

# 2017 GOLD Report

Is it worth its weight in **GOLD**???

CSHP-NB Fall Education Day  
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# Objectives

- ★ Explain the underlying pathophysiology of chronic obstructive pulmonary disease (COPD)
- ★ Describe the refined COPD assessment tool
- ★ Discuss the updated recommendations for the management of COPD
- ★ Explain proper technique of novel inhalers

# Global initiative for Chronic Obstructive Lung Disease

- ★ Initiated in 1998 to raise awareness of the burden of COPD and to improve prevention and management of COPD
- ★ First report released in 2001
- ★ GOLD Science Committee reviews published research and posts yearly updates on the GOLD website
- ★ 2017 report is the 4th major revision of GOLD

# Available Clinical Practice Guidelines

## ★ Canadian Guidelines

- Canadian Thoracic Society: Recommendations for Management of COPD (2008)
- Canadian Thoracic Society: Managing Dyspnea in Patients with Advanced COPD (2011)
- Canadian Thoracic Society & American College of Chest Physicians: Prevention of Acute Exacerbations of COPD (2015)

## ★ Other Guidelines

- NICE Clinical Guideline: Chronic Obstructive Pulmonary Disease (UK, 2010)

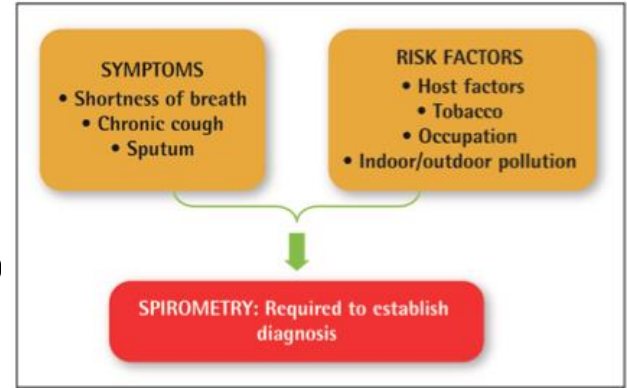


**Canadian Respiratory  
Guidelines**



**NICE** National Institute for  
Health and Care Excellence

# Background



★ Currently the 4th leading cause of death in the world

★ 80-90% of cases are caused by smoking

★ Common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation

★ Pathological changes found in airways, lung parenchyma and pulmonary vasculature

★ Dyspnea, chronic cough and sputum production are the classic symptoms of COPD

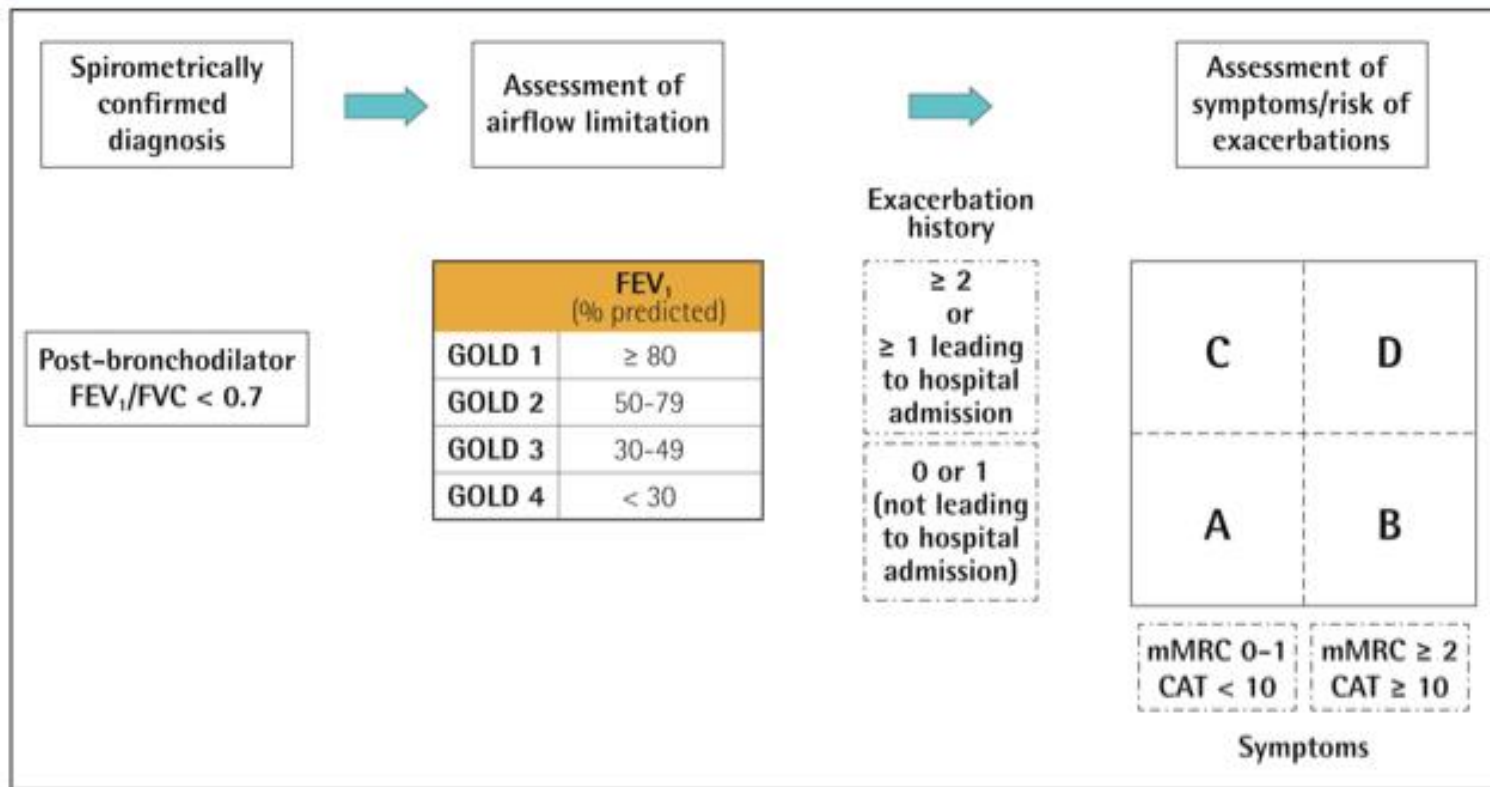
# **COPD Assessment**



# Goals of COPD Assessment

- ★ Determine the level of airflow limitation
- ★ Impact on the patient's health status
- ★ Risk of future events
  - Exacerbation, hospital admission or death

Figure 2.4. The refined ABCD assessment tool





# Severity of Airflow Limitation

**Table 2.4. 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

# Symptom Assessment

**Table 2.5. 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.

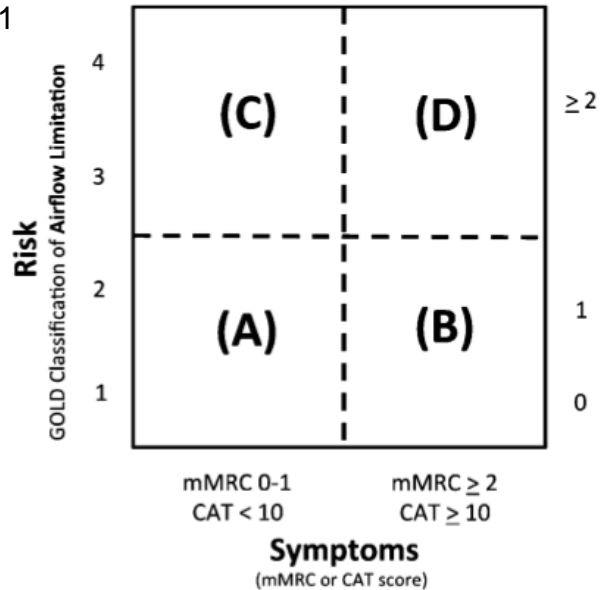
Figure 2.3. CAT Assessment

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	①	<input checked="" type="radio"/>	②	③	④	⑤	I am very sad	SCORE
I never cough		0	1	2	3	4	5	I cough all the time	<input type="text"/>
I have no phlegm (mucus) in my chest at all		0	1	2	3	4	5	My chest is completely full of phlegm (mucus)	<input type="text"/>
My chest does not feel tight at all		0	1	2	3	4	5	My chest feels very tight	<input type="text"/>
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	<input type="text"/>
I am not limited doing any activities at home		0	1	2	3	4	5	I am very limited doing activities at home	<input type="text"/>
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	<input type="text"/>
I sleep soundly		0	1	2	3	4	5	I don't sleep soundly because of my lung condition	<input type="text"/>
I have lots of energy		0	1	2	3	4	5	I have no energy at all	<input type="text"/>
								TOTAL SCORE	<input type="text"/>

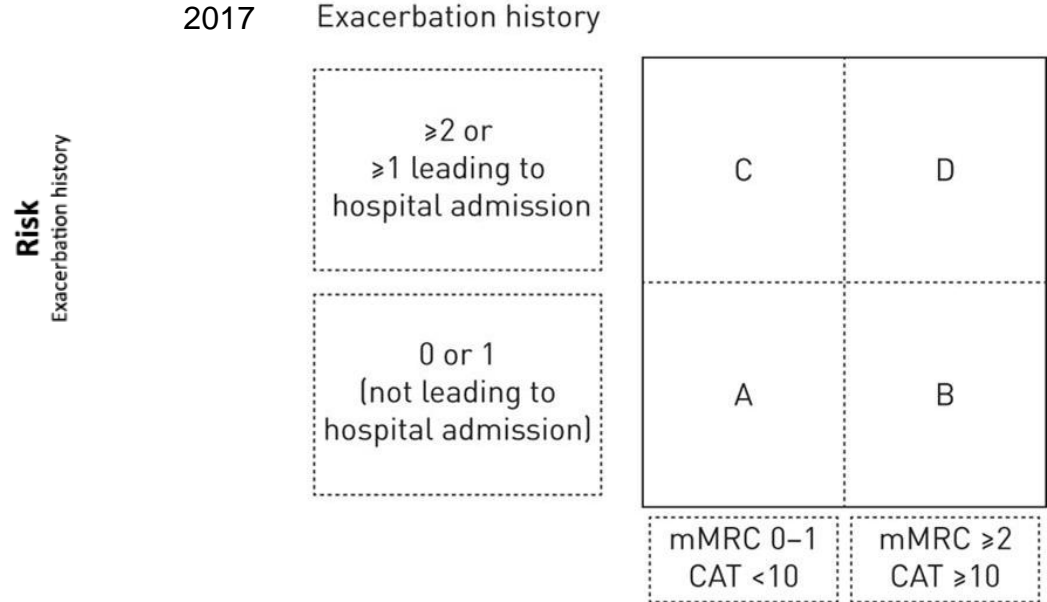
Consider two patients - both with an FEV1 < 30% of predicted and CAT score of 18. Jim had no exacerbations in the past year. Mary has had three exacerbations in the past year.

GOLD 2011



Jim: GOLD D  
Mary: GOLD D

GOLD 2017



Jim: GOLD grade 4, group B  
Mary: GOLD grade 4, group D

# **Recommendations for Management of Stable COPD**



# Goals for treatment of stable COPD

## ★ Reduce current symptoms

- Relieve symptoms, improve exercise tolerance, improve health status

## ★ Reduce risk of future exacerbations

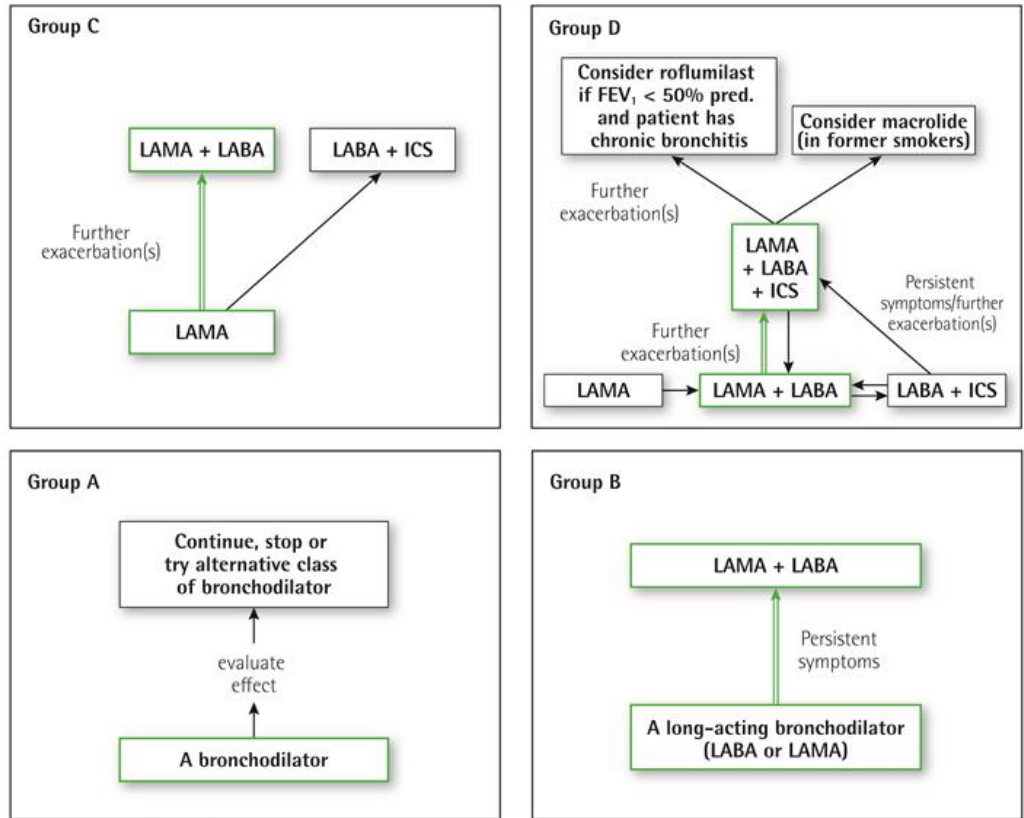
- Prevent disease progression, prevent and treat exacerbations, reduce mortality

# Risk Management

<b>Identify and reduce exposure to risk factors</b>	
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

# Treatment algorithms based on GOLD grade

Figure 4.1. Pharmacologic treatment algorithms by GOLD Grade [highlighted boxes and arrows indicate preferred treatment pathways]



Preferred treatment = 

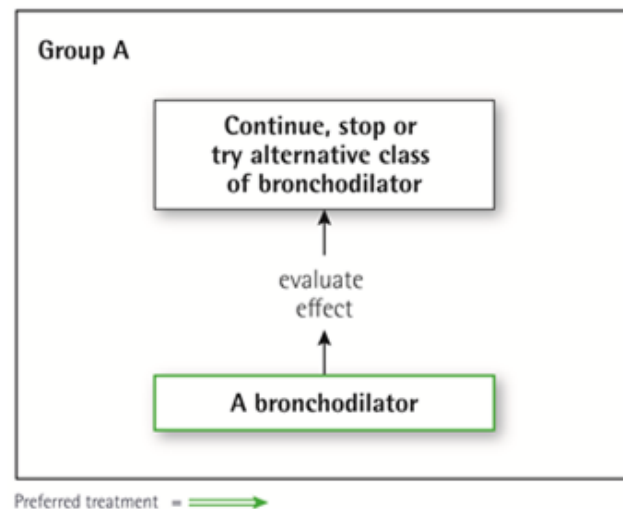
In patients with a major discrepancy between the perceived level of symptoms and severity of airflow limitation, further evaluation is warranted.



# Treatment recommendations

## Group A

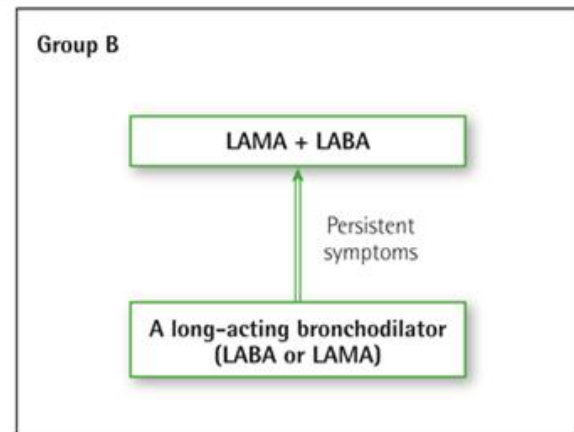
- ★ All patients should be offered bronchodilator treatment
  - This can be short-acting or long-acting (SABA, SAMA, LABA, LAMA)



# Treatment recommendations

## Group B

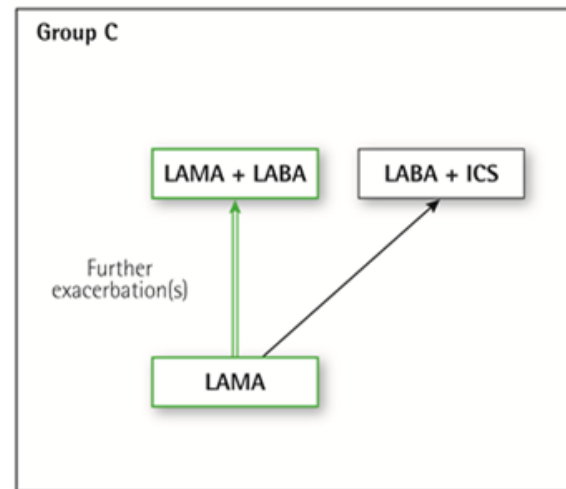
- ★ Initial therapy should consist of a long-acting bronchodilator (LABD)
- ★ There is no evidence to suggest one class of LABDs over another for initial relief of symptoms in this group (LABA or LAMA)
- ★ For patients presenting with severe breathlessness, initial therapy with two bronchodilators may be considered
- ★ For patients with persistent breathlessness on monotherapy, the use of two bronchodilators is recommended (LABA and LAMA)



# Treatment recommendations

## Group C

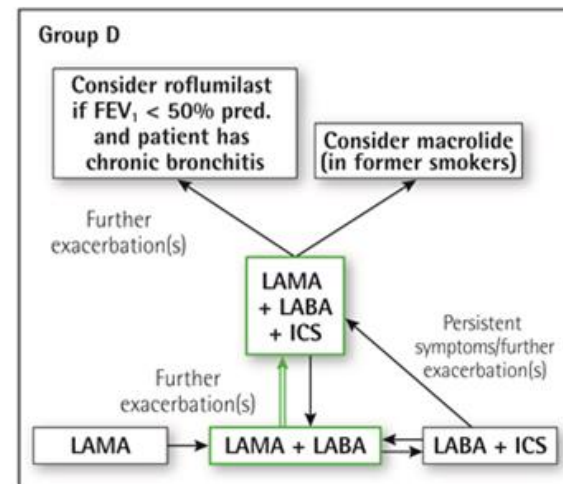
- ★ Initial therapy should consist of a single long-acting bronchodilator. The recommendation is to start with a LAMA in this group
- ★ Patients with persistent exacerbations may benefit from adding a second long-acting bronchodilator (LABA/LAMA) or using a combination of a long-acting beta2-agonist and an inhaled corticosteroid (LABA/ICS)



# Treatment recommendations

## Group D

- ★ Combination LAMA/LABA therapy is recommended
- ★ LABA/ICS may be the first choice in some patients.  
i.e.: history +/- findings of asthma-COPD
- ★ In patients who develop further exacerbations on LABA/LAMA therapy two alternatives are suggested:
  - Escalation to LABA/LAMA/ICS
  - Switch to LABA/ICS



# **Canadian Thoracic Society**

**Recommendations for management of COPD**



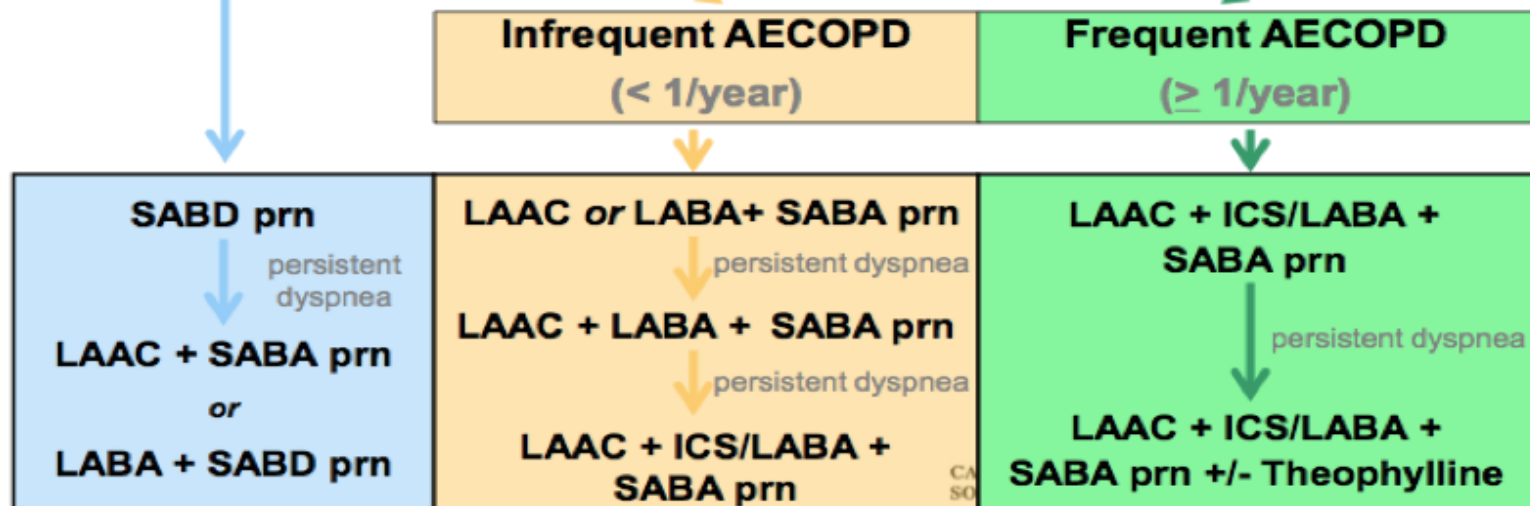


Increasing Disability and Lung Function Impairment

**Mild**

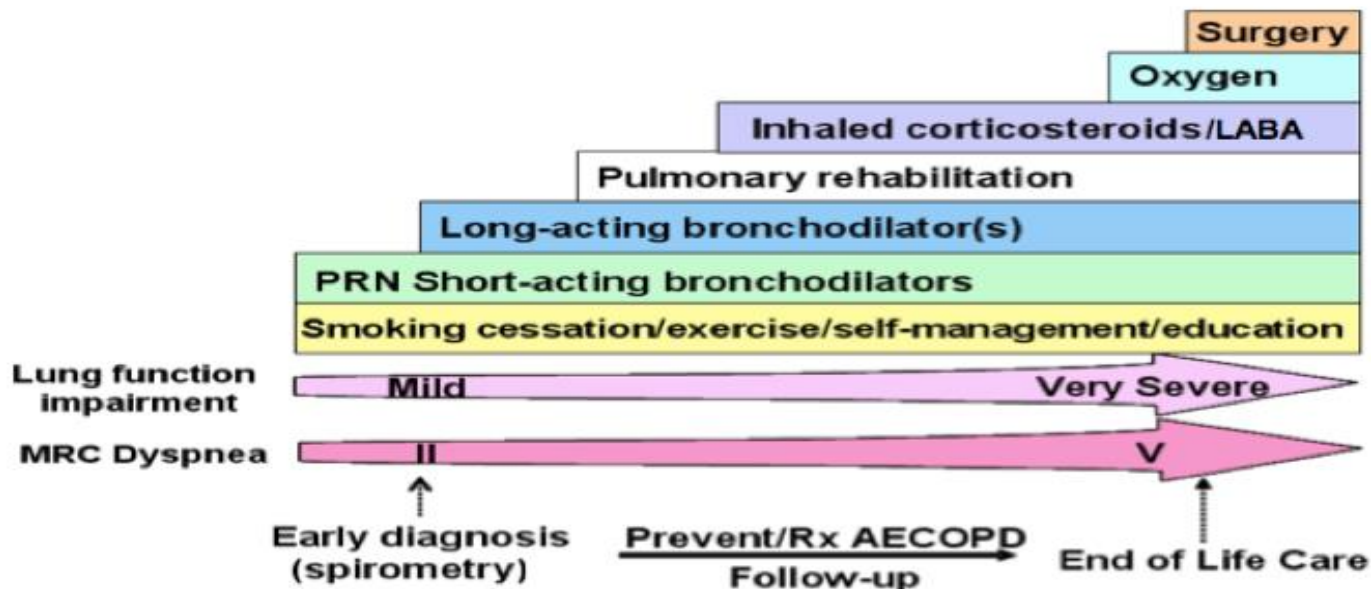
**Moderate**

**Severe**





## Comprehensive Management of COPD



# **Recommendations for the Management of Exacerbations**





# COPD Exacerbations

- ★ Defined as an acute worsening of respiratory symptoms that result in additional therapy
  - Mild: treated with short-acting bronchodilators only
  - Moderate: treated with short-acting bronchodilators plus antibiotics and/or corticosteroids
  - Severe: patient requires hospitalization or visits the emergency room.
- ★ Symptoms usually last between 7-10 days
- ★ COPD exacerbations contribute to disease progression

# Key Points for Exacerbation Management

- ★ Respiratory support as needed (oxygen therapy/ventilatory support)
- ★ Short-acting inhaled beta2-agonists, with or without short-acting anticholinergics are initial bronchodilators to treat acute exacerbation (via MDI or nebulizer)
- ★ Systemic corticosteroids can improve lung function, oxygenation, shorten time to recovery and time in hospital
- ★ Antibiotics, when indicated, can shorten recovery time, reduce risk of early relapse, treatment failure and hospitalization duration
- ★ Duration of therapy for corticosteroids and antibiotics should not exceed 5-7 days
- ★ Methylxanthines are not recommended due to side effect profiles (i.e.: theophylline)

## Treatment Criteria

- The use of antibiotics in acute exacerbations of chronic obstructive pulmonary disease (AECOPD) is controversial
- Antimicrobial therapy is only recommended when AECOPD are accompanied by all 3 cardinal symptoms or at least 2 of the 3 cardinal symptoms, if increased sputum purulence is one of the 2 symptoms:
  1. Increased dyspnea
  2. Increased sputum volume
  3. Increased sputum purulence
- Patients receiving invasive or non-invasive ventilation for AECOPD should be initiated on intravenous antimicrobial therapy
- Antibiotic selection should be based on patient symptoms and risk factors
- If infiltrate on chest x-ray or pneumonia suspected then treat as per pneumonia treatment guidelines

Risk Stratification	Probable Organism	Preferred Empiric Regimen	Alternative Empiric Regimens	Duration	Comments
<b>Acute Bronchitis</b> • patients presenting with only 1 of the 3 cardinal symptoms	Viral in most cases	Antimicrobial therapy <u>not</u> recommended Symptomatic therapy only			
<b>Simple (Low-Risk Patients)</b> • Less than 4 exacerbations per year	<i>Streptococcus pneumoniae</i> <i>Haemophilus influenzae</i> <i>Moraxella catarrhalis</i>	doxycycline 100 mg po q12h	amoxicillin/clavulanate 875/125 mg po q12h* OR sulfamethoxazole/trimethoprim 800/160 mg po q12h* OR cefuroxime 500 mg po q12h* OR clarithromycin 500 mg po q12h	5 days	<ul style="list-style-type: none"> <li>• If a patient has received an antibiotic in the last 3 months the therapy chosen should be a regimen based on a different mechanism of action regardless of the clinical success</li> <li>• Tailor antibiotic therapy for sputum culture results if available</li> </ul>
<b>Complicated (High Risk Patients)</b> At least one of: <ul style="list-style-type: none"> <li>• Forced expiratory volume in 1 second (FEV<sub>1</sub>) less than 50% predicted</li> <li>• Greater than or equal to 4 exacerbations per year</li> <li>• Ischemic heart disease</li> <li>• Use of home oxygen</li> <li>• Chronic steroid use</li> </ul>	As in simple plus: Klebsiella spp and other Gram-negatives, Increased probability of beta-lactam resistance	<u>Oral Therapy:</u> amoxicillin/clavulanate 875/125 mg po q12h*  <u>Intravenous Therapy:</u> cefTRIAxone 1-2 g IV q24h	<u>Oral Therapy:</u> cefuroxime 500 mg po q12h* OR clarithromycin 500 mg po q12h* OR levofloxacin 750 mg po q24h*  <u>Intravenous Therapy:</u> levofloxacin 750 mg IV q24h*	5 – 10 days  5 days (for levofloxacin)	<ul style="list-style-type: none"> <li>• If a patient has received an antibiotic in the last 3 months the therapy chosen should be a regimen based on a different mechanism of action regardless of the clinical success</li> <li>• Tailor antibiotic therapy for sputum culture results if available</li> </ul>

# **Non-Pharmacologic Management**



# Pulmonary Rehabilitation

- ★ Comprehensive intervention based on thorough patient assessment followed by patient-tailored therapies including exercise training, education and self-management interventions aimed at behaviour changes
- ★ Pulmonary rehabilitation improves patient symptoms, quality of life and physical and emotional participation in everyday activities
- ★ Recent systematic reviews have shown it can reduce readmissions and mortality among patients who have had a recent exacerbation

# Non-pharmacologic Management

Table 4.8. 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

# Take Home Points

- ★ Newly revised ABCD assessment tool
  - Separation of the spirometric grades from the ABCD groups
- ★ Personalized initiation and escalation/de-escalation strategies
- ★ Importance of pulmonary rehabilitation
- ★ Remember to ask patients about vaccination history

# Techniques of Novel Inhalers



# Genuair Device

Ingredient(s)	Brand Name	Class
<b>Aclidinium</b>	Tudorza Genuair	LAMA
<b>Aclidinium/Formoterol</b>	Duaklir Genuair	LAMA/LABA

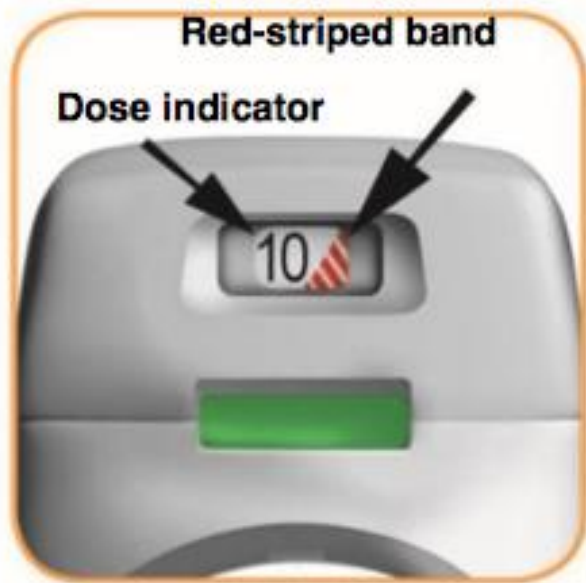
## HOW TO USE A GENUAIR



5. Seal lips on mouthpiece.
6. Breathe in strong and deep.
7. Keep breathing in even after you hear th



**Dose indicator goes down by intervals  
of 10: 60. 50. 40. 30. 20. 10. 0.**



**IMAGE B**

# Breezhaler Device



Ingredient(s)	Brand Name	Class
<b>Glycopyrronium</b>	Seebri Breezhaler	LAMA
<b>Indacaterol</b>	Onbrez Breezhaler	LABA
<b>Glycopyrronium/Indacaterol</b>	Ultibro Breezhaler	LAMA/LABA

# Respimat Device

Ingredient(s)	Brand Name	Class
<b>Tiotropium</b>	Spiriva Respimat	LAMA
<b>Ipratropium/Salbutamol</b>	Combivent Respimat	SAMA/SABA
<b>Tiotropium/Olodaterol</b>	Inspiro Respimat	LAMA/LABA


## HOW TO USE A RESPIMAT



How to use:

- **TURN** the base.
- **OPEN** the cap.
- Breathe out.
- Close lips around mouthpiece.



THE  LUNG ASSOCIATION™

# Ellipta Device



Ingredient(s)	Brand Name	Class
<b>Umeclidinium</b>	Incruse Ellipta	LAMA
<b>Umeclidinium/Vilanterol</b>	Anoro Ellipta	LAMA/LABA
<b>Fluticasone/Vilanterol</b>	Breo Ellipta	ICS/LABA

### Cover

Each time you open this, you prepare one dose of medicine.

### Dose Counter

This shows how many doses of medicine are left in the inhaler.

**Before the inhaler has been used, it shows exactly 30 doses (14 for sample and hospital packs).**

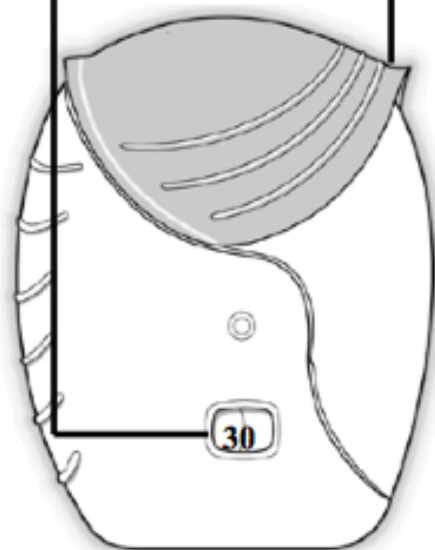
It counts down by 1 each time you open the cover.

**When fewer than 10 doses are left,** half of the dose counter shows red to remind you to refill your prescription.

**After you have inhaled the last dose,** half of the dose counter shows red and the number 0 is displayed.

Your inhaler is now empty.

If you open the cover after this, the dose counter will change from half red to completely red.





**Global Initiative for Chronic  
Obstructive  
Lung  
Disease**



**GLOBAL STRATEGY FOR THE DIAGNOSIS,  
MANAGEMENT, AND PREVENTION OF  
CHRONIC OBSTRUCTIVE PULMONARY DISEASE**

**2017 REPORT**

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- 6) Product Monograph: Seebri Breezhaler. Novartis Pharmaceuticals Canada Inc.; 2017.
- 7) Spiriva Respimat Instructions. Boehringer Ingelheim Pharmaceuticals Inc.; 2015.
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- 10) How to use your inhaler [Internet]. Lung.ca. 2017 [cited 24 September 2017]. Available from: <https://www.lung.ca/lung-health/get-help/how-use-your-inhaler>