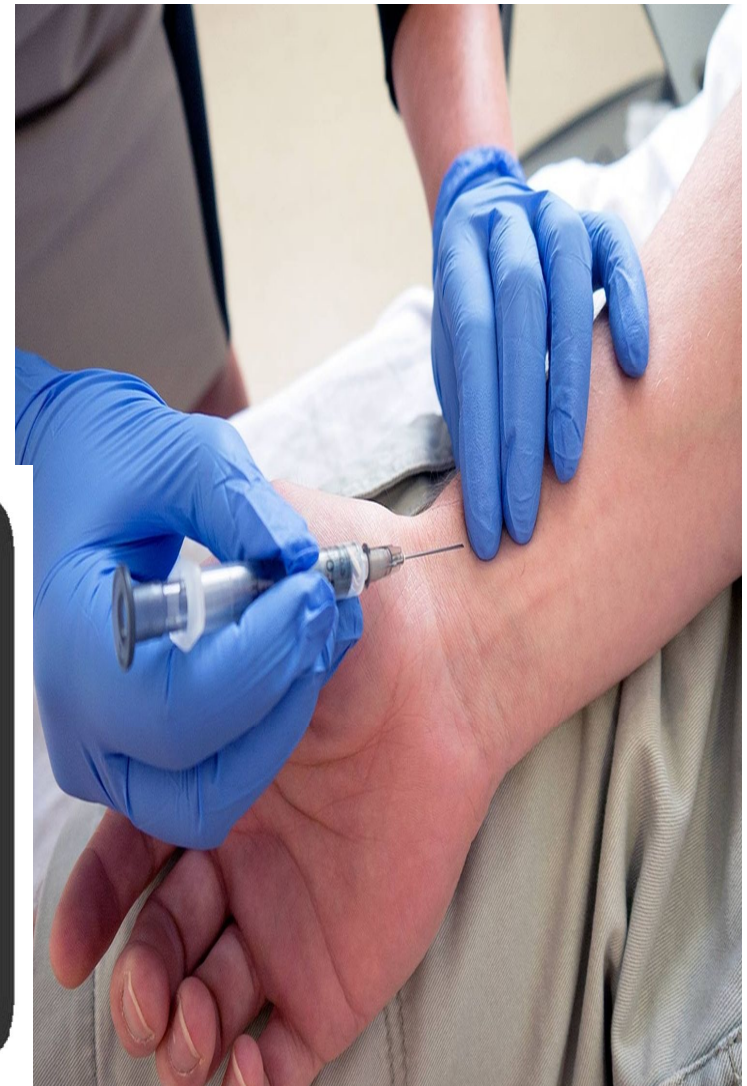
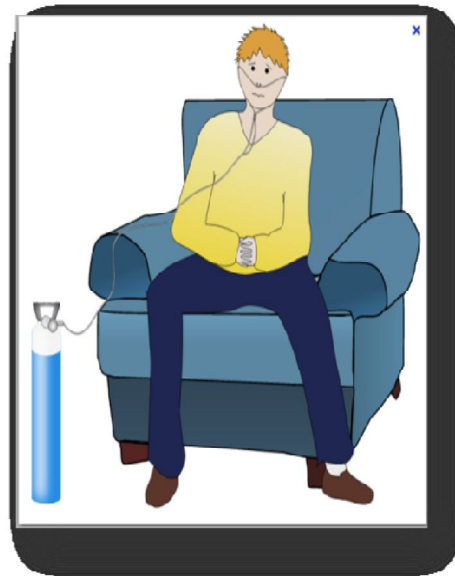
- ▶ **Smoking Cessation**
- ▶ **Reduction of other risk factors**
- ▶ **Vaccination**
- ▶ **Education**
- ▶ **Pulmonary Rehabilitation**

# Non Pharmacological Treatment

- ▶ **Nutrition**
- ▶ **Treatment of Hypoxemia**
- ▶ **Treatment Of Hypercapnia**
- ▶ **Intervention Bronchoscopy And Surgery**

# Oxygen Therapy

- ▶  $PO_2 < 55$  mmhg or
- ▶  $55 < po_2 < 60$ mmhg:  
right heart failure or  
erythrocytosis



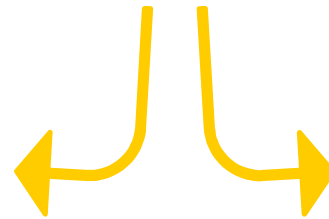
# Treatment of Hypercapnia



**BPAP**

**long-term non-invasive ventilation**

↓ mortality



↓ re-hospitalization



# Surgery

▶ Lung volume reduction Surgery LVRS

→ Upper Lobe- Emphysema

▶ Surgical Bullectomy

▶ Lung Transplantation

# Lung Transplantation

- **Severe Emphysema** one of :
- History of hospitalisation for **exacerbation** with acute **hypercapnia**
- **HTP** or cor pulmonale despite O<sub>2</sub> therapy
- **FEV1** < 20% and either **DLCO** < 20% or
- Homogenous distribution of emphysema

# Bronchoscopic Interventions

## Bronchoscopic Lung Volume Reduction

### BLVR



end –expiratory Lung Volume  
At 6-12 Months following treatment



exercise tolerance  
Quality of life  
Lung Function

# **Bronchoscopic Interventions**

**Vapor Ablation**

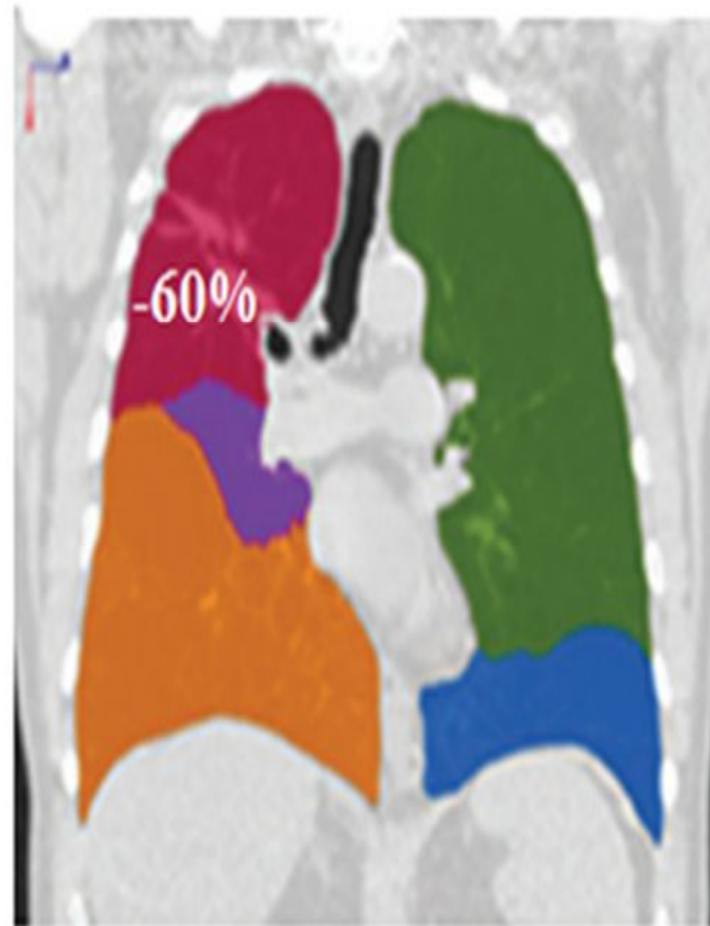
**Lung Coils**

**Endobronchial Valves FDA approved**

# Vapor Ablation

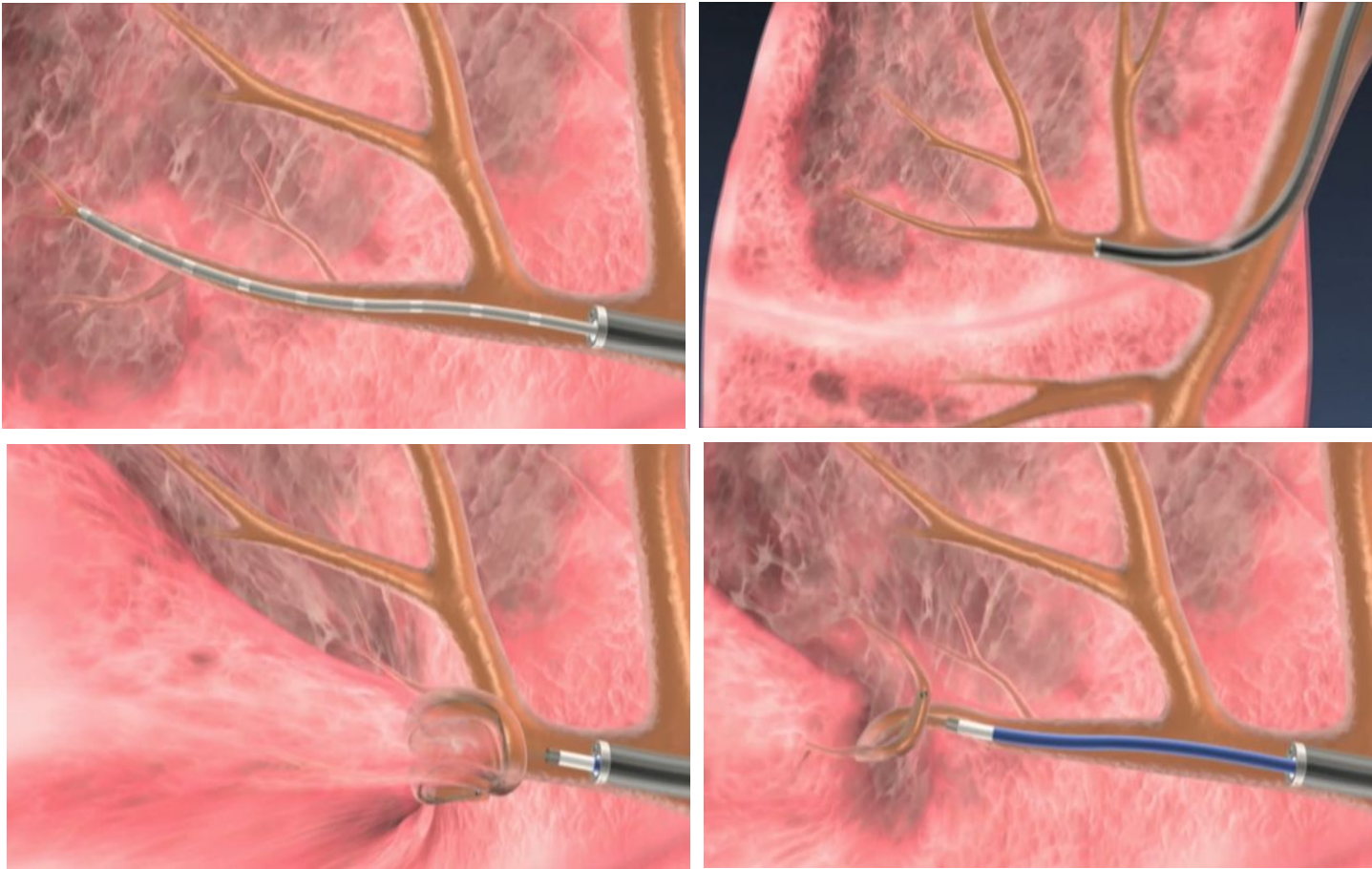
Baseline

6 Month

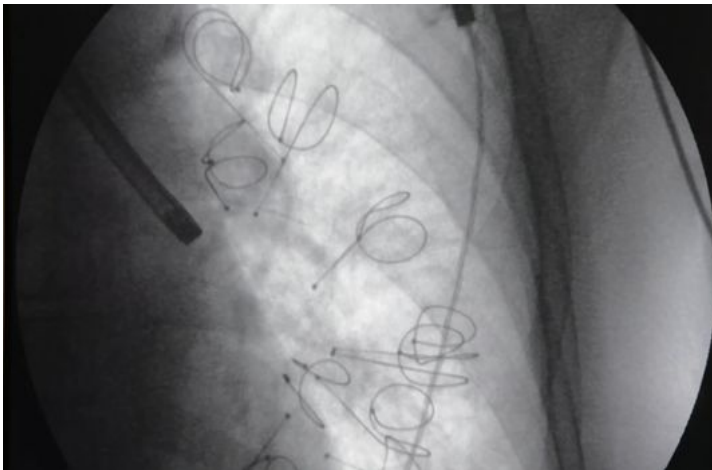


- Right upper lobe
- Right middle lobe
- Right lower lobe
- Left upper lobe
- Left lower lobe

# Lung Coils



# Lung Coils

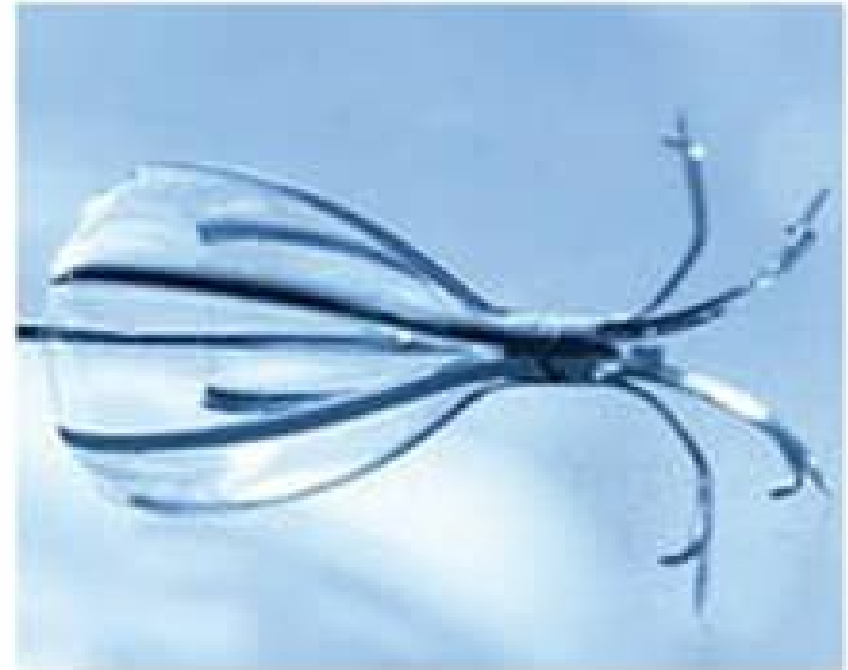


# Endobronchial Valves

Zephyr® Endobronchial Valve

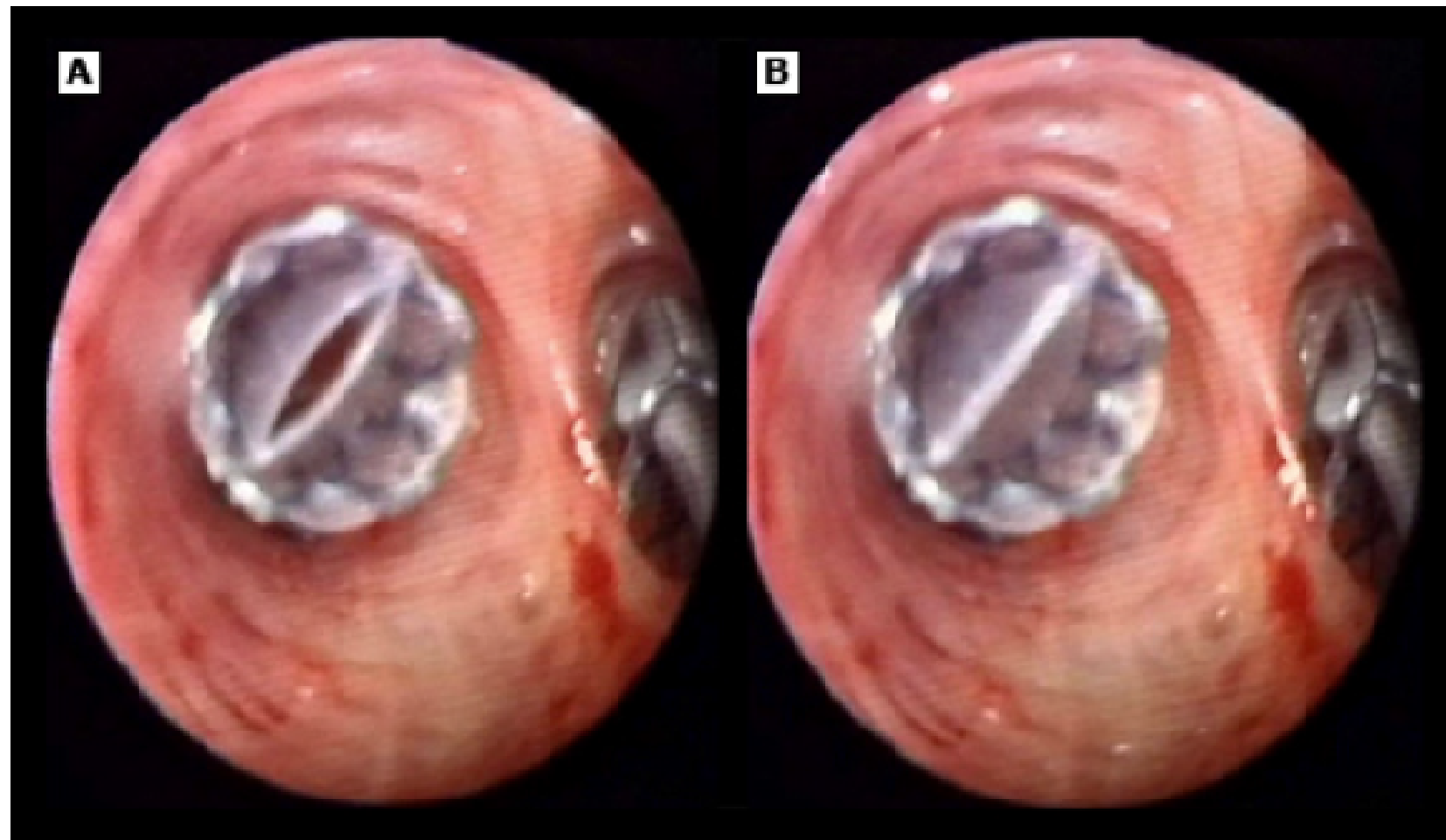


Spiration® Valve System



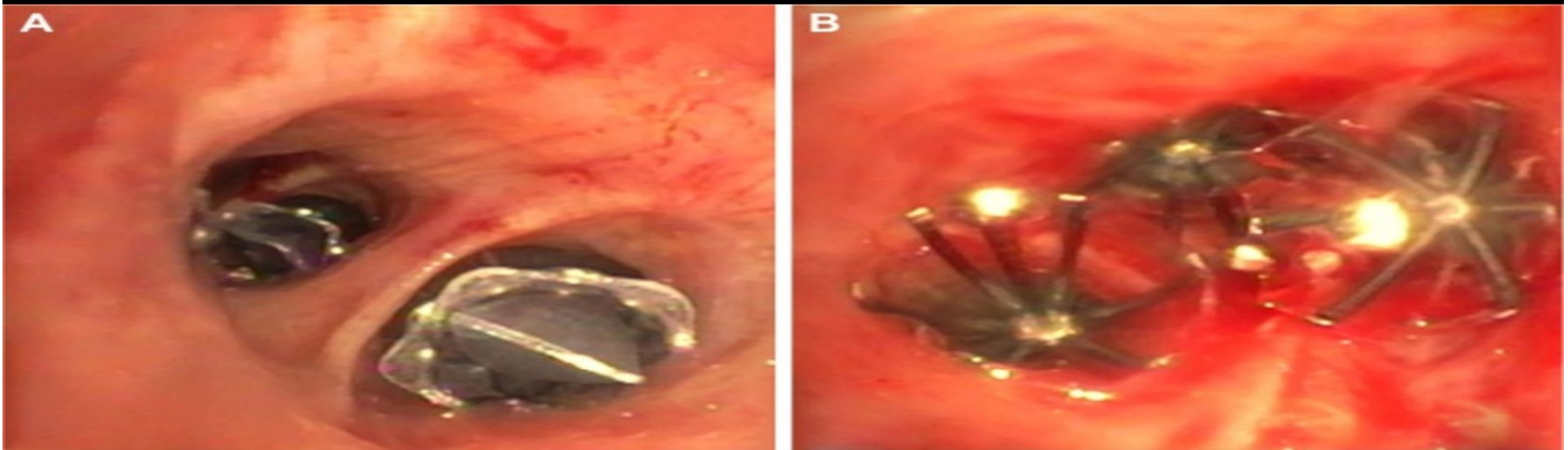


## Zephyr® Endobronchial Valve, end view

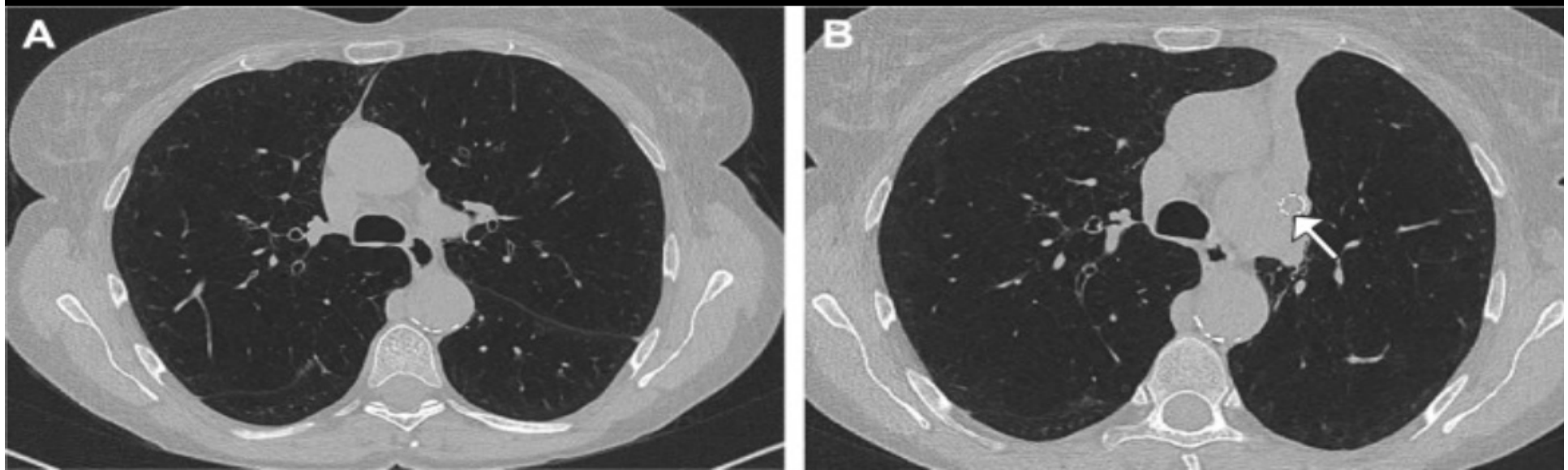


Views of the Zephyr® Endobronchial Valve vents showing an open valve during expiration (panel A) and a closed valve during inspiration (panel B).

# Endobronchial Valves



# Endobronchial Valves





[News](#) > [Medscape Medical News](#) > [Conference News](#) > [ERS 2022](#)

# Lung Volume Reduction Methods Show Similar Results for Emphysema

Neil Osterweil

September 09, 2022



---

BARCELONA, Spain — For patients with [emphysema](#) who are suitable candidates for lung volume reduction surgery, there were no differences at 1 year in either lung function, dyspnea, or exercise capacity between patients who were assigned to undergo

---

As noted before, there were no significant differences in outcomes at 1 year, with similar degrees of improvement between the surgical techniques for both the composite iBODE score (-1.10 for LVRS vs. -0.82 for BLVR, nonsignificant), and for the individual components of the score.

In addition, the treatments were associated with similar reductions in gas trapping, with residual volume percentage predicted -36.1 with LVRS, vs, -30.5 with BLVR (nonsignificant).

One patient in each group died during the 12 months of follow-up. The death of the patient in the BLVR group was deemed to be treatment related; the death of the patient in the LVRS group was related to a noninfective exacerbation of [chronic obstructive pulmonary disease](#).

## Patient selection for bronchoscopic lung volume reduction with endobronchial valves\*

Inclusion criteria	
Medical history and physical examination	<p>Clinical presentation consistent with emphysema</p> <p>Symptomatic despite optimal medical therapy (mMRC <math>\geq 2</math>)</p> <p>Clinically stable on <math>\leq 20</math> mg prednisone (or equivalent)/day</p> <p>Nonsmoking for <math>\geq 4</math> months</p> <p>BMI <math>&lt; 35</math> kg/m<sup>2</sup></p>
Pulmonary function tests	<p>FEV<sub>1</sub> <math>\geq 15\%</math> predicted but <math>\leq 45\%</math> predicted</p> <p>TLC <math>\geq 100\%</math> predicted</p> <p>RV <math>\geq 175\%</math> predicted</p> <p>6MWD <math>\geq 100</math> m and <math>&lt; 500</math> m</p>
Imaging	Emphysema on HRCT
Anesthesia	Able to tolerate procedural sedation
Collateral ventilation	Lobe targeted for EBV placement must have little to no collateral ventilation assessed by Chartis <sup>®</sup> and/or StratX <sup>Δ</sup>

## Exclusion criteria

Prior lung transplant, LVRS, median sternotomy, lobectomy

Heart failure (LVEF <45%), unstable cardiac arrhythmia, myocardial infarction, stroke

Severe hypercapnia: PaCO<sub>2</sub> >60 mmHg (8 kPa)

Severe hypoxemia: PaO<sub>2</sub> <45 mmHg (6 kPa)

Active pulmonary infection

Allergy to nitinol, nickel, titanium, or silicone

Large bullae >30% either lung


Contraindications to bronchoscopy or high risk postoperative morbidity or mortality

## Potential indications and contraindications for LVRS

Parameter	Indications	Contraindications
Clinical	Age <75 years	Age ≥75 years
	Ex-smoker (>6 months)	Current smoking
	Clinical picture consistent with emphysema	Surgical constraints (eg, previous thoracic procedure, pleurodesis, chest wall deformity)
	Dyspnea despite maximal medical therapy and pulmonary rehabilitation	Pulmonary hypertension (PA systolic >45 mmHg, PA mean >35 mmHg)
Comorbid illness*		Clinically significant bronchiectasis
		Clinically significant coronary heart disease
		Heart failure with an ejection fraction <45 percent
		Uncontrolled hypertension
		Obesity <sup>¶</sup>
Physiology	FEV1 after bronchodilator <45 percent predicted	FEV1 ≤20 percent predicted with either DLCO ≤20 percent predicted or homogeneous emphysema
	Hyperinflation (TLC >100 percent predicted, RV >150 percent)	PaO2 ≤45 mmHg on room air
	Post rehabilitation 6-minute walk distance >140 meters	PaCO2 ≥60 mmHg
	Low post rehabilitation maximal achieved cycle ergometry watts <sup>Δ</sup>	
Imaging	Chest radiograph - hyperinflation	
	HRCT confirming severe emphysema, ideally with upper lobe predominance	Homogeneous emphysema with FEV1 ≤20 percent predicted
		Significant pleural or interstitial changes on HRCT
		Nonupper lobe predominant emphysema and high post rehabilitation maximal achieved cycle ergometry watts <sup>◇</sup>





 Edit\_vapor\_Overview of InterVapor Bronchoscopic Thermal Vapor Ablation (BTVA).mp4



Edit\_Coil\_Neue Therapie bei schwerem Lungenemphysem.mp4

 Edit\_valve\_Endobronchial Valve Animation - SPIRATION.mp4

# Global Initiative for Chronic Obstructive Lung Disease



## POCKET GUIDE TO COPD DIAGNOSIS, MANAGEMENT, AND PREVENTION

A Guide for Health Care Professionals

**2022 REPORT**

---



**Up to Free Date  
Medscape**



*heart syria*

*Thank You*