THE COPD PRESCRIBING TOOL

bpac^nz better medicine

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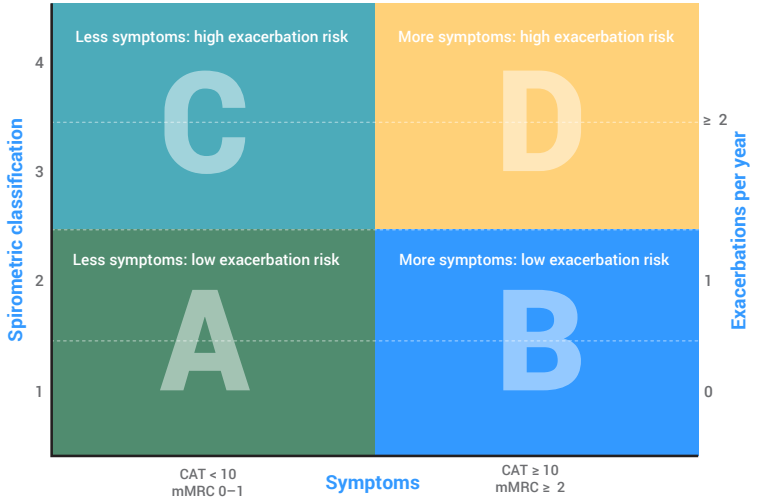
The COPD prescribing tool

This tool provides pharmacological treatment options for patients with COPD based on their symptom severity. Choose **Patient category A, B, C or D** which corresponds to the severity of the patient's symptoms. Assessment criteria are taken from the Global Strategy for the Diagnosis, Management and Prevention of COPD (GOLD 2016).* Additional information on classifying severity of symptoms is provided below.



Patient classification table

Patient category	Characteristics	Exacerbations per year	Spirometric classification	mMRC	CAT
A	Less symptoms: low exacerbation risk	≤ 1 not leading to hospitalisation	GOLD 1–2 FEV_1 ≥ 50% predicted	0–1	< 10
B	More symptoms: low exacerbation risk	≤ 1 not leading to hospitalisation	GOLD 1–2 FEV_1 ≥ 50% predicted	≥ 2	≥ 10
C	Less symptoms: high exacerbation risk	≥ 2, or 1 requiring hospitalisation	GOLD 3–4 FEV_1 < 50% predicted	0–1	< 10
D	More symptoms: high exacerbation risk	≥ 2, or 1 requiring hospitalisation	GOLD 3–4 FEV_1 < 50% predicted	≥ 2	≥10

Exacerbations

An exacerbation is an acute event with worsening of symptoms, beyond normal day-to-day variation, that requires a change in medication. If a patient has been admitted to hospital in the previous 12 months due to a COPD exacerbation then they are considered high risk.

* Recent bpac^nz articles have used a three-stage assessment criteria for patients with COPD based on COPD-X.

Spirometric classification

Severity of airflow limitation in COPD based on post-bronchodilator FEV_1 in patients with an $FEV_1/FVC < 0.7$:

Category	Severity	FEV_1
GOLD 1	Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2	Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3	Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4	Very severe	$FEV_1 < 30\%$ predicted

CAT

The COPD Assessment Test (CAT) is designed to quantify how COPD affects a patient's life and how this changes over time. CAT comprises eight questions and provides a measure of health status ranging from 0–40 and is available from:
www.catestonline.org/english/indexEN.htm

mMRC

The modified Medical Research Council (mMRC) questionnaire for assessing the severity of breathlessness.

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

Device information

MDI – Spacers are recommended for all patients prescribed a MDI, especially for those unable to hold their breath after inhaling. Reasonable hand strength is required to dispense each dose.

DPI – Sufficient inspiratory flow is required to activate this device and deliver the medicine. Reasonable hand strength is required to twist the base of the device to load each dose.

Accuhaler – Requires sufficient inspiratory flow to activate device and deliver the medicine.

Breezhaler – Capsules must be loaded before each use, requiring good eyesight and dexterity. Sufficient inspiratory flow is required to achieve optimal delivery of the medicine.

Foradil capsules via Aerolizer device – Capsules must be loaded before each use, requiring good eyesight and dexterity. More than one inhalation is usually required to obtain a full dose from a capsule.

Ellipta – Breath activated device with medicine automatically loaded when device is opened. Sufficient inspiratory flow is required for optimal delivery of the medicine. Low dexterity is required to use this device.

Handihaler device with Spiriva capsules – Capsules must be loaded for each dose which requires good eyesight and hand coordination. More than one breath is usually required to obtain a full dose from a capsule.

Respimat – Medicine is delivered via a fine mist independent of inspiratory flow. This device requires insertion of a medicine cartridge at each prescription, which requires some strength and dexterity. The device must be twisted to load each dose, and a button depressed to release medicine.

Acknowledgement Thank you to **Dr Ben Brockway,** Consultant & Senior Lecturer in Respiratory Medicine Southern DHB and University of Otago, for assistance in producing this resource.

We welcome your feedback about this tool. Email your comments to: **contact@bpac.org.nz**

For the online version of this tool see the bpac^{nz} website:
www.bpac.org.nz/copd

A Less symptoms: low exacerbation risk

Spirometric classification: GOLD 1–2
Exacerbations per year: ≤ 1 not leading to hospitalisation
mMRC: 0–1
CAT: < 10

Prescribe a **SAMA** OR a **SABA** for "as needed" use by patients with COPD who have few symptoms and a low risk of exacerbations.

For some patients in this category a fixed-dose combination **SAMA/SABA** for "as needed" use may be beneficial.

SAMA – short-acting muscarinic antagonists

Ipratropium ●

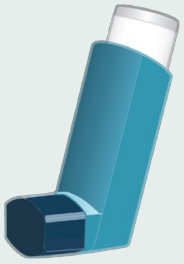
Two puffs, as needed, up to four times daily.

Atrovent **MDI**

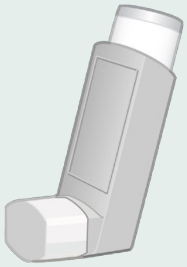
SABA – short-acting beta$_2$ agonists

Salbutamol ●

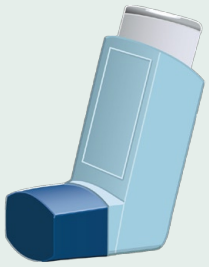
One to two puffs, as needed, up to four times daily.



Respigen **MDI**



Salair **MDI**



Salamol **MDI**

Ventolin **MDI**

SABA continued

Terbutaline ●

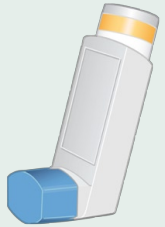
One to two inhalations, as needed, up to four times daily.

Bricanyl Turbuhaler **DPI**

Combination SABA & SAMA

Ipratropium + salbutamol ●

Two puffs, as needed, four times daily.



Duolin **MDI**

● Fully subsidised without restriction

B More symptoms: low exacerbation risk

Spirometric classification: GOLD 1–2
Exacerbations per year: ≤ 1 not leading to hospitalisation
mMRC: ≥ 2
CAT: ≥ 10

Add a **LABA** OR a **LAMA** for patients with mild to moderate COPD and persistent troublesome dyspnoea who do not have adequate symptom control using a short-acting bronchodilator.

For patients unable to achieve symptom control with a single long-acting bronchodilator consider a **combination LABA/LAMA** inhaler.

LABA –long-acting beta$_2$ agonists

Salmeterol ●

Two puffs, twice daily.

Meterol **MDI**

Salmeterol ●

Two puffs, twice daily.

Serevent **MDI**

Salmeterol ●

One inhalation, twice daily.

Serevent Accuhaler

Indacaterol ●

One inhalation of 150 mg or 300 mg, once daily.

Breezhaler device with Onbrez capsules

Formoterol (eformoterol) ◑

One inhalation of 12 micrograms, once daily or twice daily.

Foradil capsules via Aerolizer device

Formoterol (eformoterol) ◑

Two inhalations of 6 micrograms, twice daily.

Oxis Turbuhaler **DPI**

● Fully subsidised without restriction ◑ Partially subsidised without restriction

Foradil and Oxis are NOT dose equivalent. Oxis contains 6 micrograms per dose. Foradil contains 12 micrograms per capsule for inhalation.

LAMA – long-acting muscarinic antagonists

Glycopyrronium ◑

One inhalation, once daily.

Breezhaler device with Seebri capsules

Umeclidinium ◑

One inhalation, once daily.

Incruse Ellipta

Tiotropium ◑

Two puffs, once daily. MDI delivered as a mist (non-propellant).

Spiriva Respimat

Tiotropium ◑

One inhalation, once daily.

Handihaler device with Spiriva capsules

◑ Prescription endorsement required for full subsidy ◑ Special Authority approval required for full subsidy

Reminder: Stop SAMA treatment when prescribing a LAMA

Combination LAMA/LABAs

Glycopyrronium + indacaterol ◑

One inhalation, once daily.

Breezhaler device with Ultibro capsules

Olodaterol + tiotropium ◑

Two puffs, once daily. MDI delivered as a mist (non-propellant).

Spiolto Respimat

Umeclidinium + vilanterol ◑

One inhalation, once daily.

Anoro Ellipta

◑ Special Authority approval required for full subsidy

C Less symptoms: high exacerbation risk

Spirometric classification: GOLD 3–4
Exacerbations per year: ≥ 2 or 1 requiring hospitalisation
mMRC: 0–1
CAT: < 10

Prescribe a fixed-dose **combination ICS/LABA** OR a **LAMA** for patients who have few symptoms but a high risk of exacerbations.

An alternative treatment option is a **combination LABA/LAMA**.

Combination ICS & LABA

Fluticasone (furoate) + vilanterol

One inhalation, once daily. Fluticasone furoate 100 micrograms + vilanterol 25 micrograms (for COPD and asthma).

Breo Ellipta (100 + 25)

Budesonide + formoterol

Two inhalations of 200 + 6, twice daily, OR One inhalation of 400 + 12 micrograms, twice daily.

Symbicort Turbuhaler **DPI** (200 + 6 or 400 + 12)

Budesonide + formoterol

Two puffs of 200 + 6 micrograms, twice daily.

Vannair (200 + 6) **MDI**

- Fluticasone furoate 200 micrograms + vilanterol 25 micrograms is for asthma only.
- Budesonide is half as potent as fluticasone therefore equivalence requires twice the strength per dose.
- Fluticasone furoate 100 micrograms inhaled ONCE daily is approximately equivalent to fluticasone propionate 250 micrograms TWICE daily.

Fluticasone (propionate) + salmeterol

Two puffs of 125 + 25 micrograms (or up to two puffs of 250 + 25 micrograms unsubsidised), twice daily.

Rexair, Seretide 125 + 25 (or 250 + 25) **MDI**

Fluticasone (propionate) + salmeterol

One inhalation of 250 + 50 micrograms, twice daily

Seretide Accuhaler

Fully subsidised without restriction

- Rexair and Seretide MDI are not dose equivalent with Seretide DPI Accuhaler because MDIs contain salmeterol 25 micrograms compared with Accuhalers which contain salmeterol 50 micrograms
- MDI inhaler: TWO puffs, twice daily; or Accuhaler: ONE inhalation, twice daily
- If additional inhaled corticosteroids (ICS) are required, change to the higher strength formulation or add a separate ICS

LAMA – long-acting muscarinic antagonists

Glycopyrronium

One inhalation, once daily.

Breezhaler device with Seebri capsules

Umeclidinium

One inhalation, once daily.

Incruse Ellipta

Tiotropium

Two puffs, once daily. MDI delivered as a mist that does not include propellants.

Spiriva Respimat

Tiotropium

One inhalation, once daily.

Handihaler device with Spiriva capsules

Prescription endorsement required for full subsidy Special Authority approval required for full subsidy

Reminder: Stop SAMA treatment when prescribing a LAMA

Combination LAMA/LABAs

Glycopyrronium + indacaterol

One inhalation, once daily.

Breezhaler device with Ultibro capsules

Olodaterol + tiotropium

Two puffs, once daily. MDI delivered as a mist that does not include propellants.

Spiolto Respimat

Umeclidinium + vilanterol

One inhalation, once daily.

Anoro Ellipta

Special Authority approval required for full subsidy

D More symptoms: high exacerbation risk

Spirometric classification: GOLD 3–4
Exacerbations per year: ≥ 2 or 1 requiring hospitalisation
mMRC: ≥ 2
CAT: ≥ 10

Prescribe a fixed-dose **combination ICS/LABA** OR a **LAMA** for patients who have many symptoms but a high risk of exacerbations.

For patients without adequate symptom control a fixed-dose **combination ICS/LABA** AND a **LAMA** is a further treatment option.

Combination ICS & LABA

Fluticasone (furoate) + vilanterol ●

One inhalation, once daily. Fluticasone furoate 100 micrograms + vilanterol 25 micrograms (for COPD and asthma).

Breo Ellipta (100 + 25)

Budesonide + formoterol ●

Two inhalations of 200 + 6, twice daily, **OR** One inhalation of 400 + 12 micrograms, twice daily.

Symbicort Turbuhaler **DPI** (200 + 6 or 400 + 12)

Budesonide + formoterol ●

Two puffs of 200 + 6 micrograms, twice daily.

Vannair (200 + 6) **MDI**

● Fully subsidised without restriction

- Fluticasone furoate 200 micrograms + vilanterol 25 micrograms is for asthma only.
- Budesonide is half as potent as fluticasone therefore equivalence requires twice the strength per dose.
- Fluticasone furoate 100 micrograms inhaled ONCE daily is approximately equivalent to fluticasone propionate 250 micrograms TWICE daily.

Combination ICS & LABA continued

Fluticasone (propionate) + salmeterol ●

Two puffs of 125 + 25 micrograms (or up to two puffs of 250 + 25 micrograms unsubsidised), twice daily.

Rexair, Seretide 125 + 25 (or 250 + 25)
Seretide **MDI**

Fluticasone (propionate) + salmeterol ●

One inhalation of 250 + 50 micrograms, twice daily.

Seretide Accuhaler

● Fully subsidised without restriction

- Rexair and Seretide MDI are not dose equivalent with Seretide DPI Accuhaler because MDIs contain salmeterol 25 micrograms compared with Accuhalers which contain salmeterol 50 micrograms
- MDI inhaler: TWO puffs, twice daily; or Accuhaler: ONE inhalation, twice daily
- If additional inhaled corticosteroids (ICS) are required, change to the higher strength formulation or add a separate ICS

LAMA – long-acting muscarinic antagonists

Glycopyrronium ◐

One inhalation, once daily.

Breezhaler device with Seebri capsules

Umeclidinium ◐

One inhalation, once daily.

Incruse Ellipta

Tiotropium ◐

Two puffs, once daily. MDI delivered as a mist that does not include propellants.

Spiriva Respimat

Tiotropium ●

One inhalation, once daily.

Handihaler device with Spiriva capsules

◐ Prescription endorsement required for full subsidy ● Special Authority approval required for full subsidy

Reminder: Stop SAMA treatment when prescribing a LAMA