



**Asthma  
+ Respiratory**  
FOUNDATION NZ

# NZ COPD Guidelines 2020: A Quick Reference Guide

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NZMJ- Submitted

# Acknowledgement



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

**2020 REPORT**



## COPD-X Concise Guide

This Guide aims to provide evidence-based practical recommendations for healthcare professionals on the diagnosis and management of Chronic Obstructive Pulmonary Disease (COPD).

[copdx.org.au](http://copdx.org.au)



# Key Messages

1. Culturally appropriate education.
2. Good quality Spirometry is key.
3. Smoking cessation remains number one.
4. Pulmonary Rehabilitation should be offered to all COPD patients and particularly post-exacerbation.
5. LAMAs are first step, then LAMA/LABA.
6. ICS/LABA – ongoing exacerbations, particularly if eosinophils ( $\geq 0.3$ )



# COPD in Māori

The burden of COPD among Māori is one of the most significant health disparities in NZ.

Greater exposure to smoking & poor housing.

Worse lung function for any given level of exposure, and onset 15-20 years younger.

Hospitalization: 3.5 times higher.

Mortality: 2.2 times higher!

Large inequities in lost years of healthy life.

*Whakawhanaungatanga* (the making of culturally meaningful connections with others)



# Pathogenesis

## Exposure:

Smoking or inhaled noxious particles in most.

No clear exposure in some. Air pollution?

## Inflammation

Neutrophil, macrophage, and T-lymphocyte

## Airway damage

Inflammation, fibrosis, sputum production causes airway narrowing

Destruction of alveoli



# Diagnosis

**Suspect in anyone who presents over the age of 40 with:**

Cough

Sputum

Wheeze

Shortness of breath

**Particularly if history of exposure.**

**If under 40 consider  $\alpha$ -1 Antitrypsin deficiency**



# Diagnosis

## **Spirometry – remains the gold standard**

Good quality needs to be available

Few contraindications (recent pneumothorax, large aortic aneurysms, during acute infections).

## **Peak flows are not useful in COPD**



# Spirometry

Post-bronchodilator testing.

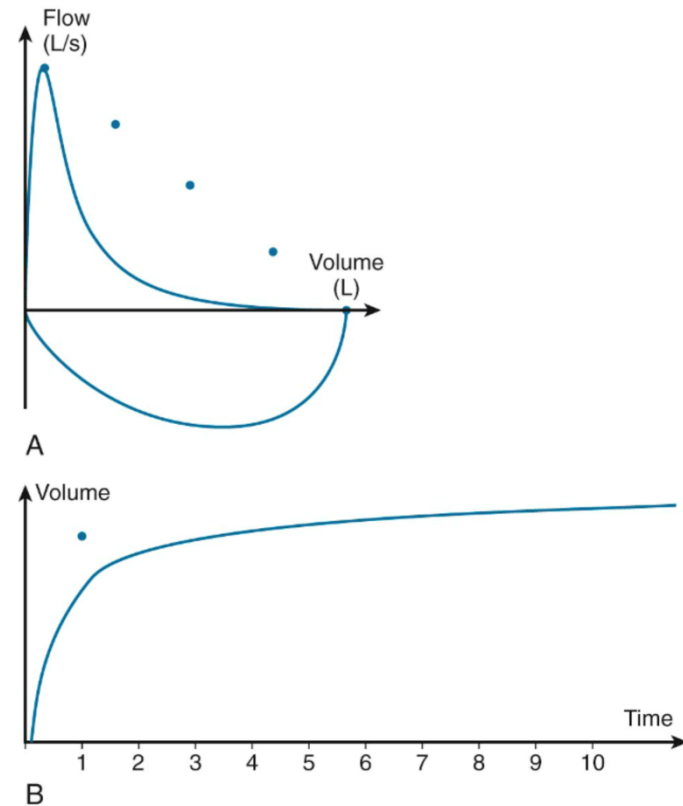
Irreversible obstructive  
airflow limitation.

FEV1/FVC ratio  $< 0.7$  or LLN\*.

Needs FVC or at least FEV6.

Severity = % pred FEV1.

A true restrictive test  
suggests alternative  
diagnosis.



# Asthma v COPD

**Asthma:**

Episodic and variable

Younger

Atopic

Triggers

Greater reversibility

**COPD:**

Progressive and persistent

Exposure history

Older (>40)

Infective exacerbations

Limited reversibility

But also a number have an **overlap**  
of the two



# Assess severity

**Airflow obstruction – spirometry**

**AND**

**Symptoms – Modified Medical Research Council (mMRC) Dyspnoea Scale, COPD Assessment Test (CAT)**

**CONSIDER**

**Functional tests – walk tests, sit-to-stand**



## Classification of severity of chronic obstructive pulmonary disease (COPD)

	<b>MILD</b>	<b>MODERATE</b>	<b>SEVERE</b>
Typical Symptoms	Few symptoms	Breathless walking on level ground	Breathless on minimal exertion
	Breathless on moderate exertion	Breathless walking on level ground	Daily activities severely curtailed
	Cough and sputum production	Recurrent chest infections	Exacerbations of increasing frequency and severity
	Little or no effect on daily activities	Exacerbations requiring oral corticosteroids and/or antibiotics	
<b>Lung Function</b>	<b>FEV<sub>1</sub> ≈ 60-80% predicted</b>	<b>FEV<sub>1</sub> ≈ 40-59% predicted</b>	<b>FEV<sub>1</sub> &lt; 40% predicted</b>

FEV<sub>1</sub> = forced expiratory volume in one second. PaO<sub>2</sub> = partial pressure of oxygen, arterial. PaCO<sub>2</sub> = partial pressure of carbon dioxide, arterial.

# Non-Pharmacological

**Smoking Cessation**

**Exercise**

**Pulmonary Rehabilitation**

**Breathing Control**

**Sputum Control**

**Nutrition**

**Assisted Ventilation**

**Interventional**



# Smoking Cessation

**Still key!! The most important intervention.**

**Every person should be offered help to quit.**

**Most common help? = no aids!**

**Smoking cessation support is key.**

**Then: NRT (patch + gum/loz), bupropion, nortriptyline, or varenicline.**

**E-cigarettes...**



# E-cigarettes

Probably less harmful than smoking; but are not risk free. NOT 95% safer.

Useful aid in the setting of a supportive smoking cessation program.

Long term safety unknown.

People using e-cigarettes should be advised to stop them as soon as possible.

No e-cigarette or vape is currently approved as a smoking cessation tool.



# Exercise

**Be active on most, preferably all, days of the week.**

**Do at least 20-30 minutes per day.**

**‘Huff and puff’ intensity.**

**Getting out of breath will not cause harm.**



# Pulmonary Rehabilitation

**Should be offered to all patients with COPD.**

**Most cost-effective management of COPD.**

**Can be hospital, community, or home based.**

**Reduces breathlessness, improves QOL, reduces depression, reduces readmissions.**

**Benefits decline over time – repeat attendance and post-rehab exercise important.**



# Breathing/Sputum Control

**Respiratory physiotherapist: individualized breathing exercises and sputum clearance techniques.**

**Diaphragmatic and pursed lip breathing.**

**Hand-held fans - can reduce dyspnoea.**

**Inspiratory muscle training – can improve strength, QOL, dyspnea, and ET.**



# Assisted Ventilation

## Non-invasive ventilation (NIV)

Reduces mortality and need for intubation in acute hypercapnic respiratory failure.

Some patients with chronic hypercapnic respiratory failure may benefit from home NIV and should be referred to a specialist center.



# Interventional

**Lung volume reduction surgery**

**Bullectomy**

**Lung transplantation**

**Bronchoscopic interventions: Endobronchial valves (are available nationally)**

**All in very selected patients.**



# Improving Patient Understanding

**Identify and manage social and cultural issues.**

**Optimize knowledge of COPD and adherence to treatment.**

**Demonstrate inhaler technique.**

**Develop an action plan.**

**Develop a breathlessness plan.**



# Pharmacological Management

## Key Points:

**Inhaler technique and adherence should be reviewed regularly and before any medication escalation.**














**Prescribe on class.**

**SABA and/or SAMA for symptom relief.**

**Start LAMA, move to LAMA/LABA.**



Inhaler Devices Identification Chart

Long Acting Beta2 Agonists (LABA)						
SALMETEROL Aerosol inhaler and Accuhaler			FORMOTEROL (eformoterol)		INDACATEROL	
						
25mcg Meterol	25mcg Serevent	50mcg Serevent Accuhaler	6mcg Oxis Turbuhaler	12mcg Foradil Aerolizer device	150mcg 300mcg Onbrez Breezhaler	
Long Acting Muscarinic Antagonists (LAMA)				Combination Long Acting Muscarinic Antagonists (LAMA) + Long Acting Beta2 Agonists (LABA)		
TIOTROPIUM		UMECLIDINIUM	GLYCOPYRRONIUM	TIOTROPIUM + OLODATEROL	UMECLIDINIUM + VILANTEROL	GLYCOPYRRONIUM + INDACATEROL
						
18mcg Spiriva Handihaler	2.5mcg Spiriva Respimat	62.5mcg Incruse Ellipta	50mcg Seebri Breezhaler	2.5/2.5 Spiolto	62.5/25 Anoro Ellipta	50/110 Ultibro Breezhaler
<p>NOTES</p> <ul style="list-style-type: none"> <li>• Beclazone and Qvar are NOT dose equivalent</li> <li>• Fluticasone furoate 100mcg DAILY is approximately equivalent to fluticasone propionate 250mcg BD</li> <li>• Breo Ellipta 200/25 is not subsidised</li> <li>• Symbicort 400/12 and Seretide Accuhaler 100/50 and 250/50 can not be prescribed as greater than 2 doses per day</li> <li>• The therapeutic dose of tiotropium when delivered via Respimat device (Spiriva Respimat or Spiolto) is 5microgram daily ie. two doses inhaled once daily</li> <li>• Tiotropium (handihaler and respimat) – require Special Authority SA1568 (Actual FEV<sub>1</sub> as a % of predicted &lt;60%)</li> <li>• Glycopyrronium – Subsidy by endorsement “certified condition” or “COPD confirmed by spirometry” (post bronchodilator FEV<sub>1</sub>/FVC &lt; LLN or &lt;0.7)</li> <li>• Umeclidinium – Subsidy by endorsement “certified condition” or “COPD confirmed by spirometry” (post bronchodilator FEV<sub>1</sub>/FVC &lt; LLN or &lt;0.7)</li> <li>• Prescribing Combination LAMA + LABA - all combinations (Spiolto, Anoro Ellipta, Ultibro) require Special Authority SA1584 (same form for all combinations)</li> </ul> <p>*Inhalers not depicted include Mast Cell Stabilisers including: SODIUM CROMOGLYCATE powder for inhalation (Intal Spincaps and spinhaler 20mg/dose) and aerosol inhaler (Intal Forte 5mg/puff) and NEDOCROMIL aerosol inhaler (Tilade 2mg/puff)</p>						

SYMPTOM CONTROLLERS



# Pharmacological Management

Consider adding Inhaled Steroids (Triple therapy)

If:

frequent exacerbations on LABA/LAMA,  
particularly if blood eosinophils  $\geq 0.3$  (very low  
efficacy if  $< 0.1$ ).

Withdraw ICS: carefully, with 4-6 week review.

NB/ ICS should be part of asthma/COPD overlap – do not  
withdraw in this setting.



# Simplified maintenance inhaler management of COPD

When Treating	Start with	If needed, move on to
<b>COPD without Frequent exacerbations</b>	LAMA	LABA/LAMA
<b>COPD with Frequent exacerbations</b>	LAMA	LABA/LAMA (consider ICS/LABA if eosinophilia) then LABA/LAMA/ICS
<b>Asthma/COPD Overlap</b>	ICS/LABA	ICS/LABA plus LAMA



# Consider

**Prophylactic macrolide if recurrent infective exacerbations (evidence for azithromycin and erythromycin) – refer to secondary care provider.**



# Acute Exacerbation

Acute onset of a change in baseline dyspnoea, wheeze, cough, sputum – purulence and volume.

Accelerated loss of lung volume, worse health status.

Early diagnosis and management important. A 24hr delay doubles the risk of hospitalization.

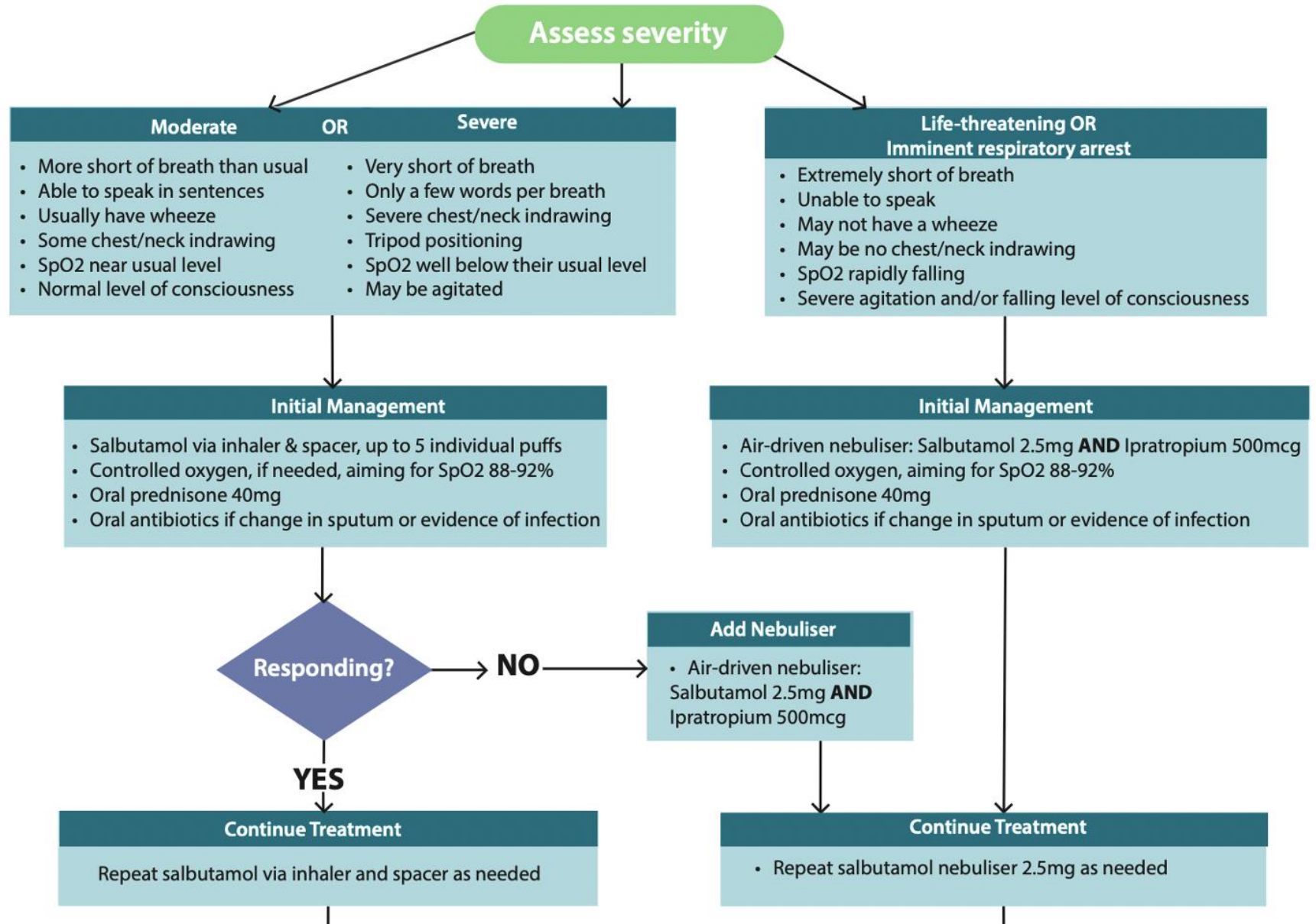


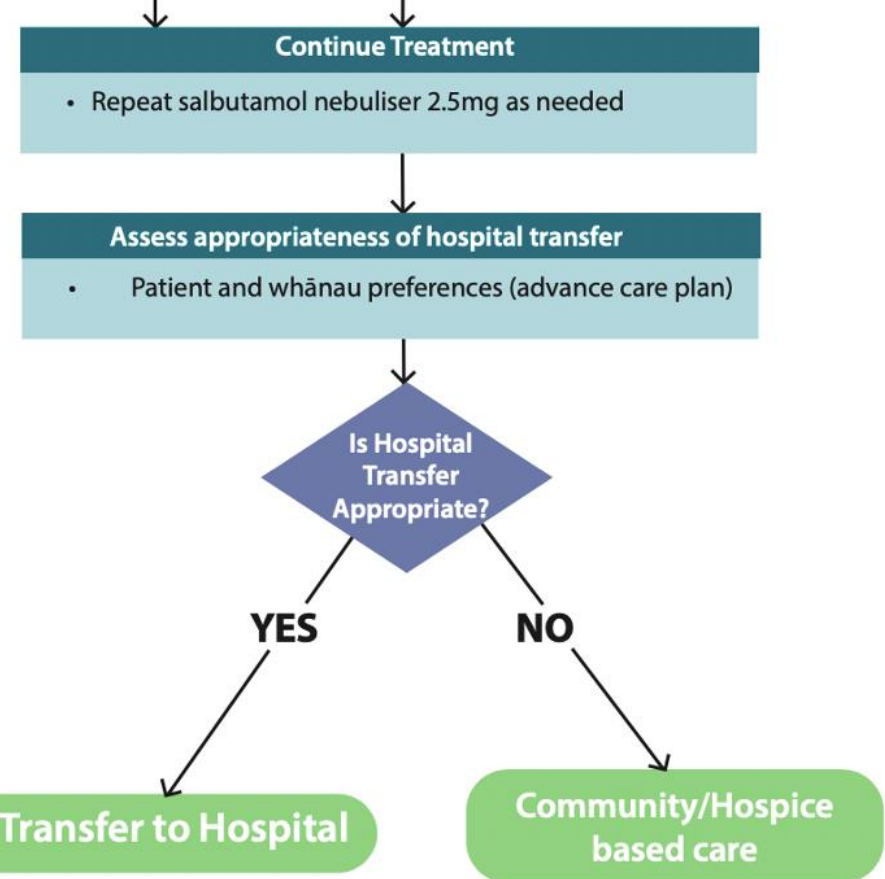
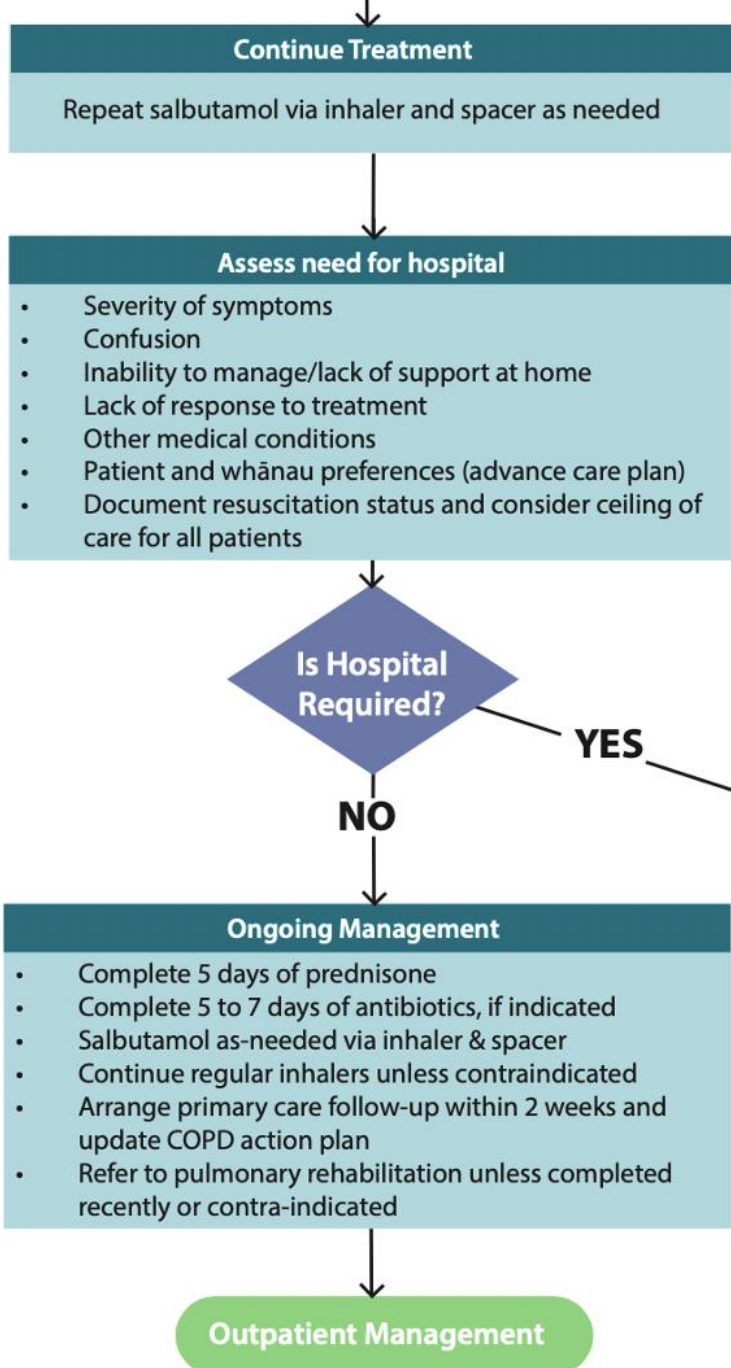
# Assessment of exacerbation severity

Mild to moderate	Severe	Life-threatening / Imminent respiratory arrest
More short of breath than usual	Very short of breath	Extremely short of breath
Able to speak in sentences	Only a few words per breath	Unable to speak
Usually have wheeze		May not have a wheeze
Some chest/neck indrawing	Severe neck/chest indrawing	May be no chest/neck indrawing
	Tripod positioning	
SpO <sub>2</sub> near usual level	SpO <sub>2</sub> well below their usual level	SpO <sub>2</sub> rapidly falling
Normal level of consciousness	May be agitated	Severe agitation and/or falling level of consciousness

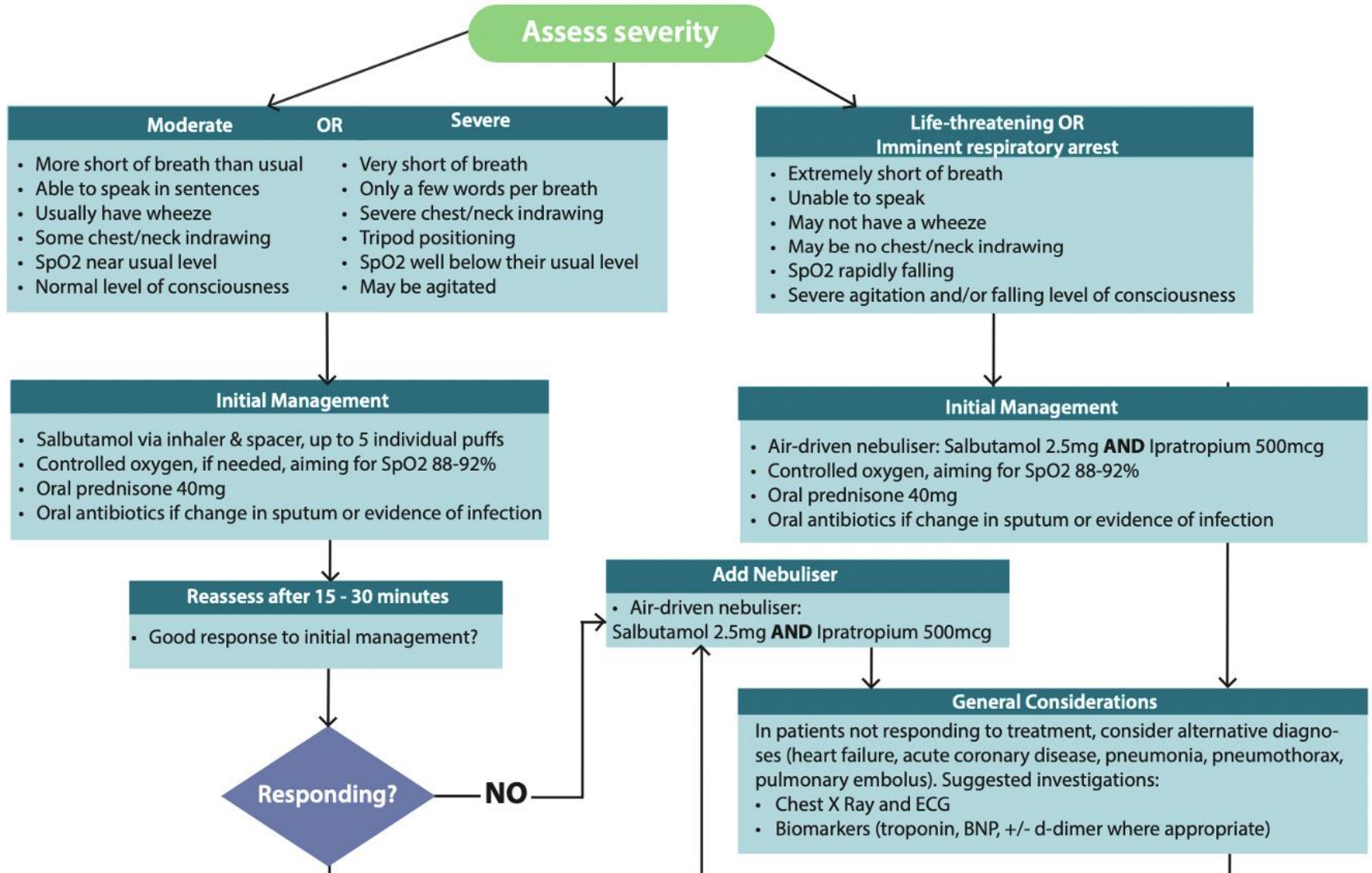


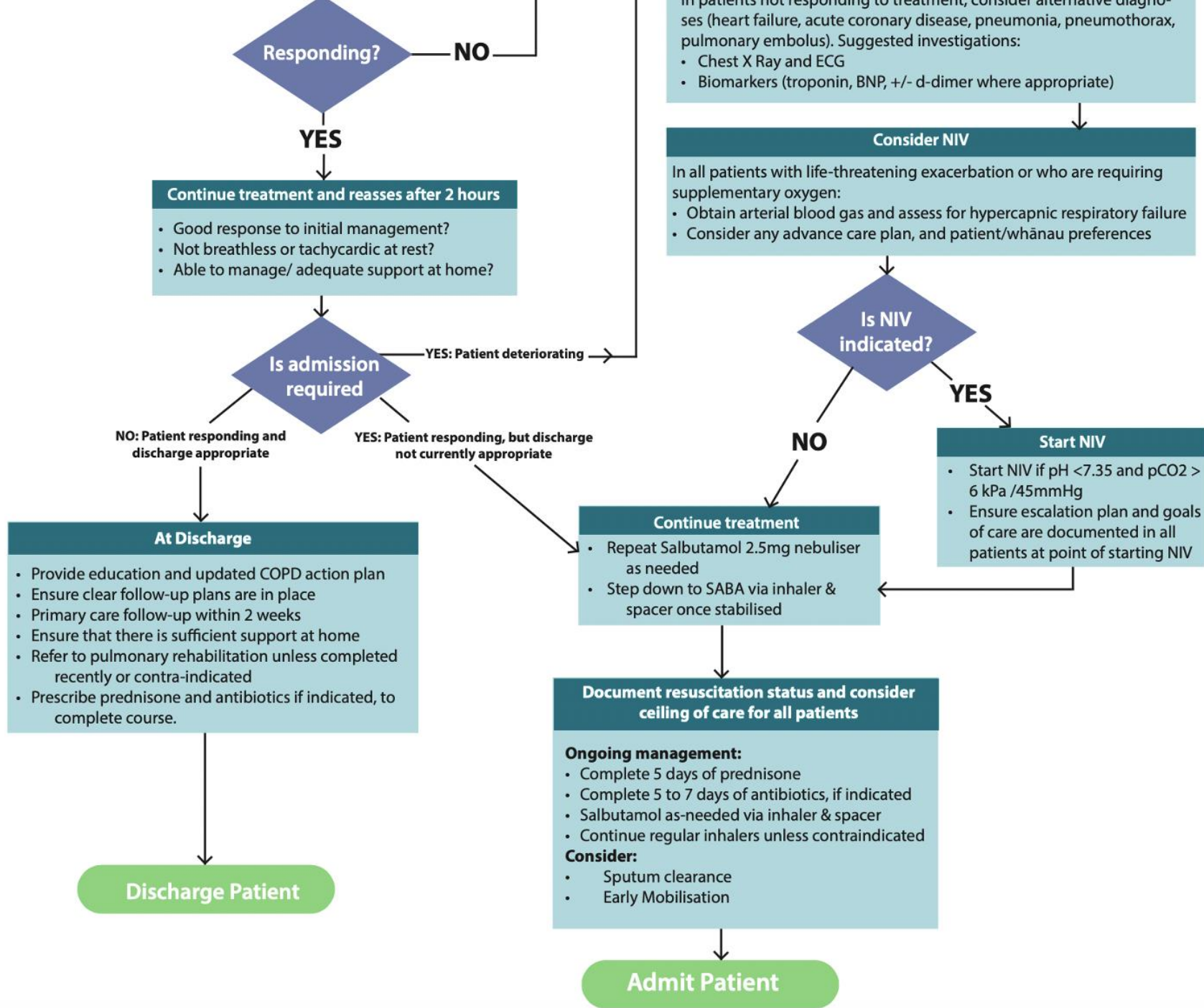
# PRE-HOSPITAL MANAGEMENT OF ACUTE EXACERBATION OF COPD





# HOSPITAL MANAGEMENT OF ACUTE EXACERBATION OF COPD





# Acute Management

**Bronchodilators:**

**Use after breath-control techniques.**

**SABA/SAMA – MDI + spacer (recommended), dry powder, or neb.**

**One actuation followed by 4-6 tidal breaths.**

**Bronchodilator effect: 8-10 puffs = 5mg neb.**

**We recommend 5 puffs MDI (or 2.5mg neb).**

**If neb – make it air driven.**



# Acute Management

**Corticosteroids: Oral prednisone 40mg, 5 days.**

**Antibiotics: If purulent sputum, fever and/or raised CRP or procalcitonin.**

**Give 5-7 days (longer if bronchiectasis)**

**Oxygen: titrate to target 88-92%**

**Acute NIV: in hypercapnic respiratory failure**



# After an exacerbation

## Review:

- **Inhaler technique,**
- **Action Plan,**
- **Breathlessness Plan**
- **Pulmonary rehabilitation.**



# Comorbidities/Treatable Traits

## Identify and Manage Comorbidities:

- Lung Cancer
- Cardiac Disease
- Mental Health – anxiety and depression
- Bronchiectasis
- ILD
- Others: GORD, Allergic Rhinitis, OSA/OHS



# End of Life Care

## Advance Care Planning

- “Would I be surprised if this patient died in the next 12 months?”
- Identify goals of treatment and discuss preferences for end-of-life care early. Good communication is key.
- Palliation
- Morphine reduces respiratory effort and the sensation of breathlessness.



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