Lung Foundation Australia

Accepted clinical resource

RACGP

COPD-X Handbook

Summary clinical practice guidelines for the management of chronic obstructive pulmonary disease (COPD)

Formerly the COPD-X Concise Guide (2018-2024) and the COPD-X Concise Guide for Primary Care (2014-2018)

Scan QR code to view digital version

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Lung Foundation Australia

This resource has been developed and revised by Lung Foundation Australia as part of a national COPD Program.

Lung Foundation Australia is Australia's leading peak body for respiratory health and lung disease. Lung Foundation Australia funds life-changing research and delivers support services to enable Australians with lung disease including to live their best lives.

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The "COPD-X Handbook" has been officially recognised as an Accepted Clinical Resource by The Royal Australian College of General Practitioners (RACGP)

Acknowledgement of Country

We acknowledge the Traditional Custodians of the many lands on which each iteration of the COPD-X Plan and all related resources have been developed. As the many beautiful landscapes including Rivers, Mountains, Seas, and winds that blow over their ancestral lands which were never ceded and remain in their continual custodianship, we extend our thanks to the Traditional Custodians of the lands for all future versions of COPD-X, and any supporting materials they may inspire. We would also like to pay our respects to the Elders Past and Present for their courage and bravery in laying a firm foundation and for their wisdom and guidance that supports us in the work we undertake, and to future generations of Aboriginal and Torres Strait Islander Leaders and to our Aboriginal and Torres Strait Islander and non-Indigenous peoples.

Karl Briscoe,
National Association of Aboriginal and Torres Strait Islander Health Workers and Practitioners (NAATSIHWP)

Recognising COPD-X Plan is a resource that is used binationally, we also acknowledge and respect Māori as *tangata whenua* and *Te Tiriti o Waitangi* partners in Aotearoa New Zealand.

This artwork was **created for Lung Foundation Australia** by Ngarrindjeri man, Jordan Lovegrove.

Introduction

The COPD-X Handbook (formerly known as the COPD-X Concise Guide) provides a summary of evidence-based practical recommendations from the **COPD-X Plan**.

Clinical need

Chronic obstructive pulmonary disease (COPD) is a common condition which is a major cause of morbidity and mortality. In Australia, COPD is under-recognised, under-diagnosed and under-treated. It is a major public health concern where immense opportunity exists to improve outcomes by implementing standardised evidence-based care in clinical practice. The Australian Commission on Safety and Quality in Health Care (ACSQHC) is due to launch the **COPD Clinical Care Standard** (COPD CCS) in late 2024. The COPD CCS will describe the care that people living with COPD should expect to receive in primary and hospital care, with a focus on the areas of care where the need for quality improvement is greatest. This COPD-X Handbook is consistent with the COPD CCS in development and may be used as a tool to support the implementation of the COPD CCS into clinical practice.

Development

The COPD-X Handbook is a companion resource to the **COPD-X Plan**, the Australian clinical practice guidelines for COPD in Australia, which are updated four times a year. In 2023, Lung Foundation Australia's COPD-X Guidelines Committee convened a multidisciplinary COPD-X Handbook Working Group for a major update from the 2018 version (then called the COPD-X Concise Guide). In addition to the expert review from the COPD-X Handbook Working Group, this update was also informed using multi-stage market research, and feedback from Lung Foundation Australia's Primary Care Committee, COPD Clinical Advisory Committee, and COPD Consumer Advisory Committee.

Audience

This guideline summary has been developed for Australian health professionals caring for people living with COPD and is also highly relevant for a range of government and non-government stakeholders, including policy-makers, industry, researchers, and students.

Disclaimer

Our current approach to COPD diagnosis, treatment and management is based on recommendations largely drawn from non-First Nations populations. As applicability cannot be assumed, further evidence on the management and diagnosis of COPD is needed for First Nations Australians.

Foreword

The COPD-X Plan has been the bedrock of evidence-based clinical guidance for managing COPD in Australia for just over 20 years. This cornerstone resource, meticulously updated quarterly by Lung Foundation Australia's dedicated COPD-X Guidelines Committee, has empowered countless healthcare professionals to provide optimal care for patients living with or at risk of COPD. After celebrating the 20th anniversary of the **COPD-X Plan** last year, we proudly unveil the latest edition of its invaluable companion, the COPD-X Handbook.

Building upon the robust foundation of the **COPD-X Plan**, this Handbook distils the key elements of our national clinical guidelines into a readily accessible and user-friendly format. Marking its 10 year anniversary, this resource was first debuted in 2014 under the title "The COPD-X Concise Guide for Primary Care" and renamed to "The COPD-X Concise Guide" in 2018. Transcending its initial role as a primary care resource, its simple layout, easy searchability, and clear reflection of key recommendations and evidence grades – all mirroring its parent guidelines – make it indispensable in any non-specialist setting.

On behalf of my general practitioner and primary care colleagues, I extend our heartfelt gratitude to Lung Foundation Australia's staff and committees for their unwavering dedication to developing and maintaining these clinically relevant and immensely valuable resources. My special thanks to the COPD-X Guidelines Committee, whose tireless efforts keep the **COPD-X Plan** and its accompanying resources – the COPD Action Plan, Inhaler Medicine Charts and Device Fact Sheets, the Exacerbation Algorithm, the one-page Stepwise Management of Stable COPD, and, of course, the COPD-X Handbook itself – relevant, accessible, and among the most sought-after clinical tools in our arsenal. It has been a pleasure to be working alongside the COPD-X Guidelines Committee as part of the multidisciplinary writing group for this edition of the Handbook. Together, with the invaluable guidance and contributions of Lung Foundation Australia's Primary Care and COPD Consumer Advisory Committees, we have crafted a resource that reflects both academic integrity and unwavering commitment to clinical utility.

I urge all readers to visit Australia's leading lung health body, Lung Foundation Australia at **lungfoundation.com.au** for up to date news, research, events, advocacy work, and a wealth of resources for both healthcare professionals and consumers. As the only national charity supporting people of all ages affected by lung disease across Australia, consider encouraging your patients to become members and support their crucial work in support services, advocacy, and research. Clinicians can also contribute by joining as professional members.

By embracing the COPD-X Handbook and engaging with Lung Foundation Australia, we can all play a vital role in improving the lives of people living with COPD. Let this updated edition be a springboard for ongoing advancements in COPD care, ensuring all Australians affected by this chronic disease receive the best possible treatment and support.

Yours sincerely,

Dr Kerry Hancock OAM BMBS FRACGP (Hon)
GP, Adelaide, SA
Member, COPD Clinical Advisory Committee, National COPD Program, Lung Foundation Australia Chair, Primary Care Advisory Committee, National COPD Program, Lung Foundation Australia Chair, RACGP Respiratory Medicine Specific Interests Group

User guide

1 Clinical question

Clinical questions are answered with information summaries of evidence-based discussion points from the **COPD-X Plan**.

Information block

Each information summary is accompanied by relevant **key recommendations** from the **COPD-X Plan**.

Practice points

- Practice points are based on expert opinion where the evidence to make a recommendation is insufficient or beyond scope.
- They may offer practical guidance and strategies to help implement COPD-X recommendations into Australian clinical practice.

COPD-X Plan section

Further information

Legend

External link (hyperlink)

I II III-1 III-2 III-3 IV

Level of evidence per the **National Health and Medical Research (NHMRC) evidence hierarchy**

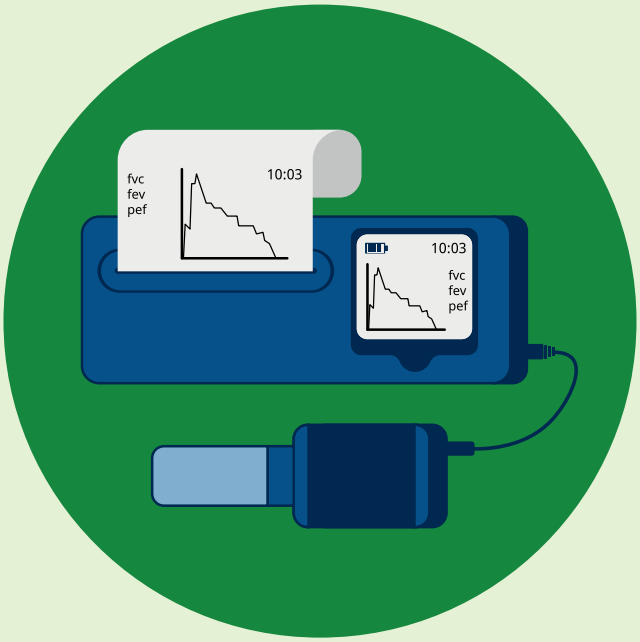
 Weak recommendation  Strong recommendation

Navigation

Navigation

Case finding and confirm diagnosis

C



1 What are the most important risk factors for developing COPD?

Tobacco smoking and non-tobacco smoking exposures are important COPD risk factors.

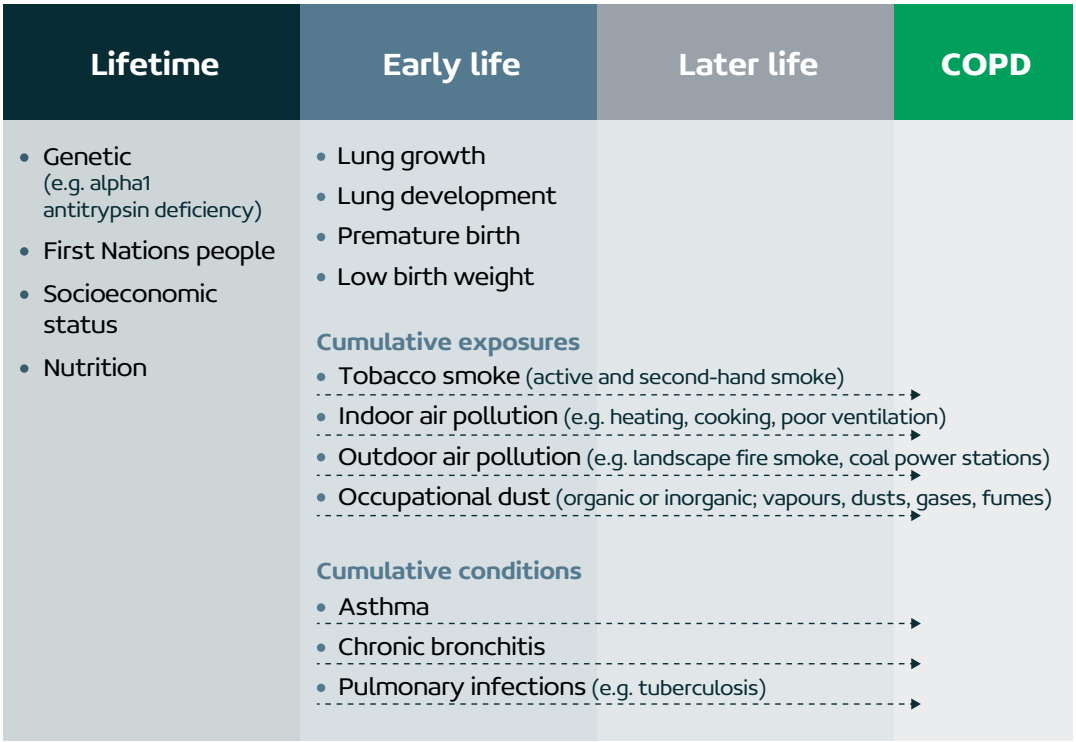


Figure 1. Risks for developing COPD across the life course

Practice points

- Identify and minimise ongoing exposure to COPD risk factors, to prevent COPD in people who are at risk.

Key recommendations

1a. Smoking is the most important risk factor for COPD development I

1b. Smoking cessation reduces mortality in people with COPD I

The COPD-X Plan sections

- C1. Aetiology and natural history

Further information

- Early life risk factors (European Lung Foundation)
- COPD Causes and Risk Factors (American Lung Association)
- COPD Causes and Risk Factors (National Heart, Lung, and Blood Institute)
- Towards the elimination of chronic obstructive pulmonary disease (The Lancet – subscription required)

2 What are the key steps for diagnosing COPD?

A spirometry result showing fixed ratio of forced expiratory volume in 1 second (FEV_1) / forced vital capacity (FVC) <0.7 after bronchodilator (i.e. post-bronchodilator FEV_1/FVC ratio <0.7) is required for a COPD diagnosis (see step 3).

Step 1. Document patient history

Collect and document patient history of:

- ☐ respiratory symptoms (including exertional breathlessness, cough, sputum, chest infections, or exacerbations)
- ☐ smoking and vaping
- ☐ occupational exposures
- ☐ environmental exposures
- ☐ premature birth
- ☐ childhood respiratory problems
- ☐ asthma
- ☐ age of onset of symptoms
- ☐ family history

Step 2. Perform spirometry

Perform or arrange spirometry for people ≥35 years old with one or more of the following:

- ☐ current or former smoking history
- ☐ new, persistent, or changed cough
- ☐ coughing up mucus or phlegm
- ☐ out of breath more easily than others their age
- ☐ experiencing chest tightness or wheeze
- ☐ experiencing recurrent chest infections
- ☐ have worked in a job that exposed them to dust, gas, or fumes

Note: Haemoptysis, chest pain and weight loss require urgent further investigation.

Key recommendations

2a. Begin with a thorough history and examination for COPD as the first step to diagnosis III-2

Practice points

- Identify patients who need spirometry using Lung Foundation Australia's 2-minute **Lung Health Checklist**.
- Share the **Lung Health Checklist** link with patients so they can fill it out at home, in the waiting room before a clinical consultation, or during a clinical consultation as part of patient history.
- Consider using Health Assessments and Care Plan visits to administer the **Lung Health Checklist**.
- Consider searching patient lists for those at high risk (for example, people with a smoking history over 35 years old with no past spirometry) or link to a Measuring Outcomes activity audit (as part of continuing professional development).

The COPD-X Plan sections

- C2. Diagnosis
- C2.1 History

Further information

- COPD case finding (Lung Foundation Australia)
- Lung Health Checklist (Lung Foundation Australia)

Step 3. Interpret spirometry results

A spirometry result showing post-bronchodilator FEV_1/FVC ratio <0.7 is required for a COPD diagnosis.

- Well-performed spirometry is **required** for a COPD diagnosis.
- COPD is defined by airflow limitation that is not fully reversible with bronchodilators (post-bronchodilator FEV_1 / FVC ratio <0.7) (**Buist 2007**).
- Clinical features and/or chest x-ray alone are not sufficient to diagnose COPD (**Guirguis-Blake 2016**, **den Harder 2017**).

Key recommendations

2b. Confirm COPD with spirometry (post-bronchodilator $FEV_1/FVC < 0.7$) III-2

Practice points

- Ensure that all patients can access well-performed spirometry conducted by a healthcare worker with appropriate training and competency that comply with the current TSANZ course standards and American Thoracic Society (ATS) and European Respiratory Society (ERS) Technical Statement standards (**Graham 2019**).
- Spirometry may be conducted in point-of-care settings like a general practice. Medicare item descriptors for office-based spirometry for diagnosis and monitoring are available on the MBS online website.
- For GP practices without a spirometer, refer patients to a respiratory laboratory, respiratory physician or pathology collection centre that offers spirometry. Refer to your local HealthPathways for services that offer spirometry.
- Practice nurses and allied health professionals with appropriate training can be valuable team members for conducting spirometry.
- Document a post-bronchodilator spirometry test result in the clinical records of all patients with COPD.
- For borderline lung function results, consider repeating spirometry.
- In stable COPD, the physical examination primarily serves to rule out alternative diagnoses, as clinical findings are frequently unremarkable. However, during an acute exacerbation, signs such as tachypnoea, wheeze, accessory muscle use, tremor, and cyanosis may provide valuable diagnostic information.

The COPD-X Plan sections

- C2.2 Physical examination

Further information

- Spirometry Handbook for primary care (National Asthma Council Australia)
- COPD-6 screening device demonstration video (Lung Foundation Australia)
- Check the Lung Learning Hub for spirometry training courses that comply with the TSANZ spirometry course standards (Lung Foundation Australia)
- MBS online website for office-based spirometry for diagnosis and monitoring
- HealthPathways Community for lung function services in your locality

Step 4: Confirm or exclude asthma

- Asthma and COPD may coexist (**Alshabanat 2015**). A larger bronchodilator response may point to coexisting asthma and asthma-COPD (**Global Initiative for Asthma (GINA) 2023**).
- Consider patient history, pattern of symptoms, and further investigations to confirm diagnosis.

Key recommendations

2c. While a large increase in post-bronchodilator FEV_1 (with greater confidence if increase is >15% and >400 mL) might suggest asthma or coexisting asthma and COPD, consider patient history, pattern of symptoms, and further investigations to confirm diagnosis (GINA 2023)

III-2

Practice points

- Patients with COPD and features of asthma should receive inhaled corticosteroid (ICS) therapy (to treat the asthma component), as well as long-acting bronchodilators.
- LABA monotherapy without ICS should be avoided in patients who have a component of asthma.

The COPD-X Plan sections

- C4. Assessing acute response to bronchodilators
- C4.1 Confirm or exclude asthma

Further information

- Australian Asthma Handbook
- Inhalers for COPD and asthma-COPD (Lung Foundation Australia)

C

Step 5: Consider further investigations and referral to specialist respiratory services

Key recommendations

2d. Further investigations may be necessary to confirm or exclude other conditions and assess COPD severity — III-2

2e. Consider referral to specialist respiratory services if needed — III-2

Practice points

Further investigations to consider include:

- Chest x-ray (posteroanterior and lateral).
- Chest CT (not always required) can help detect emphysema and bronchiectasis and should be ordered if any red flag symptoms such as haemoptysis are present.
- Electrocardiogram (ECG).

Practice points

Consider referring to specialist respiratory services in cases of:

- ☐ Diagnostic uncertainty
- ☐ "Red flag" symptoms (e.g. haemoptysis)
- ☐ Rapid decline in FEV_1
- ☐ Frequent chest infections
- ☐ Cor pulmonale onset
- ☐ Assessment for home oxygen
- ☐ Bullous lung disease
- ☐ COPD <40 years of age
- ☐ Assessment for lung transplantation, lung volume reduction surgery, or bronchoscopic lung volume reduction
- ☐ Unexplained breathlessness
- ☐ Suspected sleep disorder (history of snoring, witnessed apnoea or excessive daytime sleepiness)

The COPD-X Plan sections

- C5. Specialist referral

Further information

- HealthPathways Community for referral pathways
- Investigating early symptoms of lung cancer guide (Cancer Australia)

C

Step 6: Assess COPD severity (see Clinical question 3)

- Regularly assess COPD severity, symptoms, and exacerbation risk

Key recommendations

2f. Regularly assess COPD symptoms and exacerbation risk III-2

The COPD-X Plan sections

- C3. Assessing the severity of COPD

Further information

- COPD Online Patient Education (C.O.P.E.) (Lung Foundation Australia)

Optimise function

O

3 What are the key components of a comprehensive assessment of a person with COPD?

Assessing the impact of COPD on quality of life

Regularly assess functional status and the impact of COPD on quality of life using traditional history taking, symptom checklists, or validated assessment tools such as:

- **COPD Assessment Test (CAT)** to measure the impact of COPD on quality of life (**Jones 2009**).
- **mMRC (Modified Medical Research Council) Dyspnea Scale** to measure dyspnoea (**Mahler 1988**).

Key recommendations

3a. Begin with a comprehensive assessment as the first step to optimising function **III-2**

Practice points

- Consider arranging for the patient to complete a symptom checklist or assessment tool electronically via a pre-consultation digital tool.
- Consider arranging for a practice nurse to help the patient complete a symptom checklist or assessment tool during health assessment or care planning.

Figure 2a. Symptom checklists

Modified Medical Research Council (mMRC)		
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.	☐

(**Mahler 1988**)

Your name:_____

Today's date:_____

How is your COPD? Take the COPD Assessment Test™ (CAT)

This questionnaire will help you and your healthcare professional measure the impact COPD (Chronic Obstructive Pulmonary Disease) is having on your wellbeing and daily life. Your answers, and test score, can be used by you and your healthcare professional to help improve the management of your COPD and get the greatest benefit from treatment.

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 [0] [X] [1] [2] [3] [4] [5] I am very sad

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

TOTAL SCORE ☐☐

(**Jones 2009**)

COPD and comorbidities

- Be alert for cardiovascular disease, diabetes, anxiety, depression, osteoporosis, lung cancer and obstructive sleep apnoea.
- Beta-blockers (cardioselective), where clinically indicated, can be safely used in patients with COPD who have coexisting cardiovascular disease.
- Corticosteroids (high-dose inhaled and oral) decrease bone mineral density and muscle strength and may increase the risk of osteoporosis, fractures, and falls.

Key recommendations

3b. Recognise that comorbid conditions are common in patients with COPD III-2

Practice points

- Use a person-centred rather than a single-disease approach to manage patients with COPD who have comorbidities.
- Consider the short-term and long-term adverse effects of corticosteroids.
- Refer patients with a complex medication regimen for a comprehensive medication management review e.g. Home Medicines Review (HMR) for people living at home or Residential Medication Management Review (RMMR) for those living in an aged care home.
- Relevant clinical practice guidelines for conditions that commonly coexist with COPD include:
  - **Australian Asthma Handbook**
  - **Cardiovascular disease and management** resources for health professionals (Heart Foundation)
  - **Prevention, Detection, and Management of Heart Failure in Australia**
  - **Management of type 2 diabetes: A handbook for general practice**
  - **Osteoporosis management and fracture prevention**
  - **Investigating symptoms of lung cancer: a guide for all health professionals**
  - **Sleep Health Primary Care Resources**
  - **Mental Health** (RACGP)

The COPD-X Plan sections

- **O7. Comorbidities**
- **O7.2.2 Safety of beta-blockers**
- **O8. Hypoxaemia and pulmonary hypertension**

Further information

- **RACGP chronic disease guidelines** (RACGP)
- **Therapeutic Guidelines** and **Australian Medicines Handbook** (subscriptions required)

O

Assess inhaler technique and adherence

- Inhaler device polypharmacy is an increasing problem amongst patients with COPD and has a negative impact on outcomes.
- When multiple devices are needed, patients using similar devices (e.g. all pressurised metered dose inhalers [pMDIs]) experience fewer exacerbations compared to those using a mixture of device types.
- Incorrect inhaler and spacer technique is common and is associated with worse outcomes.

Key recommendations

3c. Regularly check inhaler technique and adherence I

Practice points

- Minimise the number of different devices prescribed to patients with COPD.
- Check inhaler and spacer technique using **inhaler and spacer device videos** and **fact sheets** from Lung Foundation Australia.
- Check inhaler and spacer technique, at least every six months, or after an exacerbation or change in treatment especially for older, frail, and cognitively impaired patients.
- When checking inhaler and spacer device technique, consider factors such as cognition, manual dexterity, and press and breathe coordination between actuation and inhalation.
- Consider referring patients at high risk of non-adherence for a comprehensive medication management review (i.e. HMR or RMMR).

The COPD-X Plan sections

- **O5. Inhaler technique and adherence**

Further information

- **Inhaler technique videos** for patients and health professionals (Lung Foundation Australia)
- **Inhaler and spacer technique fact sheets** (Lung Foundation Australia)

4 What are the most effective pharmacological, non-pharmacological and surgical interventions for COPD?

Summary

Figure 3. Stepwise management of stable COPD

STEPWISE MANAGEMENT OF STABLE COPD

	Increasing COPD severity		
	MILD	**MODERATE**	**SEVERE**
Typical symptoms	◦ few symptoms ◦ breathless on moderate exertion ◦ little or no effect on daily activities ◦ cough and sputum production	◦ breathless walking on level ground ◦ increasing limitation of daily activities ◦ recurrent chest infections ◦ exacerbations requiring oral corticosteroids and/or antibiotics	◦ breathless on minimal exertion ◦ daily activities severely curtailed ◦ exacerbations of increasing frequency and severity
Typical lung function	**$FEV_1 \approx 60$-80% predicted**	**$FEV_1 \approx 40$-59% predicted**	**$FEV_1 < 40\%$ predicted**
CONFIRM diagnosis. Confirm post-bronchodilator airflow limitation ($FEV_1/FVC < 0.70$) using **spirometry**. Any pattern of cough with or without chronic sputum production may indicate COPD.			
OPTIMISE function. PREVENT deterioration. DEVELOP a plan of care.			
Non-pharmacological interventions	**REDUCE RISK FACTORS** Avoid exposure to risk factors including tobacco smoke and air pollution, support smoking cessation, recommend annual influenza vaccine and pneumococcal vaccine according to immunisation handbook		
	OPTIMISE FUNCTION Encourage regular exercise and physical activity, review nutrition, provide education, develop GP management plan and written COPD action plan (and initiate regular review)		
	OPTIMISE TREATMENT OF CO-MORBIDITIES especially cardiovascular disease, anxiety, depression, lung cancer and osteoporosis		
	REFER symptomatic patients to pulmonary rehabilitation		
		INITIATE advanced care planning	
			MANAGE advanced lung disease with domiciliary oxygen therapy, long-term non-invasive ventilation, surgery and bronchoscopic interventions, if indicated
Pharmacological interventions (inhaled medicines)**	**START with short-acting relievers:** (used as needed): **SABA** (short-acting $beta_2$-agonist) **OR SAMA** (short-acting muscarinic antagonist)		
	ADD long-acting bronchodilators: **LAMA** (long-acting muscarinic antagonist) **OR LABA** (long-acting $beta_2$-agonist) Consider need for combination **LAMA/LABA** depending on symptomatic response		
		CONSIDER adding ICS (inhaled corticosteroids): Single inhaler triple therapy **(ICS/LABA/LAMA)** may be suitable*	
		*in patients with ≥1 severe exacerbation requiring hospitalisation or ≥2 moderate exacerbations in the previous 12 months, AND significant symptoms despite LAMA/LABA or ICS/LABA therapy; OR in patients stabilised on a combination of LAMA, LABA and ICS.	
Assess and optimise inhaler device technique at each visit. Minimise inhaler device polypharmacy			

REFER PATIENTS TO LUNG FOUNDATION AUSTRALIA FOR INFORMATION AND SUPPORT - FREECALL 1800 654 301

Lung Foundation Australia has a range of resources to promote understanding of COPD and assist with management.

Access a copy of the COPD inhaler chart, featuring PBS listed medicines approved for use in COPD.

Based on The COPD-X Plan: Australian and New Zealand Guidelines for the Management of COPD and COPD-X Concise Guide. **Refer to PBS criteria: www.pbs.gov.au

Figure 4. Inhalers and device chart

Inhalers for Chronic Obstructive Pulmonary Disease (COPD)

SABAs (Short-acting β_2-agonists)

	**Airomir Autohaler** (salbutamol)
	**Asmol pMDI** (salbutamol)
	**Bricanyl Turbuhaler** (terbutaline)
	**Ventolin pMDI** (salbutamol) Also available as: Zempreon pMDI

SAMAs (Short-acting muscarinic antagonists)

	**Atrovent pMDI** (ipratropium)

*PBS listed for COPD at this strength only
#PBS listed for asthma at other strengths
pMDI: Pressurised metered dose inhaler

LAMAs (Long-acting muscarinic antagonists)

	**Braltus Zonda** (tiotropium)
	**Bretaris Genuair** (aclidinium)
	**Incruse Ellipta** (umeclidinium)
	**Seebri Breezhaler** (glycopyrronium)
	**Spiriva Handihaler & Respimat** (tiotropium)

LABAs (Long-acting β_2-agonists)

	**Onbrez Breezhaler** (indacaterol)

ICS/LAMA/LABA combinations

	**Breztri Aerosphere pMDI** (budesonide/glycopyrronium/formoterol)
	**Trelegy Ellipta#** (fluticasone furoate/umeclidinium/vilanterol) *100/62.5/25
	**Trimbow pMDI#** (beclometasone/glycopyrronium/formoterol) *100/10/6

ICS/LABA combinations

	**Symbicort Turbuhaler#** (budesonide/formoterol) *400/12 Also available as: Rilast
	**Symbicort Rapihaler pMDI#** (budesonide/formoterol) *200/6 Also available as: Rilast
	**Bufomix Easyhaler#** (budesonide/ formoterol) *400/12
	**DuoResp Spiromax#** (budesonide/formoterol) *400/12 Also available as: BiResp Spiromax
	**Seretide pMDI#** (fluticasone propionate/salmeterol) *250/25 Also available as: Evocair, Fluticasone + Salmeterol Cipla, Pavtide, SalplusF
	**Seretide Accuhaler#** (fluticasone propionate/salmeterol) *500/50 Also available as: Fluticasone + Salmeterol Cipla, Pavtide
	**Salflumix Easyhaler#** (fluticasone propionate/salmeterol) *500/50
	**Breo Ellipta#** (fluticasone furoate/vilanterol) *100/25

LAMA/LABA

	**Anoro Ellipta** (umeclidinium/vilanterol)
	**Brimica Genuair** (aclidinium/formoterol)
	**Spiolto Respimat** (tiotropium/olodaterol)
	**Ultibro Breezhaler** (glycopyrronium/indacaterol)

Lung Foundation Australia

Please turn page over

Which inhalers also have a PBS indication for asthma and can be used in coexisting asthma and COPD?

ICS (Inhaled corticosteroid)

	**Fluticasone Cipla pMDI** (fluticasone propionate)
	**Flixotide pMDI** (fluticasone propionate) Also available as: Axotide pMDI, Fluticasone Cipla pMDI
	**Arnuity Ellipta** (fluticasone furoate)
	**QVAR pMDI** (beclometasone)
	**Alvesco pMDI** (ciclesonide)
	**Flixotide Accuhaler** (fluticasone propionate) Also available as Axotide Accuhaler
	**Pulmicort Turbuhaler** (budesonide)

ICS/LABA combinations

	**Flutiform pMDI** (fluticasone propionate/formoterol)
	**Fostair pMDI** (beclometasone/formoterol)
	**Atectura Breezhaler** (mometasone/indacaterol)
	**Fluticasone Salmeterol Ciphaler** (fluticasone propionate/salmeterol)

LABAs

	**Serevent Accuhaler** (salmeterol)
	**Oxis Turbuhaler** (formoterol)
	**Foradile Aerolizer** (formoterol)

ICS/LAMA/LABA combinations

	Enerzair Breezhaler (mometasone/glycopyrronium/indacaterol)

Green tick indicates therapies that can be used together

			SABA	SAMA	LAMA	LABA	LAMA/LABA	ICS/LABA	ICS/LAMA/LABA
SABA	• salbutamol (Ventolin, Airomir, Asmol, Zempreon)	• terbutaline (Bricanyl)		✓	✓	✓	✓	✓	✓
SAMA	• ipratropium (Atrovent)		✓			✓		✓	
LAMA	• tiotropium (Spiriva, Braltus) • glycopyrronium (Seebri)	• aclidinium (Bretaris) • umeclidinium (Incruse)	✓			✓		✓	
LABA	• salmeterol (Serevent) • formoterol (Oxis, Foradile)	• indacaterol (Onbrez)	✓	✓	✓				
LAMA/LABA	• indacaterol/glycopyrronium (Ultibro) • umeclidinium/vilanterol (Anoro)	• tiotropium/olodaterol (Spiolto) • aclidinium/formoterol (Brimica)	✓						
ICS/LABA	• fluticasone propionate/salmeterol (Seretide, Salflumix, SalplusF, Cipla, Ciphaler, Pavtide, Evocair) • budesonide/formoterol (Symbicort, DuoResp, Bufomix, BiResp) • fluticasone propionate/formoterol (Flutiform) • mometasone/indacaterol (Atectura)	• fluticasone furoate/vilanterol (Breo) • beclometasone/formoterol (Fostair)	✓	✓	✓				
ICS/LAMA/LABA	• fluticasone furoate/umeclidinium/ vilanterol (Trelegy) • mometasone/glycopyrronium/indacaterol (Enerzair)	• beclometasone/glycopyrronium/formoterol (Trimbow) • budesonide/glycopyrronium/fomoterol (Breztri)	✓						

Notes

- Handihaler, Breezhaler, Zonda and Aerolizer devices require a capsule to be loaded into the device. All other devices are preloaded.
- Respimat requires a cartridge to be inserted into the device.
- Where possible, pressurised metered dose inhalers (pMDI) should be used with a spacer.
- ICS monotherapy is not indicated for COPD without co-existing asthma.

Inhaler technique demonstration videos

Correct technique helps people with COPD to get the most benefit from their inhaled medications. Assess inhaler technique at least every six months or after an exacerbation or change in treatment.

Stepwise Management of Stable COPD

Follow a stepwise approach to pharmacological treatment.

The products included were those available on the PBS as at June 2024. Check TGA and PBS for current population, age and clinical criteria.

Lung Foundation Australia

Refer your patients to support

Lung Foundation Australia has a range of resources to promote understanding of COPD and assist with management. Free call **1800 654 301** or visit **lungfoundation.com.au**

Key recommendations

4a. Optimise pharmacotherapy using a stepwise approach I

Practice points

- Before stepping-up treatment, check inhaler technique and adherence (see **inhaler device videos** and **fact sheets** from Lung Foundation Australia).
- Minimise **inhaler device** polypharmacy to improve adherence.
- Check the **Therapeutic Goods Administration** (TGA) and **Pharmaceutical Benefits Scheme** (PBS) for current clinical criteria.
- Theophylline, systemic oral corticosteroids such as prednisone, and inhaled corticosteroid monotherapy are not recommended for maintenance treatment in COPD.

Practice points

There is no fixed assessment period that can be used to determine suitability of step-up treatment. For example, it may take:

- ~6 weeks to assess symptoms and quality of life.
- ~6 months (or longer) to assess changes in exacerbation frequency.

Practice points

When altering pharmacotherapy, consider:

- ☐ Exertional dyspnoea
- ☐ Functional status
- ☐ History of exacerbations
- ☐ Complexity of medications and devices
- ☐ Patient preference
- ☐ Occurrence of adverse effects

The COPD-X Plan sections

- **O1. Inhaled bronchodilators**
- **O1.1 Short-acting bronchodilators**
- **O1.2 Long-acting bronchodilators**
- **O1.3 Assessment of response and continuation of bronchodilator therapy**
- **O3. Corticosteroids**
- **O3.1 Oral corticosteroids**
- **O3.2 Inhaled corticosteroids (ICS)**
- **O3.3 ICS versus LABA**
- **O4. Inhaled combination therapy**
- **O4.1 ICS/LABA combination**
- **O4.2 ICS/LAMA/LABA combination**
- **O4.2.1 Eosinophil count and ICS**
- **O4.3 Biologic therapies**

Further information

- **Stepwise Management of Stable COPD** (Lung Foundation Australia)
- **Inhalers for COPD** (Lung Foundation Australia)
- **Inhaler device videos** (Lung Foundation Australia)
- **Inhaler device fact sheets** (Lung Foundation Australia)

Non-pharmacological interventions

- Physical activity / **regular exercise**
- **Pulmonary rehabilitation**
- **Handheld fans**
- Breathlessness recovery positions e.g. forward lean
- Breathing control e.g. pursed lips

For anyone with COPD:

- ☑ Refer to pulmonary rehabilitation (centre-based, home-based or telerehabilitation), especially if symptomatic (**Uzzaman 2022**, **Cox 2021**).
- ☑ Encourage regular physical activity (exercise, normal daily activities, and formal programs e.g. pulmonary rehabilitation).

Key recommendations

4b. Refer to pulmonary rehabilitation to improve quality of life, exercise capacity, and reduce COPD exacerbations — I

4c. Recommend non-pharmacological strategies such as pulmonary rehabilitation and regular exercise to anyone with COPD — I

Practice points

- For maintenance exercise after pulmonary rehabilitation, or when pulmonary rehabilitation is not readily available, refer patients to a community exercise program for people with chronic lung disease such as **Lungs in Action**.
- Following completion of a pulmonary rehabilitation program, use the **Better Living with Exercise Booklet** to create an individualised exercise program using Frequency, Intensity, Time and Type (FITT) Principles.
- Based on Australian **exercise guidelines**, adults should aim to perform moderate to vigorous exercise (e.g. walking) for at least 150 minutes per week (30 minutes per day, 5 days per week). Any physical activity is better than none (**Reilly 2023**).
- When possible, reassess patients who have stopped being active and consider re-referring to pulmonary rehabilitation. Local referral criteria may apply.

The COPD-X Plan sections

- **O6. Non-pharmacological interventions**

Further information

- **Pulmonary Rehabilitation Toolkit** (Lung Foundation Australia)
- **Guidelines for physical activity and exercise** (Australian Government)
- **Summary of Australia and New Zealand Pulmonary Rehabilitation Clinical Practice Guidelines**
- **Find a pulmonary rehabilitation program** (Lung Foundation Australia)
- **Smoking, nutrition, alcohol, physical activity (SNAP)** guide for lifestyle risk factors (RACGP)

Resources to share with patients

- Free call Lung Foundation Australia information support line **1800 654 301**
- **Pulmonary Rehabilitation fact sheet** (Lung Foundation Australia)
- **Better living with exercise** (Lung Foundation Australia)
- **Am I too sick to exercise?** Webinar (Lung Foundation Australia)
- **Lungs in Action program** (Lung Foundation Australia)
- **Peer Support Program** (Lung Foundation Australia)

Surgical and bronchoscopic interventions

- Surgical interventions, including bullectomy, lung volume reduction (surgical and endobronchial), and lung transplantation, require careful assessment at an expert centre and are only suitable for a very specific patient group.

Key recommendations

4d. Lung volume reduction (surgical and endobronchial) can enhance lung function, exercise capacity, and quality of life

The COPD-X Plan sections

- **O9. Surgery**
- **O9.1 Bullectomy**
- **O9.2 Lung volume reduction surgery and bronchoscopic interventions**
- **O9.3 Lung Transplantation**

5 When is it appropriate to start discussing advanced care planning and palliative care?

Advanced care planning

- Offer **advanced care planning** early in a patient's illness. Discuss your patient's beliefs, values, future treatment wishes and goals.
- Consider patient's and carer's unmet needs, such as poorly controlled physical symptoms (such as breathlessness), psychosocial or spiritual needs, and information needs.
- This may involve a discussion regarding quality of life and choices they may wish to consider.

The COPD-X Plan sections

- **O10.2 Advanced Care Plans**

Further information

- **Advanced Care Planning resources** (RACGP)

Resources to share with patients

- **Advance care planning Australia**
- **Advance care planning** and power of attorney (Palliative Care Australia)

Palliative care approach

- Offering patients and their carers early access to supportive care and a palliative team is important, regardless of COPD stage (**Higginson 2014**).

Practice points

- The palliative approach should be provided by the usual treating team, together with specialist palliative care services, if required.
- Indicate if a patient has formalised an advanced care plan and has a current Advanced Care Directive in their electronic medical record.
- Encourage patients to upload their Advanced Care Directive to their **My Health Record**.

Key recommendations

5a. Consider palliative care early, ideally from a multidisciplinary team, to control symptoms and to address psychosocial issues II

The COPD-X Plan sections

- **O.10: Palliative and supportive care**
- **O10.1 Opioids**
- **O10.3 Palliative oxygen therapy for dyspnoea**

Resources to share with patients

- **Palliative care information** (Lung Foundation Australia)

Prevent deterioration

P

6 What interventions prevent COPD exacerbations and deterioration?

Prevent exacerbations

- The strongest predictor of future exacerbations and declining lung function is previous exacerbations (**Hurst 2022**, **Vanfleteren 2023**).
- To reduce the risk of exacerbations, review smoking and vaccination status, refer to pulmonary rehabilitation, and optimise pharmacotherapy.

See Clinical questions 9 to 13 for further information on planning for and managing COPD exacerbations.

Key recommendations

6a. Focus on reducing the risk of exacerbations to prevent deterioration III-2

The COPD-X Plan sections

- P: Prevent deterioration

Smoking cessation

- Smoking cessation advice from health professionals can help motivate a quit attempt and increases quit rates (**Zwar 2014**).
- Counselling combined with nicotine replacement therapy, bupropion, or varenicline is more effective than counselling alone (**Tashkin 2011**).
- People with higher nicotine dependence may benefit from combining a nicotine patch with a rapid delivery form of nicotine replacement (e.g. gum, lozenges, or spray) (**Stead 2012**).
- The long-term safety of nicotine e-cigarettes is not known.

Key recommendations

6b. Emphasise smoking cessation as the most important intervention to prevent worsening of COPD II

Practice points

- At every visit, offer counselling and details for Quitline (13 QUIT or 13 7848) to all people who are currently smoking (**Fiore 2008**).
- Ensure smoking status is recorded and kept up-to-date. Include date of smoking cessation.

The COPD-X Plan sections

- P1. Risk factor reduction
- P1.1 Smoking cessation
- P1.2 Treatment of nicotine dependence
- P1.3 Prevent smoking relapse

Further information

- Smoking Cessation Guidelines for health professionals (RACGP)

Resources to share with patients

- Quitting smoking (Lung Foundation Australia)
- Join iCanQuit (Cancer Institute)
- My QuitBuddy app (Department of Health and Aged Care)

Vaccination

- Offer and encourage up to date influenza, SARS-CoV-2 (COVID-19), and pneumococcal immunisations for all patients with COPD.
- Actively promote annual influenza and COVID-19 immunisation for patients with COPD.

Practice points

- Practice nurses may assist by using recalls and reminders to ensure patient immunisations are up to date.
- Refer to the Australian Immunisation Handbook and the PneumoSmart Vaccination Tool for age-related vaccinations, recommendations and reimbursement.
- Pharmacists could have a valuable role in promoting and recommending appropriate vaccinations to patients, particularly when they are collecting vaccination history when performing medication reviews, working in general practice, or administering vaccinations.

Key recommendations

6c. Encourage vaccination to reduce risks associated with influenza, pneumococcal and SARS-CoV-2 (COVID-19) infection

I

The COPD-X Plan sections

- P2. Immunisations
- P2.1 Influenza immunisation
- P2.2 Pneumococcal immunisation
- P2.3 Haemophilus influenzae immunisation

Further information

- COVID-19 vaccine recommendations (Australian Immunisation Handbook)
- National Center for Immunisation Research and Surveillance (NCIRS)
- Australian Technical Advisory Group on Immunisation (ATAGI)

7 Are there any other interventions that can reduce the risk of exacerbations?

Long-term macrolides can reduce exacerbation risk in selected patients

- All pharmacological and non-pharmacological management options should first be optimised before prescribing long-term macrolide therapy.

Key recommendations

7a. Consider long-term macrolide antibiotics in people with moderate to severe COPD and frequent exacerbations

Practice points

- Macrolides are not available on the PBS for long-term use.
- Refer to a respiratory specialist to assess suitability for long-term macrolide therapy.

The COPD-X Plan sections

- **P4. Macrolides**

Long-term oxygen therapy

- Long-term oxygen therapy has survival benefits for COPD patients with COPD and persistent resting hypoxaemia.

Key recommendations

7b. Consider long-term oxygen therapy (>18 hours) for COPD patients with resting hypoxaemia

Practice points

- Refer to specialist service for long-term oxygen assessment if SpO_2 is below 90%.
- Long-term oxygen eligibility is assessed with an arterial blood gas and oxygen is indicated if:
  - PaO_2 is consistently <55 mmHg (SpO_2 <88%) when breathing air, at rest and awake
  - $PaO_2 \leq 59$ mmHg + evidence of polycythaemia, pulmonary hypertension, or right heart failure
- Oxygen therapy is an absolute contraindication in people who are currently smoking due to the risk of fire/burns.

The COPD-X Plan sections

- **P10. Oxygen therapy**
- **Appendix 3**

Non-invasive ventilation

- Refer patients with severe stable COPD and hypercapnia to a centre with expertise in long-term home non-invasive ventilation.

Key recommendations

7c. Consider long-term non-invasive ventilation in people with stable COPD and hypercapnia to reduce mortality and hospital admissions

The COPD-X Plan sections

- **P11. Long-term home non-invasive ventilation**

Mucolytics

- In moderate-severe COPD, oral mucolytics may reduce exacerbations (**Cazzola 2018**, **Poole 2019**).

Key recommendations

7d. Mucolytics may reduce exacerbations in patients with COPD

Practice points

- Mucolytics (e.g. N-acetylcysteine, erdosteine, carbocysteine or ambroxol) are not available in Australia.

The COPD-X Plan sections

- **P7. Mucolytic agents**

Develop a plan of care

D

8 How can we ensure that people with COPD receive high-quality, integrated care?

Clinical support team

- Apart from the health professionals, the clinical support team also includes carers and family members.
- The patient-centred medical home facilitates a partnership between individual patients, their usual treating GP, and their extended healthcare team, which enables better-targeted and effective coordination of clinical resources to meet patients' needs.
- Regularly assess the needs and goals of patients, family members and carers, including management goals, end of life priorities and mental health (**Strang 2018**).

Key recommendations

8a. Anticipate the wide range of needs for patients with COPD to facilitate good chronic disease care — I

8b. Clinical support teams working with the primary healthcare team can help enhance quality of life and reduce disability — III-2

Practice points

- Enlist a clinical support team for all patients with COPD.
- Formalise the relationship between patients, their general practice and preferred GP by encouraging patients to register in **MyMedicare**.
- Encourage patients to involve carers and family members in their management (e.g. by attending consultations).

Practice points

- Customise the basic General Practice Management Plan (GPMP) or Team Care Arrangement (TCA) in primary care clinical software programs to incorporate the goals and tasks for the patient with COPD, and the roles of their support team.
- Implement systems to enable structured multidisciplinary care and ensure regular recall and regular clinical review, prioritising efforts for higher risk patients.
- Ensure that an up-to-date shared health summary is uploaded to a patient's **My Health Record**.

The COPD-X Plan sections

- **D1 Support team**
- **D1.1. General practitioner**
- **D1.3 GP practice nurse/ nurse practitioner/ respiratory educator/ respiratory nurse**
- **D1.4 Physiotherapist**
- **D1.5 Occupational therapist**
- **D1.9 Pharmacist**
- **D1.10 Dietitian/Nutritionist**
- **D1.11 Exercise physiologist**
- **D2. Multidisciplinary care plans**

Further information

- **Standards for Patient-Centred Medical Homes** (RACGP)
- **MyMedicare** (Australian Government)

Self-management

- Patient self-management programs incorporating multicomponent interventions (such as education, exercise training and psychosocial support) can improve health outcomes, quality of life and decrease healthcare utilisation (**Schrijver 2022**, **Aranburu-Imatz 2022**).

Practice points

- Consider each patient's self-management ability and likelihood of treatment adherence.
- Regularly review and keep record of patients who undertake self-management activities.

Figure 5. COPD Action Plan 🔗 excerpt

Managing breathlessness

When feeling breathless

1. Stop what you are doing
2. Find a resting position
3. Use your fan or the breeze
4. Choose your preferred breathing technique, & continue for 2-3 minutes

After 2-3 minutes evaluate your breathlessness

Are you feeling less breathless and more in control?

Yes: Continue with your activity

OR

No: Take your prescribed reliever inhaler medication through a spacer, then resume breathing technique for another 2-3 minutes

If you remain breathless, refer to your written Action Plan on the front (turn over).

Common activities that can cause breathlessness when you live with COPD

Breathlessness is a common symptom in COPD. It can often seem to come on for no apparent reason or with very little exertion. This can cause people to feel frightened, out of control and anxious.

- Preparing and eating meals
- Hanging out washing
- Bending down to tie shoes
- Walking
- Vacuuming
- Showering and dressing

Self-management

Self-managing your condition helps to give you control. To learn more about these tools and how they can assist you in self-managing your condition, visit the Lung Foundation Australia website.

Self-management tool	
Inhaler techniques	Correct inhaler technique helps you get the most benefit from your inhaled medications. Ask your doctor, nurse or pharmacist to check your technique.
Relaxed breathing and control	Bending over or leaning forward while resting your arms on a stable surface can assist with getting control of your breathing.
Chest clearance	Airway clearance techniques are breathing exercises that can help you cough up phlegm. Ask a physiotherapist skilled in airway clearance techniques for instructions on how to start.
Hand-held fans	A cool draft of air from a hand-held fan can help you feel less breathless and more in control.
COPD medications chart	It is important you understand your medicines, their role, how they work, and when and how to take them.
Pulmonary rehabilitation (PR)	PR is an exercise and education program that helps you to exercise safely and manage your breathlessness.
Vaccination	Vaccinations for influenza, pneumococcal pneumonia and COVID-19 can reduce the risk of a flare up. Ask your doctor to check if your vaccinations are up to date.

Lung Foundation Australia

Access information and support today
lungfoundation.com.au
enquiries@lungfoundation.com.au
1800 654 301

Access the My COPD Checklist and discuss with your doctor or nurse

Key recommendations

8c. Patients may benefit from self-management support — I

The COPD-X Plan sections

- D3. Self-management 🔗
- D3.2. Exacerbation prevention 🔗
- D4. Telehealth 🔗
- D5. Assessment and management of anxiety and depression 🔗
- D6. Referral to a support group 🔗

Further information

- COPD Action Plan 🔗 – See Clinical question 9 🔗

D

Support groups

- Support groups provide education and psychological support and are a key aspect of patient self-management support.

Key recommendations

8d. Patients may benefit from support groups **III-2**

Resources to share with patients

- **Australia-wide patient support group networks** (Lung Foundation Australia), including in rural and remote areas
- Support centre free call 1800 654 301
- **Better Living with COPD: A Patient Guide**
- **Lungs in Action** (Lung Foundation Australia), the community-based exercise maintenance program

9 What is the role of a COPD Action Plan for exacerbations and what are the steps to writing one?

Benefits of a COPD action plan to manage exacerbations

- Exacerbations are reduced when COPD action plans are incorporated into self-management programs (**Lenferink 2019**).
- A patient-centric **COPD action plan** can help patients:
  - monitor their baseline symptoms
  - self-manage exacerbations where appropriate
  - identify when to seek medical advice (**Howcroft 2016**).

For information on managing COPD exacerbations, see Clinical questions 10 to 13.

Figure 6. How to write a **COPD Action Plan**

How to write a COPD Action Plan

STEP 1

Discuss the purpose of the COPD Action Plan

- Explain to patients that completing this provides familiarisation with COPD medications and a clear plan of action for recognising changes in their symptoms and what to do when their baseline symptoms change.
- Ask about any previous COPD exacerbations in the last 12 months - symptoms (infective/non-infective), management (ask the number of courses of oral prednisolone and/or antibiotics), changes in activities of daily living.

STEP 2

Discuss the 'Normal for me' section (green) 🙂

- Ask about their usual daily activities and what is normal for them - walking, showering, carrying groceries etc.
- Ask about their usual daily symptom burden of cough/phlegm and breathlessness.

STEP 3

Complete the 'Normal for me' section (green) 🙂 **– medications, oxygen prescription, reliever inhaler**

- Ask about their understanding of how their usual COPD medicines work and why they take them.
- Explain the role of their COPD medication if required- inhalers, oral medicines, and oxygen, if prescribed.
- Use your own placebo device to demonstrate the correct technique and share link to videos for your patient to use at home.
- **OR:** Use the Lung Foundation Australia's inhaler technique videos to teach correct technique and refer your patient to a proficient healthcare professional in your practice or a pharmacy.
- Ask them to teach the correct technique back to you.

STEP 4

Discuss the symptoms and complete the plan in the 'I'm unwell' section (yellow) 😐 **Managing a COPD exacerbation**

- Discuss what a COPD exacerbation is, common symptoms, and benefits of early treatment.
- Complete the flare-up medications (oral steroids and antibiotics) and highlight the need to monitor symptoms for improvement / worsening.
- Write instructions on when to start steroid tablets e.g. more out of breath despite taking reliever medications.
- Write instructions on when to start antibiotics and educate on recognising signs of infection e.g. As well as being breathless, you are producing more sputum than usual or it has changed colour.
- Advise your patient to book a review appointment if they have more than two flare ups a year that require treatment with their rescue medications.
- Ask your patient to record the details of their flare up. This will help them assess how effective their Action Plan is, the frequency of exacerbations and whether a change of maintenance therapy is required.

STEP 5

Discuss the 'Very unwell' section (orange) ☹

- Discuss and inform your patient of available options for accessing urgent care, with consideration of their local health services.
- Assess clinical appropriateness for providing your patient with a rescue pack of medications if no timely access to acute care is available.
- Consider prescribing rescue pack medications as outlined in the yellow section and instructions for use.

STEP 6

Explain and assess understanding of 'Emergency' section (red) 😟

- Discuss with your patient about recognising severity of their **symptoms** and the importance of following **actions** in their plan to access **urgent/emergency** care.
- Assess and address their understanding, if appropriate.

STEP 7

Provide your details and authorise

- Complete the Plan Prepared section of the plan.
  - Set a date to review the plan (at least yearly).
  - Create a reminder in the electronic patient record to review the plan.
  - Remind your patient to make an appointment for an earlier review if they have had two flare-ups in the last 12 months that required rescue medication (oral steroids and/antibiotics).

STEP 8

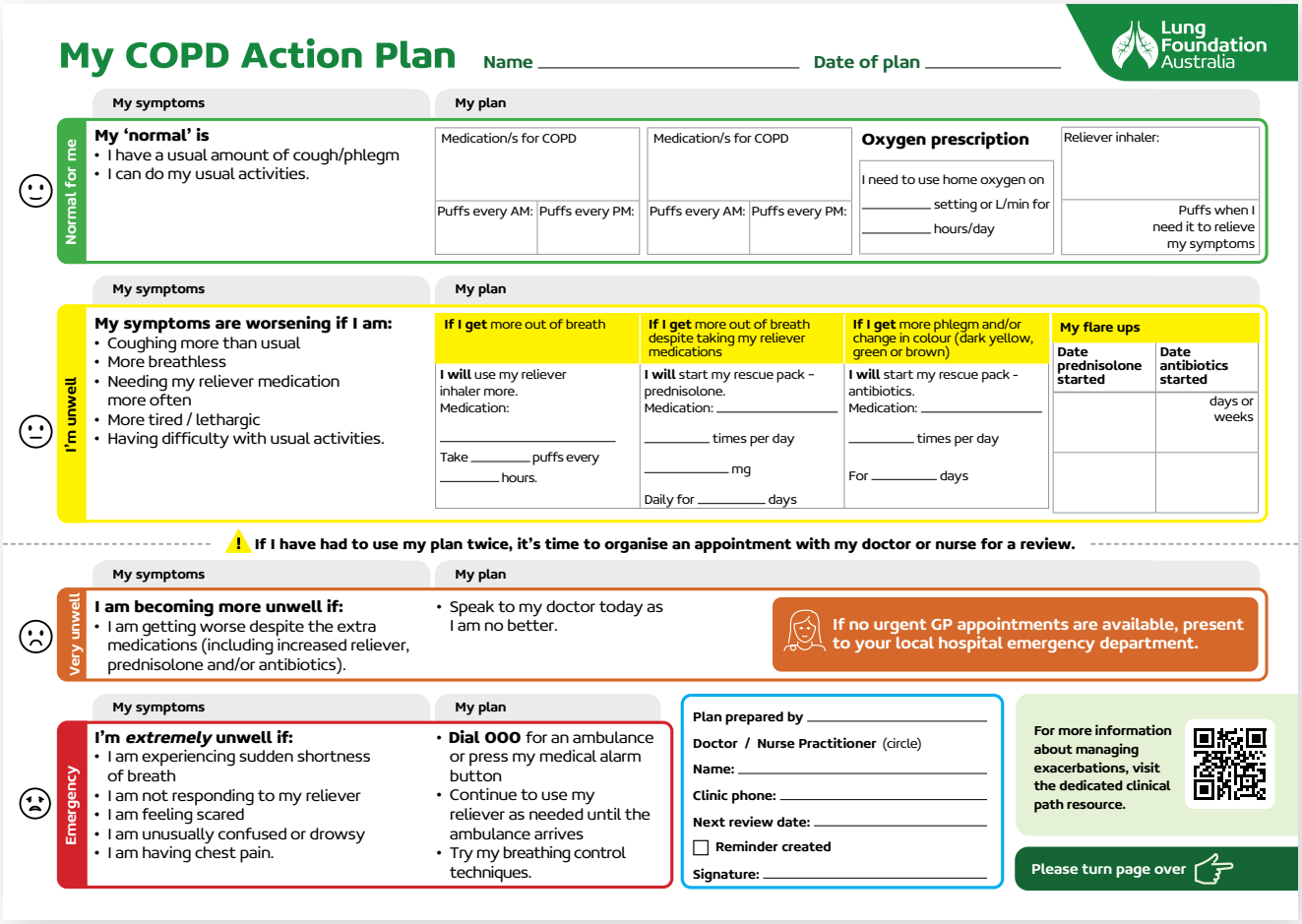
Save and provide to your patient

- Discuss and highlight the role of non-pharmacological self-management strategies for improving symptom control especially for breathlessness (see reverse side).
- Save and import/print and scan to their electronic medical record.
- Give the patient a copy. Ask them to keep their COPD Action Plan in a visible place e.g. on the fridge and to bring it to future appointments for discussion.
- Encourage them to complete the flare up tracker in the yellow section.

Lung Foundation Australia

D

Figure 6. How to write a COPD Action Plan



My COPD Action Plan

Name _____ Date of plan _____

Lung Foundation Australia

Normal for me

My symptoms	My plan			
My 'normal' is • I have a usual amount of cough/phlegm • I can do my usual activities.	Medication/s for COPD Puffs every AM: / Puffs every PM:	Medication/s for COPD Puffs every AM: / Puffs every PM:	**Oxygen prescription** I need to use home oxygen on _____ setting or L/min for _____ hours/day	Reliever inhaler: Puffs when I need it to relieve my symptoms

I'm unwell

My symptoms	My plan			
My symptoms are worsening if I am: • Coughing more than usual • More breathless • Needing my reliever medication more often • More tired / lethargic • Having difficulty with usual activities.	**If I get** more out of breath **I will** use my reliever inhaler more. Medication: _____ Take _____ puffs every _____ hours.	**If I get** more out of breath despite taking my reliever medications **I will** start my rescue pack – prednisolone. Medication: _____ _____ times per day _____ mg Daily for _____ days	**If I get** more phlegm and/or change in colour (dark yellow, green or brown) **I will** start my rescue pack - antibiotics. Medication: _____ _____ times per day For _____ days	**My flare ups** Date prednisolone started / Date antibiotics started days or weeks

⚠ **If I have had to use my plan twice, it's time to organise an appointment with my doctor or nurse for a review.**

Very unwell

My symptoms	My plan	
I am becoming more unwell if: • I am getting worse despite the extra medications (including increased reliever, prednisolone and/or antibiotics).	• Speak to my doctor today as I am no better.	**If no urgent GP appointments are available, present to your local hospital emergency department.**

Emergency

My symptoms	My plan
I'm *extremely* unwell if: • I am experiencing sudden shortness of breath • I am not responding to my reliever • I am feeling scared • I am unusually confused or drowsy • I am having chest pain.	• **Dial 000** for an ambulance or press my medical alarm button • Continue to use my reliever as needed until the ambulance arrives • Try my breathing control techniques.

Plan prepared by _____

Doctor / Nurse Practitioner (circle)

Name: _____

Clinic phone: _____

Next review date: _____

☐ **Reminder created**

Signature: _____

For more information about managing exacerbations, visit the dedicated clinical path resource.

Please turn page over

Key recommendations

9a. Implement a COPD action plan to reduce risks related to exacerbations, including emergency department visits and hospital admissions

I

Practice points

- Provide information about exacerbations at diagnosis to educate patients early.
- Include a **COPD action plan** as part of a comprehensive self-management program.
- Develop an individualised written COPD action plan with patients and significant others.

The COPD-X Plan sections

- **X: Manage eXacerbations**

Manage eXacerbations

X

10 How is a COPD exacerbation diagnosed?

- A COPD exacerbation is characterised by acute changes in the patient's baseline dyspnoea, cough, and/or sputum that exceed normal day-to-day variations.
- Causes and differential diagnoses should be assessed (**Figure 7**) (**Celli 2023**).

Figure 7. Causes and differential diagnoses of a COPD exacerbation **(Celli 2023)**

Causes
• **Infectious** - Viral - Bacterial
• **Non-infectious:** - Environmental (e.g. air pollution)
Differential diagnoses
• **Pneumonia** • **Pulmonary embolus** • **Pneumothorax** • **Malignancy** • **Pleural effusion** • **Heart failure** • **Ischaemic heart disease** • **Arrhythmia** • **Anaemia** • **Anxiety / depression**

X

Key recommendations

10a. Diagnose a COPD exacerbation based on changes in the patient's baseline dyspnoea, cough, and/or sputum that exceed normal day-to-day variations, are acute in onset, and may warrant a change in regular medication or hospital admission III-2

10b. Diagnosing and treating exacerbations early may prevent hospital admission and delay COPD progression III-2

Practice points

- ☐ early diagnosis and treatment of exacerbations may prevent hospital admission and delay disease progression.

Assessment of a COPD exacerbation includes:

- ☐ history (acute symptoms and causes)
- ☐ physical examination (chest and other signs)
- ☐ investigations as relevant (oximetry, full blood count, C-reactive protein, sputum culture, respiratory viral polymerase chain reaction, chest x-ray and other tests depending on differential diagnoses).

The COPD-X Plan sections

- X2.1 Confirm exacerbation and categorise severity

11 What are the most effective treatments if a patient is experiencing respiratory symptoms and may be at risk of a COPD exacerbation?

- An algorithm for managing exacerbations in the community setting is outlined in Figure 8.
- For more information on hospital-based exacerbation care, see Figure 9.

Figure 8. Managing exacerbations algorithm

ALGORITHM MANAGING EXACERBATIONS

PATIENT IS FEELING UNWELL

They are finding it harder to breathe than usual or experiencing any of the following:

- More coughing
- More phlegm
- Thicker phlegm than usual.

Recommend start using more short-acting bronchodilator (SABA) *e.g. salbutamol 4-8 puffs (400-800 mcg), via MDI and spacer every 3-4 hours, titrated to response.*

PATIENT IS FEELING BETTER

Recommend:

- Step down short-acting bronchodilator use
- Return to usual daily prescribed medicines
- Check and correct inhaler device technique
- Review and reinforce use of the COPD Action Plan.

PATIENT IS FEELING WORSE

If 3-4 hourly SABA not relieving symptoms adequately, **commence oral prednisolone 30-50mg daily (in addition to daily prescribed medicines) for 5 days, then stop.**

If clinical features of infection are present:

- Fever
- A change in colour and/or volume of phlegm

Also commence oral antibiotics (amoxicillin or doxycycline) for 5 days.

If patient has frequent exacerbations, consider whether further optimisation of daily prescribed medicine is required.

PATIENT IS FEELING BETTER

5 days after treatment commenced:

- Step down short acting bronchodilator use
- Cease oral prednisolone and/or antibiotics after 5 days and continue usual daily prescribed medicines
- Check and correct inhaler device technique
- Review and reinforce use of the COPD Action Plan.

PATIENT STILL UNWELL

5 days after treatment commenced:

- Review by GP or specialist
- Review and reinforce use of the COPD Action Plan
- Check and correct inhaler device technique.

SEND TO HOSPITAL

Send to hospital if any of the following:

- Marked increased intensity of symptoms
- New or worsening peripheral oedema
- Worsening of hypoxaemia from usual *(if known)*
- SpO_2 <92% if not on home oxygen
- Shortness of breath that is worsening and/or at rest
- High fever
- Altered mental state *(confusion, slurred speech, drowsiness)*
- Chest pain
- Worsening of co-morbidities *(e.g. heart failure,*
- *ischaemic heart disease, diabetes)*
- Inability to perform daily activities and/or manage safely at home
- Increased anxiety *(feeling scared/afraid).*

Based on COPD-X Plan: Australian and New Zealand Guidelines for the Management of COPD; Australian Therapeutic Guidelines. Visit www.copdx.org.au for further details.

Lung Foundation Australia

X

Key recommendations

11a. Initiate inhaled short-acting bronchodilators as a first-line treatment of exacerbations

11b. Systemic corticosteroids reduce the severity of and shorten recovery from exacerbations (oral route, when possible; 30 to 50 mg daily for 5 days)

11c. Exacerbations with clinical features of infection (increased volume and change in colour of sputum and/or fever) benefit from oral antibiotic therapy (amoxycillin or doxycycline for 5 days)

Practice points

- Some patients (with written action plans and appropriate self-management education) may be given prescriptions for antibiotics (amoxycillin or doxycycline for 5 days) and oral corticosteroids (30 to 50 mg daily for 5 days) in case of exacerbation. Instruct patients to arrange for early medical review as soon as they commence these prescriptions.

Practice points

- A chest x-ray is not usually required in community-based management of exacerbations for most patients.

Practice points

- Antibiotic therapy is not always needed for patients managed in the community, as the benefits are mainly seen in patients requiring hospitalisation.
- Intravenous antibiotics are generally not required.
- Sputum culture is not recommended routinely unless there is lack of response or repeated bacterial infections within several months.
- If a patient on antibiotic therapy is not improving and the sputum culture grows a resistant organism, consider switching antibiotics.

The COPD-X Plan sections

- X2.2 Optimise treatment
- X2.2.1 Inhaled bronchodilators for treatment of exacerbations
- X2.2.2 Systemic corticosteroids for treatment of exacerbations
- X2.2.3 Antibiotics for treatment of exacerbations
- X2.2.4 Combined systemic corticosteroids and antibiotics for treatment of exacerbation

12 When is oxygen delivery or non-invasive ventilation suitable for COPD exacerbations?

Oxygen

- In patients with COPD and hypoxaemia, administer oxygen via nasal cannula aiming for a target SpO_2 of 88 to 92%.
- Controlled oxygen delivery (0.5 to 2.0L/min) is indicated for hypoxaemia in patients with exacerbations.

Key recommendations

12a. Use supplemental oxygen for hypoxaemia in COPD exacerbations, target SpO_2 88% to 92% to improve survival II

12b. Controlled oxygen delivery (0.5 to 2.0 L/min) is indicated for hypoxaemia in patients with exacerbations II

Practice points

- Avoid over-oxygenation in patients with COPD as this may lead to acute respiratory failure and death (**Barnett 2022**).
- Oxygen is not indicated as a treatment for breathlessness in the absence of hypoxaemia.

The COPD-X Plan sections

- X3.1 Controlled oxygen delivery

Non-invasive ventilation should be considered in acute hypercapnic respiratory failure

- Hypercapnic respiratory failure is defined by an arterial blood gas with a $PaCO_2$ > 45 mmHg and a pH < 7.35 (respiratory acidosis).
- Non-invasive ventilation can reduce mortality, length of stay in hospital and the need for endotracheal intubation (**Osadnik 2017**).

Key recommendations

12c. Non-invasive ventilation improves survival for people with COPD and acute hypercapnic respiratory failure I

Practice points

- Clinical features that suggest respiratory failure include confusion, drowsiness, restlessness, and cyanosis.

The COPD-X Plan sections

- X3.2 Non-invasive ventilation

13 Are there any other ways we can support patients with COPD to optimise recovery from a COPD exacerbation?

Pulmonary rehabilitation

- Pulmonary rehabilitation that includes supervised exercise training commenced immediately following an exacerbation improves exercise tolerance and quality of life, reduces COPD-related hospital admissions and mortality in the short-term and has been shown to be safe (**Alison 2017**, **Ryrsø 2018**).

Key recommendations

13a. Refer to pulmonary rehabilitation, particularly during the recovery phase following an exacerbation I

Practice points

- In both the community and hospital settings, patients who have had an exacerbation should commence pulmonary rehabilitation as soon as is practicable after acute instability has resolved.
- After an exacerbation requiring hospitalisation, pulmonary rehabilitation is safe, and should start within 2-4 weeks of hospital discharge.

The COPD-X Plan sections

- X3.6 Pulmonary rehabilitation

Further information

- Find a Pulmonary Rehabilitation program (Lung Foundation Australia)

Hospital discharge plans and follow-up

- Hospital discharge plans/clinical summaries should be shared with the primary care team at the time of discharge (within 24 hours).
- Patients with COPD discharged from hospital should be reviewed by a member of the primary healthcare team within 7 days of discharge.
- For patients who are residents of aged care facilities, send their discharge plan/clinical handover summary to the facility as well as their usual managing GP.
- Patients with chronic cough and ongoing sputum production should be referred to a respiratory physiotherapist for assessment and instruction regarding correct airway clearance techniques.

Key recommendations

13b. The primary healthcare team should ensure that patients with COPD receive comprehensive follow-up care, after they are discharged from the hospital for an exacerbation I

Practice points

- Ensure each patient who has been hospitalised for a COPD exacerbation has commenced the COPD exacerbation checklist prior to discharge from hospital for a COPD exacerbation (see Figure 9). This should be completed by the primary health care team.

Figure 9. COPD exacerbation checklist excerpt

MANAGING A COPD EXACERBATION CHECKLIST

This Checklist is supported by the use of STEPWISE MANAGEMENT OF STABLE COPD available at www.lungfoundation.com.au/stepwise.

IN HOSPITAL

☐	**Inhaled bronchodilators**	Use short-acting bronchodilators as appropriate to improve symptoms.
☐	**Oral corticosteroids**	Consider use of oral corticosteroids (5 days, oral route, short course, no tapering) to reduce readmission and length of stay.
☐	**Oral antibiotics**	Prescribe if clinical features of infection are present. Oral antibiotics are preferred over IV antibiotics.
☐	**Oxygen therapy**	Aim for oxygen saturation of 88-92% in hypoxaemic patients.
☐	**Non-invasive ventilation (NIV)**	Consider NIV to reduce length of stay and mortality due to hypercapnic respiratory failure.
☐	**Physiotherapy**	Encourage physical activity and introduce the most appropriate airway clearance technique for patients who have difficulty clearing sputum.
☐	**Smoking status**	Review current status and implement smoking cessation strategies including referral to Quitline (13 78 48).

PRIOR TO LEAVING HOSPITAL

☐	**Smoking cessation support**	Ensure smoking cessation strategies are in place.
☐	**Spirometry**	Perform and/or arrange spirometry.
☐	**Inhaler technique**	Check technique and ensure patient is able to use each inhaler correctly.
☐	**COPD Action Plan**	Provide or update where one already exists.
☐	**Pulmonary rehabilitation**	Refer to pulmonary rehabilitation, discuss benefits and encourage attendance.
☐	**General Practitioner**	Arrange follow-up appointment with nominated GP. Prepare and provide summary of inpatient treatment to nominated GP.
☐	**Medication**	Reassess adherence and step up therapy as appropriate e.g. *consider need for inhaled corticosteroids and adding second long-acting bronchodilator.*
☐	**Support services**	Establish support required at home or place of residence.
☐	**COPD Information Pack**	Provide patient with Lung Foundation Australia COPD Information Pack.

ONGOING CARE 1-4 WEEKS POST DISCHARGE

☐	**Smoking status**	Review status and implement smoking cessation strategies.
☐	**Medication**	Reassess adherence and review inhaler technique.
☐	**COPD Action Plan**	Review and discuss as appropriate.
☐	**Vaccinations**	Ensure influenza and pneumococcal vaccinations are up to date.
☐	**Pulmonary rehabilitation**	Ask about attendance and re-refer if necessary.
☐	**Oxygen therapy**	Review need for long term oxygen therapy (LTOT) in patients discharged from hospital on oxygen.
☐	**Referral**	Consider need for referral for additional services including peer support.

Refer to STEPWISE MANAGEMENT OF STABLE COPD resource available at **www.lungfoundation.com.au/stepwise.**

MANAGE COMORBIDITIES

especially cardiovascular disease, anxiety, depression, lung cancer and osteoporosis.

Refer patients to Lung Foundation Australia for information and support FREECALL 1800 654 301

Lung Foundation Australia has a range of resources to promote understanding of COPD and assist with management. Contact details of local pulmonary rehabilitation programs and Support Groups are also available.

It is recommended that you consult the suite of COPD-X Guidelines for further information when using this Checklist (COPD-X Plan: Australian and New Zealand Guidelines for the Management of COPD; COPD-X Concise Guide; Stepwise Management of Stable COPD). **Visit www.copdx.org.au for further details.**

Lung Foundation Australia

1800 654 301 | Lungfoundation.com.au

The COPD-X Plan sections

- X3.5 Develop post-discharge plan and follow-up
- X3.6 Pulmonary rehabilitation
- X3.7 Discharge planning
- X3.8 Support after discharge
- X3.9 Clinical review and follow-up

Further information

- Managing Chronic Disease (Australian Government Department of Health and Aged Care)

Home management or "hospital in the home"

- Many patients experiencing an exacerbation of COPD can be safely managed at home
- Home management programs can facilitate early hospital discharge and provide ongoing care and supervision in the patient's home.

Key recommendations

13c. Coordinate multidisciplinary support to help treat COPD exacerbations for patients in the community setting receiving home management I

Practice points

- Coordinate multidisciplinary support for patients who are receiving home management or "hospital in the home".
- Implement systems for planned transfers of care to ensure patients receive continuous and coordinated primary care from their nominated general practice or primary healthcare team.
- When selecting patients for home management or "hospital in the home":
  - Ensure absence of cyanosis, rapid onset or worsening peripheral oedema, significant comorbidity, evidence of respiratory failure (e.g. pH ≤7.35, SpO_2 <90%), and confusion.
  - Consider the patient's ability to cope at home, mobilise, eat, and drink, and social supports.

The COPD-X Plan sections

- X1. Home management

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Abbreviations

BMI	Body mass index
CAT	COPD Assessment Test
COPD	Chronic obstructive pulmonary disease
ECG	Electrocardiogram
FEV_1	Forced expiratory volume in one second
FVC	Forced vital capacity
GPMP	General Practice Management Plan
GP	General practitioner
HMR	Home Medicines Review
ICS	Inhaled corticosteroid
LABA	Long-acting beta-agonist
LAMA	Long-acting muscarinic antagonist
mMRC	Modified Medical Research Council Dyspnoea Scale
PaO_2	Partial pressure of arterial oxygen
PBS	Pharmaceutical Benefits Scheme
PR	Pulmonary rehabilitation
SABA	Short-acting beta-agonist
SAMA	Short-acting muscarinic antagonist
pMDI	Pressurised metered dose inhaler
RMMR	Residential Medication Management Review
SpO_2	Oxygen saturation
TCA	Team Care Arrangement
TGA	Therapeutic Goods Administration

Summary of key recommendations

1a.	Smoking is the most important risk factor for developing COPD	I
1b.	Smoking cessation reduces mortality in people with COPD	I
2a.	Begin with a thorough history and examination for COPD as the first step to diagnosis	III-2
2b.	Confirm COPD with spirometry (post-bronchodilator $FEV_1/FVC < 0.7$)	III-2
2c.	While a large increase in post-bronchodilator FEV_1 (with greater confidence if increase is >15% and >400 mL) might suggest asthma or coexisting asthma and COPD, consider patient history, pattern of symptoms, and further investigations to confirm diagnosis (**GINA 2023**).	III-2
2d.	Further investigations may be necessary to confirm or exclude other conditions and assess COPD severity	III-2
2e.	Consider referral to specialist respiratory services if needed	III-2
2f.	Regularly assess COPD symptoms and exacerbation risk	III-2
3a.	Begin with a comprehensive assessment as the first step to optimising function	III-2
3b.	Recognise that comorbid conditions are common in patients with COPD	III-2
3c.	Regularly check inhaler technique and adherence	I
4a.	Optimise pharmacotherapy using a stepwise approach	I
4b.	Refer to pulmonary rehabilitation to improve quality of life, exercise capacity, and reduce COPD exacerbations	I
4c.	Recommend non-pharmacological strategies such as pulmonary rehabilitation and regular exercise to anyone with COPD	I
4d.	Lung volume reduction (surgical and endobronchial) can enhance lung function, exercise capacity, and quality of life	I
5a.	Consider palliative care early, ideally from a multidisciplinary team, to control symptoms and to address psychosocial issues	II
6a.	Focus on reducing the risk of exacerbations to prevent deterioration	III-2
6b.	Emphasise smoking cessation as the most important intervention to prevent worsening of COPD	II
6c.	Encourage vaccination to reduce risks associated with influenza, pneumococcal and SARS-CoV-2 (COVID-19) infection	I
7a.	Consider long-term macrolide antibiotics in people with moderate to severe COPD and frequent exacerbations	I

7b.	Consider long-term oxygen therapy (>18 hours) for patients with COPD with resting hypoxaemia	I
7c.	Consider long-term non-invasive ventilation in people with stable COPD and hypercapnia to reduce mortality and hospital admissions	I
7d.	Mucolytics may reduce exacerbations in patient with COPD	I
8a.	Anticipate the wide range of needs for patients with COPD to facilitate good chronic disease care	I
8b.	Clinical support teams working with the primary healthcare team can help enhance quality of life and reduce disability	III-2
8c.	Patients may benefit from self-management support	I
8d.	Patients may benefit from support groups	III-2
9a.	Implement a COPD action plan to reduce risks related to exacerbations, including emergency department visits and hospital admissions	I
10a.	Diagnose a COPD exacerbation based on changes in the patient's baseline dyspnoea, cough, and/or sputum that exceed normal day-to-day variations, are acute in onset, and may warrant a change in regular medication or hospital admission	III-2
10b.	Diagnosing and treating exacerbations early may prevent hospital admission and delay COPD progression	III-2
11a.	Initiate inhaled short-acting bronchodilators as a first-line treatment of exacerbations	I
11b.	Systemic corticosteroids reduce the severity of and shorten recovery from exacerbations (oral route, when possible; 30 to 50 mg daily for 5 days)	I
11c.	Exacerbations with clinical features of infection (increased volume and change in colour of sputum and/or fever) benefit from oral antibiotic therapy (amoxycillin or doxycycline for 5 days)	I
12a.	Use supplemental oxygen for hypoxaemia in COPD exacerbations, target SpO_2 88-92% to improve survival	II
12b.	Controlled oxygen delivery (0.5 to 2.0 L/min) is indicated for hypoxaemia in patients with exacerbations	II
12c.	Non-invasive ventilation improves survival for people with COPD and acute hypercapnic respiratory failure	I
13a.	Refer to pulmonary rehabilitation, particularly during the recovery phase following an exacerbation	I
13b.	The primary healthcare team should ensure that patients with COPD receive comprehensive follow-up care , after they are discharged from the hospital for an exacerbation	I
13c.	Coordinate multidisciplinary support to help treat COPD exacerbations among patients receiving home management or "hospital in the home"	I

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- **Jana Waldmann**, Acting Manager, Library Services at The Prince Charles Hospital, Brisbane, reviewed the search strategy in May 2023.

Conflicts of interest

Conflicts of interest for members of Lung Foundation Australia's COPD-X Handbook Working Group may be viewed at online at **https://copdx.org.au/copd-x-plan/copd-guidelines-committee-past-and-present/conflicts-of-interest/copd-x-handbook/**

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