B-QuiCK: COPD

Diagnosis

Consider COPD in any patient aged over 40 years with:

- A significant history of exposure to cigarette smoke, dust, fumes or gas, or recurrent respiratory infections; AND
- Typical symptoms, e.g. persistent dyspnoea that worsens with exercise, chronic cough, sputum production, chest tightness, wheezing, fatigue

Non-respiratory symptoms, e.g. weight loss, reduction in muscle mass, anorexia, anxiety and depression more likely in severe disease

Take a history to identify risk factors and symptoms

Ask about:

- Noxious exposures
- Previous respiratory conditions and other relevant medical history, e.g. maternal smoking history during pregnancy
- Family history of chronic respiratory conditions, including COPD
- Symptom onset pattern
- History of prior hospitalisations for respiratory symptoms (or unrecognised exacerbations)
- Co-morbidities
- Impact of symptoms on their life
- Opportunities to reduce exposure to risk factors or triggers
- Family and social support available

Quantify symptom impact using validated assessment tools

- Use the Modified Medical Research Council (mMRC) Dyspnea Scale and COPD Assessment Test (CAT) to assess the patient's level of breathlessness and impact of symptoms
  - Consider initiating treatment in patients with a mMRC score ≥ 2 or a CAT score ≥ 10

Perform a physical examination

- Physical signs may be observed in patients with more advanced disease, e.g. hyperinflation of the chest, hyperresonance to chest percussion, reduced chest expansion, soft breath sounds on auscultation, prolonged expiratory phase
- Other signs can be more obvious during an acute exacerbation, e.g. tachypnoea and tachycardia, accessory muscle use and cyanosis

Spirometry is essential to establish a diagnosis

Perform if resources available or refer to a respiratory service (also refer if uncertainty about results)

- A post-bronchodilator FEV_1 < 80% of predicted value and a FEV_1/FVC < 0.7 confirms persistent airflow limitation (see Table 4 for further information)
- Symptom burden and spirometry results (i.e. airflow obstruction) may not correlate in all patients
- If already prescribed, a long-acting bronchodilator is adequate for post-bronchodilator spirometry (i.e. patients do not need to withhold this prior to testing)
- Spirometry results do not predict treatment response

Arrange relevant laboratory investigations and imaging

- Full blood count – baseline blood eosinophil level, secondary polycythaemia
- Pulse oximetry – baseline oxygen blood saturation level
- Brain natriuretic peptide (BNP) – if symptoms and signs of heart failure
- Electrocardiogram (ECG)
- Chest X-ray (not routinely required)
  - For Community Referred Radiology National Clinical Criteria, click here
- Alpha-1 antitrypsin serology – younger patients, if symptom severity inconsistent with reported exposure history, or persistently abnormal liver function tests

Differential diagnoses to consider and rule out

- Asthma, bronchiectasis, heart failure, respiratory infection, pulmonary embolism (particularly small recurrent emboli), interstitial lung disease, lung cancer and tuberculosis (see Table 5 for details)

Management

Non-pharmacological interventions underpin COPD management

- Smoking cessation—the most important factor to improve symptoms and slow disease progression
- Increase physical activity and reduce sedentary behaviour
- Maintenance of healthy weight
- Identify and optimise treatment of co-morbidities
- Offer pulmonary rehabilitation. A list of providers is available here.
- Respiratory physiotherapy, e.g. breathing techniques, breathlessness strategies or managing chronic sputum production (see local HealthPathways for available services)
- Develop a written COPD action plan. An example is available here.
- Recommend immunisations – annual influenza, COVID-19 (six-monthly or annually depending on risk) and appropriate pneumococcal immunisation (PCV13 and 23PPV)*
  - Consider vaccination for pertussis, respiratory syncytial virus (RSV) and herpes zoster (shingles), if appropriate

* These immunisations are recommended for people with COPD, however, not all are funded for this group. For further information, see the Immunisation Handbook.

Pharmacological treatment

- Introduce medicines in a stepwise approach based on the patient's condition (incorporating results of mMRC, CAT and spirometry)
- Improvement in dyspnoea can take up to six weeks to become apparent
- Assess changes in exacerbation frequency over 6 – 12 months
- Consider patient preferences, available devices, complexity of the treatment regimen and potential adverse effects when escalating treatment

See Table 6 for current funded medicines/inhalers for COPD treatment in New Zealand

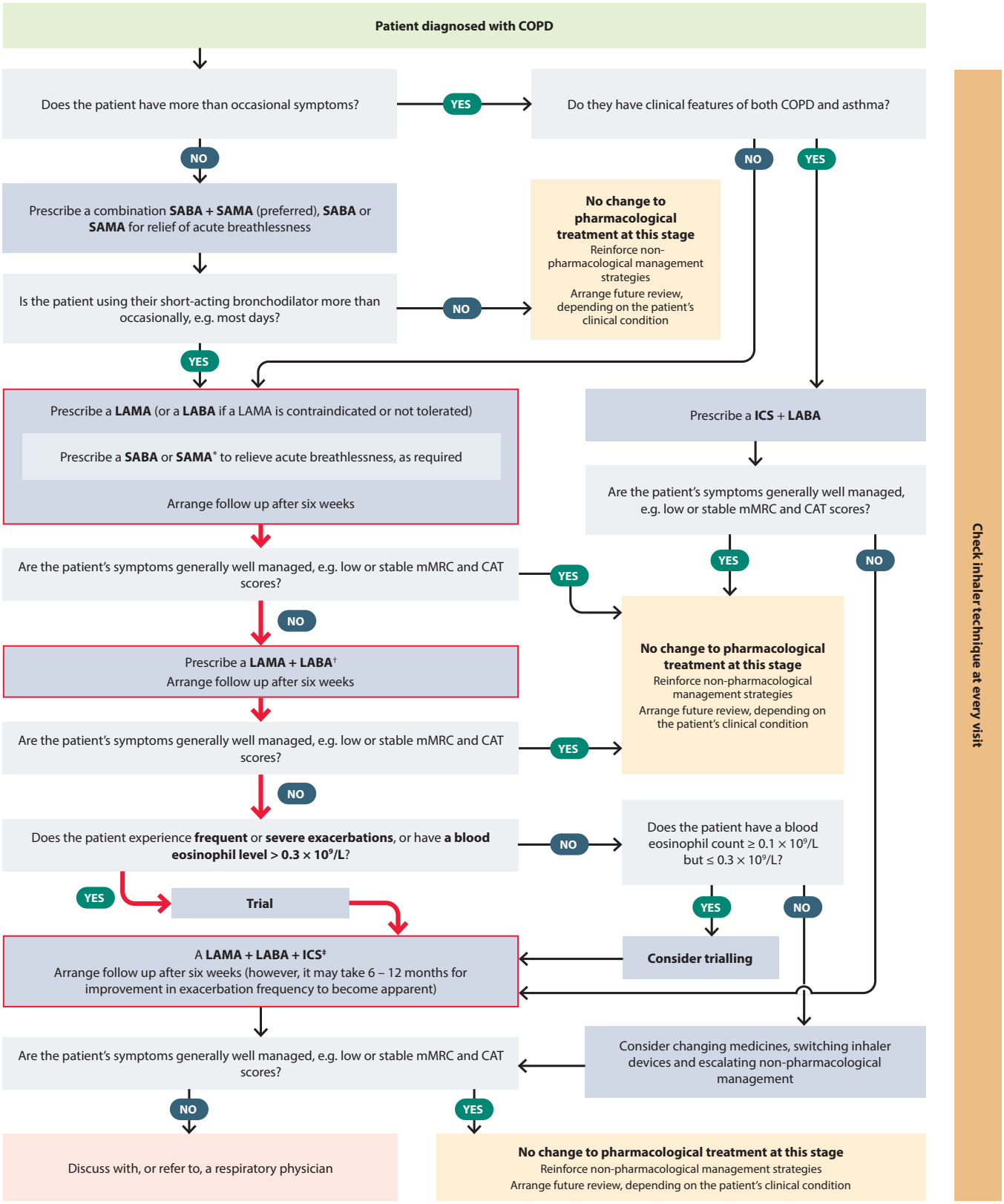

Figure 1. Suggested stepwise treatment for patients with COPD.

Red pathway → indicates prompt treatment escalation (recommended)

* SAMA and a LAMA should not be used concurrently

† A LABA + LAMA (single inhaler combination) is preferred, however, current Special Authority criteria for a LABA + LAMA single inhaler requires patients to be stabilised on LAMA treatment first

‡ A LABA + LAMA + ICS (single inhaler combination) is preferred — Special Authority criteria for a LABA + LAMA + ICS single inhaler requires patients to be on ICS + LABA or LABA + LAMA combination treatment, or multiple inhaler triple treatment (i.e. ICS + LAMA + LABA) first

CAT = COPD Assessment Test; COPD = chronic obstructive pulmonary disease, ICS = inhaled corticosteroid; LABA = long-acting beta$_2$-agonist; LAMA = long-acting muscarinic antagonist; mMRC = Modified Medical Research Council Dyspnea Scale; SABA = short-acting beta$_2$-agonist; SAMA = short-acting muscarinic antagonist.

Withdrawal of ICS treatment

- Consider if the patient:
  - Shows no evidence of benefit, i.e. no improvement in symptoms or fewer exacerbations
  - Develops pneumonia or other ICS-related adverse effects
  - Is clinically stable for 12 months and has had no exacerbations in that time
- Request a blood eosinophil level - withdrawal may not be appropriate if $\geq 0.3 \times 10^9$/L
- Arrange follow-up four-to-six weeks after ICS withdrawal to assess for worsening of symptoms or CAT score

Regular follow-up is crucial to optimise treatment

- If stable, review annually, or more regularly if more severe disease or co-morbidities
- At every follow-up, discuss:
  - Treatment adherence – check inhaler technique and non-pharmacological interventions before adjusting treatment
  - Symptom control (e.g. CAT score)
  - Exacerbations – frequency and severity
  - Smoking cessation support (if applicable)
  - Vaccinations – check if due for influenza, pneumococcal or COVID-19
- Additional investigations may be required at some follow-up appointments, e.g. oxygen saturation, repeat spirometry
- Consider a chest X-ray and referral for non-acute respiratory assessment and chest CT if substantial deterioration since last review
- Review co-morbidities, focusing on improving overall clinical status – the "treatable traits" approach
- Initiate early discussions regarding advance care plans where appropriate
- If the treatment regimen is modified, arrange a follow-up to evaluate the response after six weeks

A template for a four-step COPD consultation is available in Appendix 2 of the New Zealand COPD Guidelines: 2025 Update.

Managing COPD exacerbations in primary care

- Develop an exacerbation plan with the patient and regularly review this as part of ongoing follow-up; ensure they know how to recognise and respond to an exacerbation
  - See Table 7 for exacerbations features
- Rule out other causes of symptoms and identify potential complications
- Acute referral to hospital should be considered in the following situations:
- Insufficient or no response to medical management
  - A sudden worsening of symptoms
  - Confusion or drowsiness
  - Cyanosis and peripheral oedema
  - Low oxygen saturation (SpO_2 < 85 – 90%)
  - Co-morbidities, e.g. heart failure, newly occurring arrhythmias
  - Living circumstances are not appropriate, e.g. limited home support, lack of telephone, transport or distance to hospital

Pharmacological management of COPD exacerbations

- A SABA is recommended first-line in patients experiencing an exacerbation
- Advise patients to continue maintenance bronchodilator (and ICS) treatment during an exacerbation
- Prescribe antibiotics if clinical features are suggestive of bacterial infection; see Table 8 for antibiotic options
- Consider a short course of oral corticosteroids in moderate to severe exacerbations
  - Prescribe 40 mg prednisone, once daily, for five days

Arrange post exacerbation follow-up

- Full recovery from an exacerbation may take up to six weeks
- Review overall COPD management, including current medicines, inhaler technique, adherence and non-pharmacological interventions, after every exacerbation
- Refer for pulmonary rehabilitation, unless completed in last 12 months or contraindicated (e.g. recent cardiac event, unstable angina or medical condition that restricts movement such as severe arthritis)
- Consider spirometry to reassess lung function

Table 4. New Zealand COPD Guidelines: 2025 Update severity assessment tool.

	FEV_1	Z-score	Typical symptoms
Mild	60 – 80% predicted value	–1.65 — –2.50	■ Few symptoms ■ Breathless on moderate exertion ■ Little or no effect on daily activities ■ Cough and sputum production
Moderate	40 – 59% predicted value	–2.51 — –4.00	■ Breathless walking on level ground ■ Increasing limitation on daily activities ■ Recurrent chest infections ■ Exacerbations requiring oral corticosteroids and/or antibiotics
Severe	< 40% predicted value	< –4.00	■ Breathless on minimal exertion ■ Daily activities severely curtailed ■ Frequent chest infections ■ Exacerbations of increasing frequency and severity

Table 5. Common differential diagnoses of COPD. N.B. This is not an exhaustive list.

Diagnosis	Characteristics
COPD	■ Age of onset is usually older, e.g. aged > 40 years ■ History of exposure to noxious particles or gases, e.g. cigarette smoke ■ Symptoms are often continuous and progressive
Asthma	■ Onset often during childhood but can be at any age ■ Personal or family history of atopy, allergies or asthma ■ Symptoms may vary from day-to-day or over long periods, between seasons ■ Often triggered by exercise, emotions (e.g. laughter), dust or allergies
Heart failure	■ Older age of onset ■ History of cardiovascular disease ■ Symptoms slowly progressive ■ Presence of pulmonary oedema or ankle swelling ■ Night-time symptoms (orthopnoea) ■ Pulmonary function test suggests volume restriction (not airflow limitation) ■ Diagnosis supported by elevated BNP and echocardiogram
Bronchiectasis	■ Limited or no smoking history ■ Frequent exacerbations ■ Co-morbid autoimmune conditions may be present ■ Often associated with bacterial infection ■ Bronchial dilation/wall thickening on chest X-ray ■ Chest computed tomography (CT) scan typically required for diagnosis

Table 6. Inhaled medicines funded in New Zealand for the management of COPD.

Class	Medicine	Brand name	Inhaler type	Comments
Short-acting bronchodilators				
Short-acting muscarinic antagonist (SAMA)	Ipratropium	Atrovent	Pressurised metered dose inhaler	
Short-acting beta$_2$-agonist (SABA)	Salbutamol	SalAir, Ventolin*	Pressurised metered dose inhaler	
	Terbutaline	Bricanyl	Turbuhaler	
SABA + SAMA combination	Salbutamol + ipratropium	Duolin HFA	Pressurised metered dose inhaler	
Long-acting bronchodilators				
Long-acting muscarinic antagonist (LAMA)	Glycopyrronium†	Seebri Breezhaler	Dry powder for inhalation	Funded with endorsement for patients diagnosed with COPD (using spirometry, if possible). N.B. Patients who were dispensed tiotropium with Special Authority approval before 1st October, 2018, are also considered endorsed. Only one type of LAMA inhaler is funded at one time
	Tiotropium†	Spiriva, Spiriva Respimat	Dry powder for inhalation, Fine mist inhaler	
	Umeclidinium†	Incruse Ellipta	Dry powder for inhalation	
Long-acting beta$_2$-agonist (LABA)	Formoterol	Oxis*	Turbuhaler	
	Indacaterol	Onbrez Breezhaler	Dry powder for inhalation	
	Salmeterol	Serevent	Pressurised metered dose inhaler, Accuhaler	
LABA + LAMA combination	Indacaterol + glycopyrronium	Ultibro Breezhaler	Dry powder for inhalation	Special Authority approval requires that patients are first stabilised on a LAMA and are likely to receive additional benefit from a combination inhaler Special Authority renewal requirements for LABA + LAMA combination inhalers were removed from 1st December, 2025 LABA + LAMA combination inhalers are not funded if a patient is also prescribed an ICS + LABA combination inhaler
	Olodaterol + tiotropium	Spiolto Respimat	Fine mist inhaler	
	Vilanterol + umeclidinium	Anoro Ellipta	Dry powder for inhalation	

Class	Medicine	Brand name	Inhaler type	Comments
Inhaled corticosteroids (ICS)				
Inhaled corticosteroid (ICS)	Beclometasone diproprionate	Beclazone, Qvar (ultrafine particle)	Pressurised metered dose inhaler	ICS inhalers should be prescribed alongside a LABA + LAMA in patients with COPD. N.B. COPD is an unapproved indication for any of the single ICS inhalers. Beclazone and Qvar brands of beclometasone dipropionate inhaler are not dose equivalent and cannot be used interchangeably
	Budesonide	Pulmicort	Turbuhaler	
	Fluticasone propionate	Flixotide	Pressurised metered dose inhaler, Accuhaler	
ICS + LABA combination	Budesonide + formoterol	Symbicort, DuoResp Spiromax, Vannair	Turbuhaler, dry powder for inhalation, pressurised metered dose inhaler	Generally, not recommended as ICS + LABA is associated with inferior clinical outcomes compared with triple treatment (i.e. LABA + LAMA and an ICS inhaler or a single ICS + LAMA + LABA inhaler).[1,4] These inhalers could be considered if prescribed for a concurrent diagnosis such as asthma.
	Fluticasone furoate + vilanterol	Breo Ellipta	Dry powder for inhalation	
	Fluticasone propionate + salmeterol	Seretide	Pressurised metered dose inhaler, Accuhaler	
ICS + LABA + LAMA combination	Budesonide + glycopyrronium + formoterol‡	Breztri Aerosphere	Pressurised metered dose inhaler	Special Authority approval requires patients to be currently receiving ICS + LABA or LABA + LAMA combination treatment or multiple inhaler triple treatment (i.e. ICS + LAMA + LABA). Patients must also meet at least one of the following clinical criteria: CAT score > 10, ≥ 2 exacerbations or one exacerbation requiring hospitalisation in the previous 12 months, or an eosinophil count ≥ 0.3×10^9/L in the previous 12 months.
	Fluticasone furoate + umeclidinium + vilanterol‡	Trelegy Ellipta	Dry powder for inhalation	

* Partly funded

† Funded with endorsement

‡ Funded with Special Authority approval

Table 7. Classification of COPD exacerbation severity. *Adapted from New Zealand COPD Guidelines: 2025 Update.*

Classification	Features
Mild-to-moderate	More short of breath than usual Unable to speak in sentences Wheeze often present Some indrawing of the chest/neck, e.g. tracheal tug SpO_2 near usual level Normal level of consciousness
Severe	Very short of breath Only a few words per breath Severe indrawing of the chest/neck, e.g. tracheal tug Tripod positioning, i.e. leaning forward, resting elbows or hands on knees/surface to relieve dyspnoea SpO_2 well below usual level Agitation
Life-threatening/ imminent respiratory arrest	Extremely short of breath Unable to speak Wheeze may not be present Indrawing of the chest/neck can be absent SpO_2 rapidly decreasing Severe agitation or reduced consciousness

Table 8. Antibiotic options for COPD exacerbations in primary care.

Antibiotic	Dose
Amoxicillin	1,000 mg, three times daily, for five days
If penicillin allergy:	
Doxycycline	200 mg, on day one (loading dose), followed by 100 mg, twice daily, on days two to five
If past antibiotic treatment has been unsuccessful or resistant organisms have been previously isolated:	
Amoxicillin + clavulanic acid	625 mg, three times daily, for five days

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