Asthma + Respiratory FOUNDATION NZ

NZ COPD GUIDELINES

Quick reference guide

To view the full NZ COPD Guidelines, visit the NZ Respiratory Guidelines website at

nzrespiratoryguidelines.co.nz

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The content of this quick reference guide is sourced from the 'New Zealand COPD Guidelines 2021' which can be found at *www.nzrespiratoryguidelines.co.nz*

COPD SYMPTOMS

COPD should be considered in anyone over the age of 40 with any of the following ongoing symptoms:

- Chronic cough
- Chronic sputum production
- Wheeze
- Shortness of breath

NB: There is usually a history of cigarette smoking or exposure to smoke or other noxious substances with most diagnoses. There is also a higher risk for those of Māori and/or Pasifika descent.

COPD DIAGNOSIS USING SPIROMETRY

The diagnosis of COPD should be confirmed by spirometry. Spirometry may be done both before and after bronchodilator to assess reversibility*, but the diagnosis and severity are determined by *post-bronchodilator* measurements.

Diagnosis

- Irreversible airflow obstruction is diagnosed if post-bronchodilator FEV_1/FVC ratio is < 0.70*
- If there is partial reversibility and a substantial (>400ml) improvement in FEV_1 post-bronchodilator, then asthma or Asthma-COPD Overlap is likely

Assess severity

The severity of the obstruction is diagnosed using the post-bronchodilator FEV_1 as a % of the predicted value**

Mild	Moderate	Severe
FEV_1 ≈ 60-80% predicted	FEV_1 ≈ 40-59% predicted	FEV_1 < 40% predicted

**** For more information on the criteria for airflow obstruction and reversibility testing see p.4 in the NZ COPD Guidelines full document at nzrespiratoryguidelines.co.nz.***

***** Predicted values are determined on the basis of age, height, sex, and ethnicity.***

ASSESSING COPD SEVERITY

Spirometry should be used in conjunction with overall severity.

Symptoms to assess

Mild	Moderate	Severe
Breathless on moderate exertion	Breathless walking on level ground	Breathless on minimal exertion
Little or no effect on daily activities	Increasing limitation on daily activities	Daily activities severely curtailed
Few symptoms	Exacerbations requiring oral corticosteroids and/or antibiotics	Exacerbations of increasing frequency and severity
Cough and sputum production	Recurrent chest infections	

Modified Medical Research Council (mMRC) Dyspnoea Scale

Grade	Symptom complex
0	I only get breathless with strenuous exercise
1	I get short of breath when hurrying on level ground or walking up a slight hill
2	On level ground, I walk slower than people of the same age because of breathlessness, or I have to stop for breath when walking at my own pace on the level
3	I stop for breath after walking about 100 metres or after a few minutes on level ground
4	I am too breathless to leave the house or I am breathless when dressing or undressing

The COPD Assessment Test (CAT) can measure the impact of COPD and response to treatment, visit: ***www.catestonline.org***

NON-PHARMACOLOGICAL MANAGEMENT OF COPD

Smoking cessation

Smoking cessation is the most important component of COPD management and every patient who is still smoking should be offered support to quit. Referral to a local smoking cessation support service is recommended.

Exercise

Promote 20-30 minutes per day of "huff and puff" exercise, or exercise which causes the patient to feel breathless. Muscle strengthening activities at least twice a week.

Pulmonary rehabilitation

Offer pulmonary rehabilitation to all patients. If this cannot be accessed, an in-home exercise programme should be considered. Patients may also benefit from local support groups. A list of groups can be found here: ***www.asthmafoundation.org.nz/about-us/support-groups***

Breathlessness management

Individual breathlessness plans (see p.10 for resources), including hand-held fan therapy, diaphragmatic breathing, and pursed lips breathing exercises can help manage symptoms. Some patients will benefit from review by a respiratory physiotherapist and breathing exercises.

Sputum management

Patients with chronic sputum production may benefit from seeing a physiotherapist for an individualised chest clearance plan.

Nutrition

Malnutrition and obesity contribute to morbidity and mortality in COPD. Consider referral to a dietician, or high-calorie nutritional supplements, for those who are malnourished, and weight loss advice for those who are obese.

Housing

A smoke-free, warm, dry home environment is likely to improve COPD control.

PHARMACOLOGICAL MANAGEMENT OF COPD

Inhaled medication for COPD

Inhaler technique, device suitability, and adherence should be reviewed regularly. Incorrect inhaler technique and poor adherence are common reasons why inhalers don't work. Review these before deciding to change to a different inhaler.

- **SABAs** and **SAMAs** can be used for *symptom relief*
- **LAMAs** are the *first-line long-acting bronchodilator*, both for breathlessness and reduction of exacerbation risk
- Escalate to a **LABA/LAMA** *if LAMA alone does not control breathlessness/exacerbations*
- **ICS** are to prevent exacerbations in patients with *frequent exacerbations*
- **Higher blood eosinophils** are associated with a greater response to ICS and may identify patients who should receive **ICS/LABA** *in preference to LABA/LAMA*
- **Asthma/COPD overlap** patients should receive **ICS** irrespective of blood eosinophils, lung function and exacerbation frequency, preferably as combination **ICS/LABA**

Practice points:

- *Choice of treatment* should be guided by patient preferences for inhaler device. Treatment can be escalated more quickly for patients with severe COPD or frequent exacerbations
- Provide all patients with a written/electronic personalised COPD action plan (see resources p.10)

Simplified maintenance inhaler management of COPD

When treating	Start with	If needed, move on to
COPD ***without*** frequent exacerbations	LAMA	LABA/LAMA
COPD ***with*** frequent exacerbations	LAMA	LABA/LAMA (consider ICS/ LABA if eosinophilia) then LABA/LAMA/ICS
Asthma/COPD ***overlap***	ICS/ LABA	ICS/LABA plus LAMA

Remember

- Do not routinely prescribe a SAMA to patients on a LAMA
- Try to avoid long-term oral corticosteroids
- Do not routinely prescribe theophylline
- Do not use short-term response to bronchodilator to predict benefit from long-term bronchodilator therapy
- Do not routinely prescribe nebulisers for stable COPD

ICS withdrawal

Withdraw ICS if there is no evidence of benefit, the patient develops pneumonia or other adverse affects, or if the patient is stable. However, *do not withdraw* ICS in patients with asthma/COPD overlap or raised blood eosinophils. Review patient 4-6 weeks after ICS withdrawal.

OXYGEN THERAPY FOR COPD

Note: *There is a fire risk associated with oxygen use and smoking or other flammable sources such as gas appliances, open flames, and vaping devices. Current smoking, use of heated tobacco, e-cigarettes, or vaping devices are absolute contra-indications to O_2 supply.*

Evaluation of the patient and consideration for long-term oxygen therapy supply should be done by a specialist respiratory service. Oxygen does not reduce the sensation of breathlessness in patients who are not hypoxic. Oxygen may not improve breathlessness even in those who are hypoxic.

Key points on oxygen therapy

- Oxygen is a drug and should not be used unless it is prescribed
- Oxygen is a treatment for hypoxia, not dyspnoea
- Long-term oxygen therapy is only beneficial if it is used for at least 16 hours a day

Criteria for supply of long-term oxygen therapy

- Assess when the patient is stable, at least six weeks after hospital discharge or an acute respiratory illness
- PaO_2 (measured by arterial blood gas) less than 7.3kPa (55mmHg) indicates the need for long-term oxygen (oxygen saturation usually < 88%).
- PaO_2 <8.0kPa (60mmHg) (oxygen saturation up to 91%) may be an indication for long-term oxygen if there is evidence of polycythaemia (haematocrit > 0.55) and/or cor pulmonale/right heart failure

Criteria for oxygen in palliative care

- Terminal illness with a life expectancy less than 3 months
- Oxygen saturation SpO_2 <90%
- Dyspnoea not adequately controlled by optimal treatment for dyspnoea and pain (physiotherapy, narcotics, anxiolytics)

ACUTE COPD EXACERBATIONS

COPD exacerbations are characterised by an acute change in the patient's baseline dyspnoea, cough and/or sputum beyond normal day-to-day variations.

Key symptoms

- Increased shortness of breath
- Sputum purulence and volume increased
- Increased cough and wheeze

Notes

- COPD exacerbations are associated with accelerated loss of lung function
- Prolonged exacerbations are associated with worse heath status and more frequent future exacerbations.
- Early diagnosis and management of exacerbations may prevent functional deterioration and reduce hospital admissions.

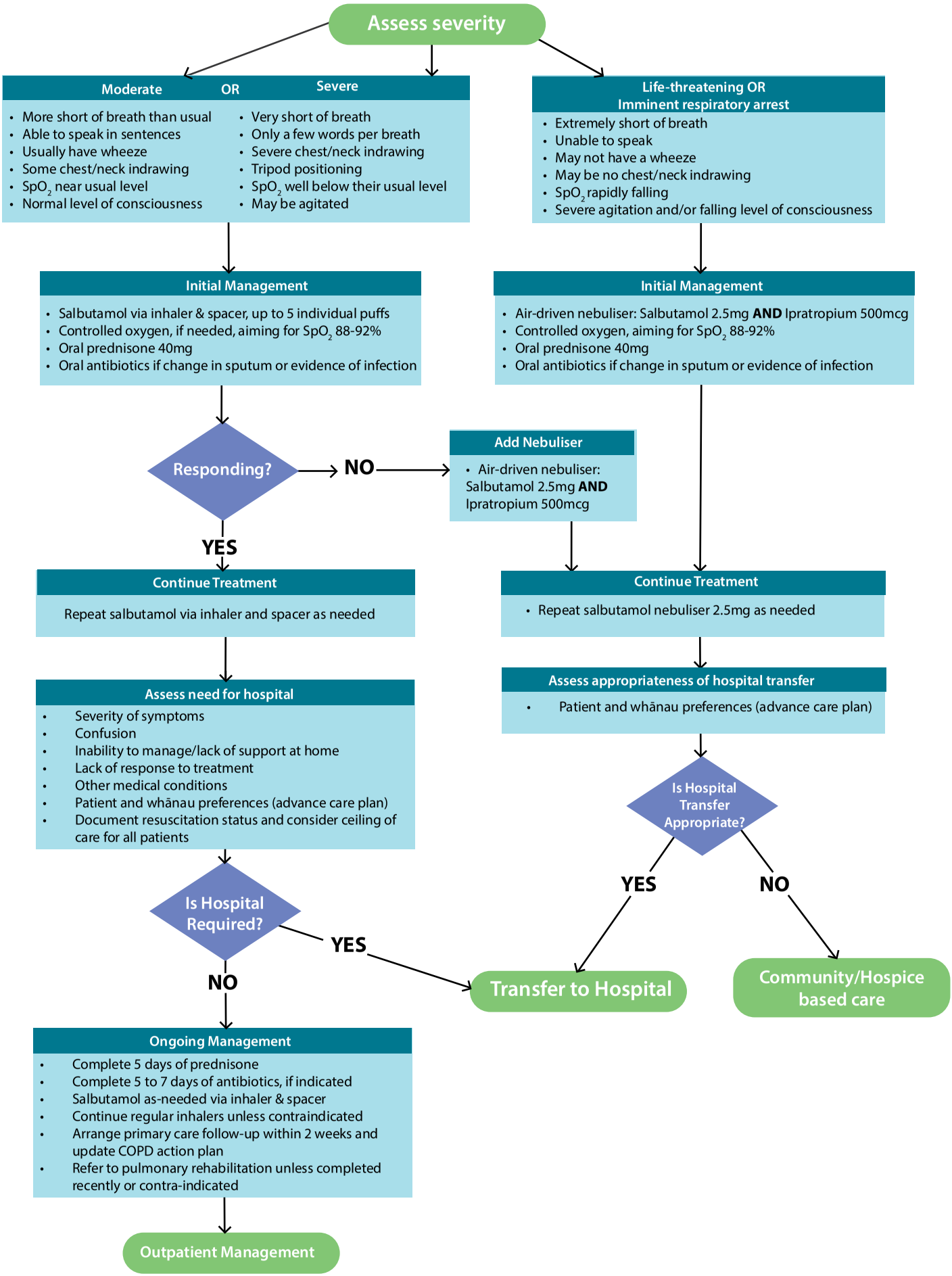
Key messages for exacerbation management

- Most exacerbations can be managed at home
- SABA with or without SAMA are the first-line bronchodilator to treat an acute exacerbation
- Give short course oral corticosteroids e.g. prednisone 40mg once daily for 5 days
- Give short-course antibiotics, for purulent sputum and/or other evidence of infection
- Titrate oxygen to target saturations of 88 to 92%
- Non-invasive ventilation (NIV) reduces mortality in patients with hypercapnic respiratory failure due to an exacerbation
- Careful discharge planning and referral to pulmonary rehabilitation may reduce the risk of future exacerbations and admissions

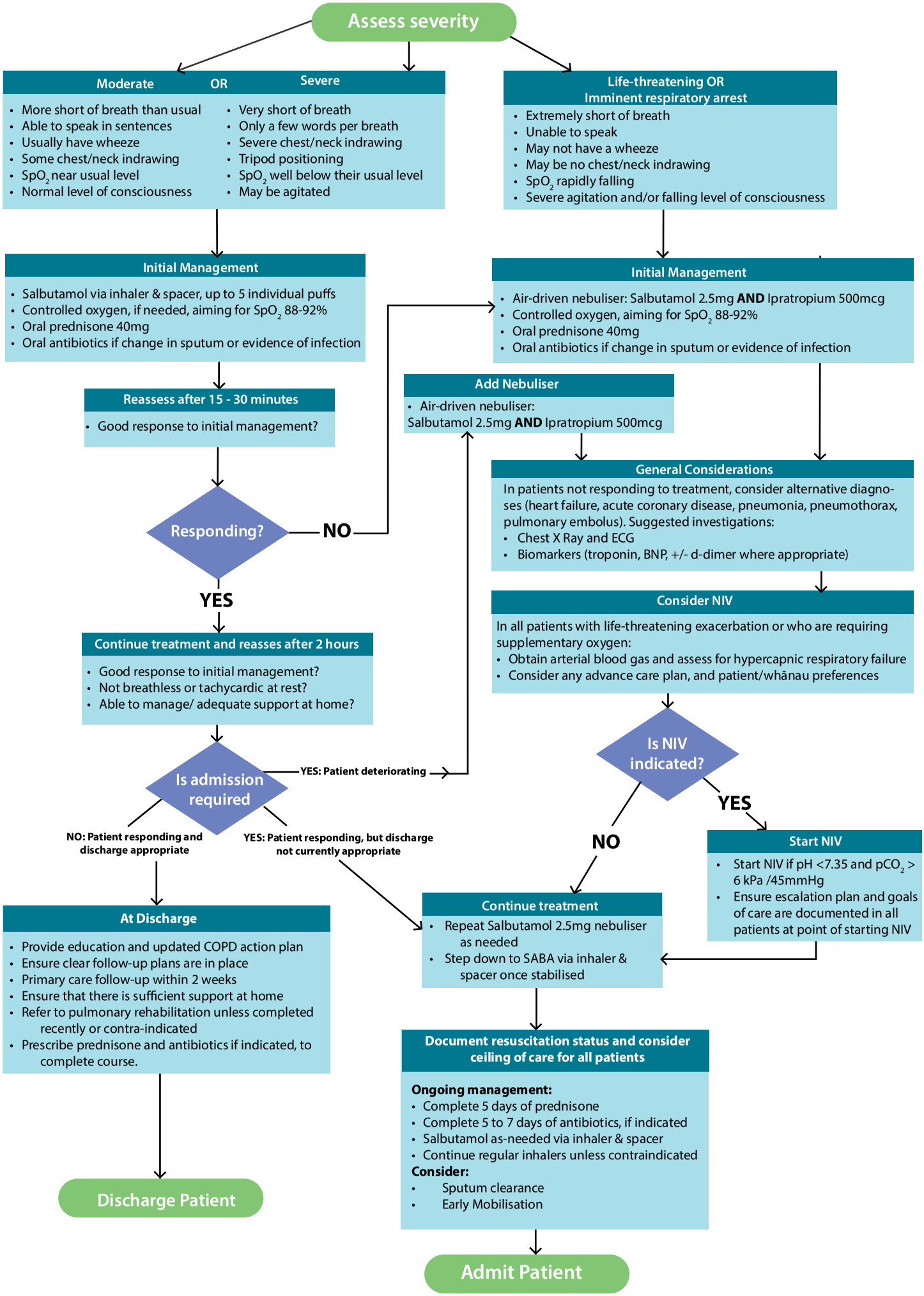
Assessment of COPD exacerbation severity

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 wheeze	May not have wheeze
Some chest/neck indrawing	Severe neck/chest indrawing	May be no chest/neck indrawing
	Tripod positioning	
SpO_2 near usual level	SpO_2 well below their usual level	SpO_2 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



4-STEP COPD CONSULTATION*

1 Assess COPD control and exacerbation risk

- **Review history of COPD exacerbations** in last 12 months (requiring oral corticosteroids or antibiotics)
- **Complete CAT score****
- **Complete mMRC Dyspnoea Scale with patient***** (Breathlessness score)
- **Review last spirometry result**
- **Assess current status:**

a) Breathlessness
b) Exercise tolerance
c) Sputum volume
d) Sputum colour
e) Oxygen saturations
f) Flu vaccine
g) Weight

2 Consider other relevant clinical issues

- Assess the patient's knowledge of their personal signs and symptoms of an exacerbation
- Ask about adherence with maintenance treatment
- Check frequency of using reliever medication
- Check inhaler technique
- Review smoking status and cessation strategies
- Assess whether the patient is coping with ADLs
- Consider a nutritional assessment
- Consider further specialist review if symptoms and presentation don't correlate
- Review for any co-morbid conditions

3 Decide whether treatment plan needs to change

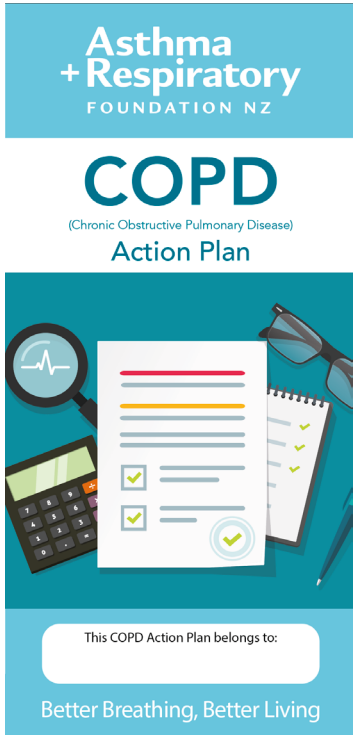
- Consider if additional drug treatment is required if COPD is not adequately controlled, such as increasing breathlessness or recent exacerbation
- Consider withdrawal of ICS if patient is stable and there is no evidence of benefit or recent pneumonia. If ICS is withdrawn, review patient in 4-6 weeks
- Consider if a home supply of antibiotics and oral corticosteroid is required
- Discuss an exercise plan and/or refer to pulmonary rehabilitation and/or physiotherapy
- Recommend annual flu vaccine and consider pneumococcal vaccine
- Refer for assessment for domiciliary oxygen if resting oxygen saturations <88% on room air when well and smoke free
- Refer for support services/ specialist review if appropriate

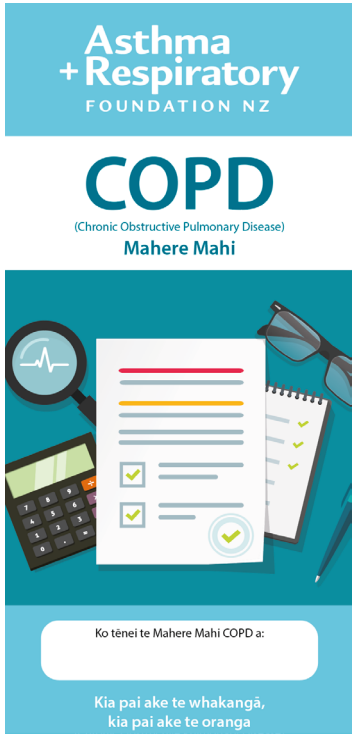
4 Complete a COPD Action Plan

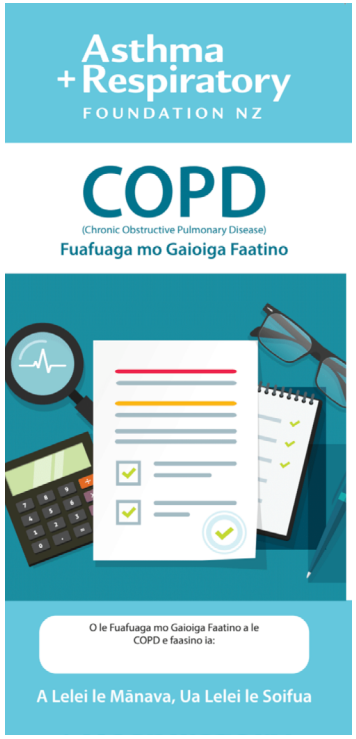
- **Complete the front page** of the patient's plan
- **Review the signs and symptoms** of worsening COPD and of a chest infection (e.g unwell, very unwell and extremely unwell)
- **Remind the patient what to do when unwell:**
  a) breathing control techniques
  b) correct inhaler technique
  c) chest clearance (if required)
  d) energy conservation techniques
- **Enter the antibiotic type** and length of course for an exacerbation (usually 5-7 days)
- **Enter the prednisone regimen** (usually 40mg daily for 5 days)
- **Set a time for clinical review** after starting home supply of prednisone and antibiotics (if applicable)
- Enter additional instructions in the **steps to manage breathlessness** section
- **Give the patient a copy** of the plan and save on the patient record

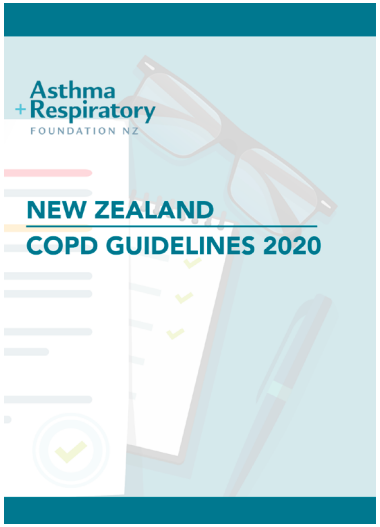
Please note, the 4-step consultation will likely take more than one visit
****The COPD Assessment test (CAT) can be accessed at www.catestonline.org***
*****The mMRC Dyspnoea Scale can be found on p.2***

FURTHER COPD RESOURCES AND TOOLS









Resources available to order or download at

shop.asthmaandrespiratory.org.nz

-Full Asthma and COPD Guidelines
- Asthma and COPD Action Plans
- Interactive PDFs
- Educational Booklets
- Breathlessness guides

Asthma + Respiratory
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Abbreviations used throughout this guide:

ADLs	Activities of daily living
BNP	Brain natriuretic peptide
COPD	Chronic obstructive pulmonary disease
FEV_1	Forced expiratory volume in one second
FEV_6	Forced expiratory volume in six seconds
FVC	Forced vital capacity
ICS	Inhaled corticosteroid
IV	Intravenous
LABA	Long-acting beta agonist
LAMA	Long-acting muscarinic antagonist
mMRC	Modified Medical Research Council
NIV	Non-invasive ventilation
$PaCO_2$	Arterial carbon dioxide tension
PaO_2	Arterial oxygen tension
SABA	Short-acting beta agonist
SAMA	Short-acting muscarinic antagonist
SPO_2	Oxygen saturation by pulse oximetry