WORLD COPD Day 2020

Primary Care Webinar

Wednesday 18 November 2020

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Celebrating 30 Years

The information provided in this webinar is correct at the date of broadcast: 18 November 2020

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COPD-X CONCISE GUIDE

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Eli Dabscheck

Alfred Hospital & Monash University, Melbourne

Ian Yang

The Prince Charles Hospital & The University of Queensland, Brisbane

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COPD resources

COPD-X is updated every quarter. Register here to receive free updates of the latest evidence in COPD

Other Clinical Resources to Support COPD Management

Stepwise Management of Stable COPD

Action Plan (with Instructions)

Exacerbation Algorithm

Primary Care Respiratory Toolkit

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Guideline methodology

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- Target audience = very wide
  - GPs, specialists, hospitals, regulators
- Guidelines extend beyond treatment recommendations
- Recommendations require high level evidence

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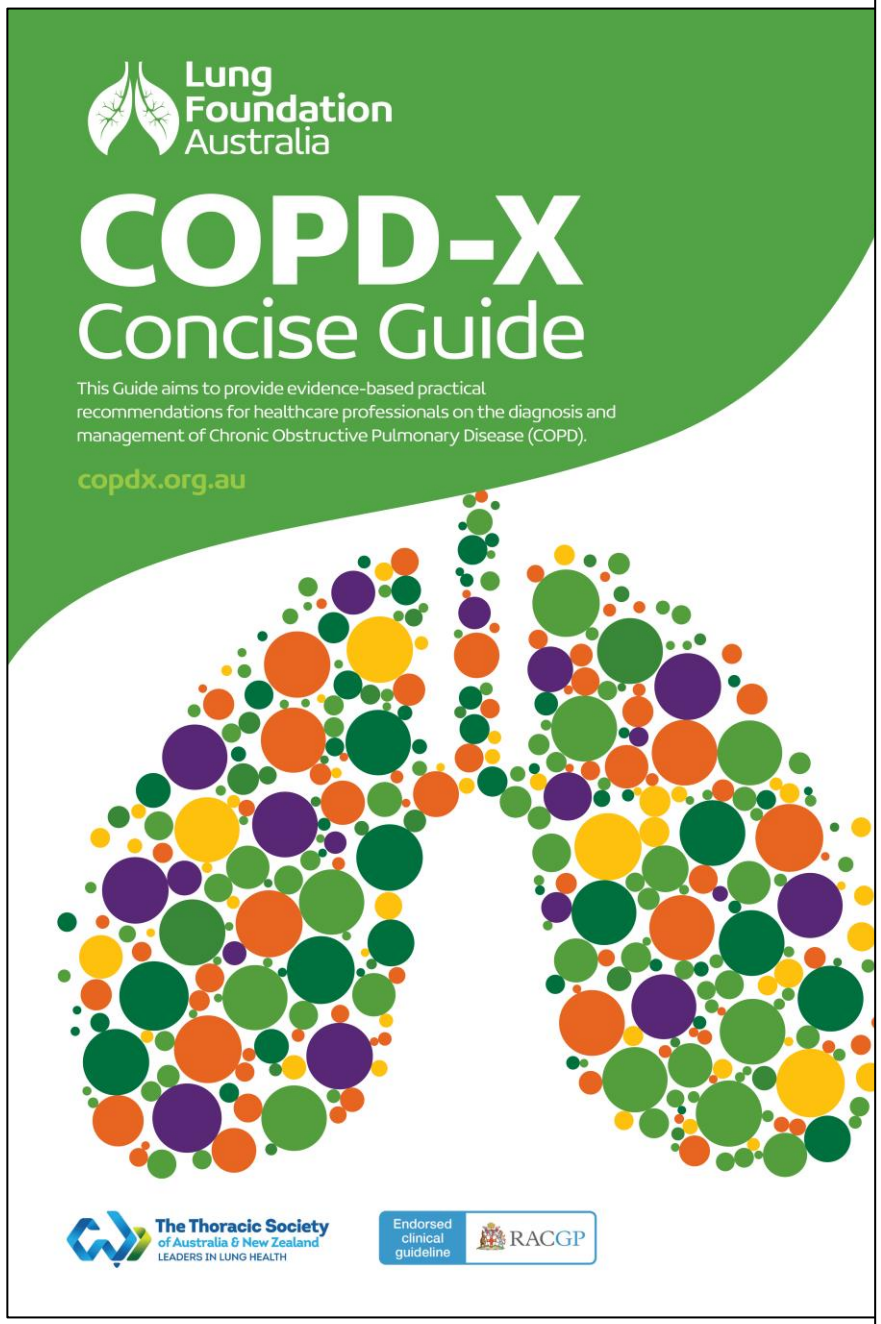

C Case finding and confirm diagnosis

- What risk factors contribute to COPD?
- What is the first step in the diagnosis of COPD?
- How is COPD confirmed?
- Is it COPD or asthma?
- Is it COPD or another condition?
- How is severity of COPD confirmed?

O Optimise function

- Optimising function: Where to start?
- What non-pharmacological strategies are recommended?
- What is the recommended approach to prescribing pharmacological therapies?
- When should inhaler technique and adherence be reviewed?
- How should treatment of comorbidities be optimised?
- When should referral to specialist respiratory services be made?

P Prevent deterioration

- Why give smoking cessation advice?
- How can exacerbation risk be reduced?
- Why immunise against influenza and pneumococcal infection?
- Should mucolytics be used?
- Who benefits from long-term oxygen therapy?

D Develop a plan of care

- What is good chronic disease care and what are the benefits?
- How can health professionals improve quality of life and reduce disability?
- What is self-management support and how can patients benefit?
- What other services can benefit patients?
- When and how should palliative care be considered?

X Manage eXacerbations

- How is a COPD exacerbation defined?
- What are the benefits of early diagnosis and treatment of exacerbations?
- When should a patient with COPD be hospitalised?
- Can patients with an exacerbation be treated at home?
- Are inhaled bronchodilators effective for treatment of exacerbations?
- Are oral corticosteroids effective for treating exacerbations?
- When are antibiotics beneficial in treating a patient with an exacerbation?
- Is oxygen beneficial in treating a patient with an exacerbation?
- When is non-invasive ventilation (NIV) effective?
- Following an exacerbation, how soon can pulmonary rehabilitation be commenced?
- What is the best approach to post-hospital care after an exacerbation?

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Yang IA, Dabscheck EJ, George J, Jenkins SC, McDonald CF, McDonald VM, Smith BJ, Zwar NA. **COPD-X Concise Guide**. Brisbane. Lung Foundation Australia. 2019

copdx.org.au

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COPD-X Concise Guide update

- Major update since 2017
- Extends beyond focus on primary care
- Updated recommendations, practice tips, further information
- Each section starts with a question, rather than a statement, to set the context
- New concept diagram for management
- Updated ‘Stepwise Management of COPD’
- Inclusion of ‘Managing a COPD exacerbation’ checklist

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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 ≈ 60-80% predicted**	**FEV_1 ≈ 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.

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

Register at copdx.org.au
to receive an alert when the COPD-X Guidelines are updated

Lung Foundation Australia
1800 654 301 | Lungfoundation.com.au

Green tick indicates therapies that can be used together

		SABA	SAMA	LAMA	LABA	LABA/ LAMA	ICS/ LABA	ICS/ LABA/ LAMA
SABA	• salbutamol (Ventolin™, Airomir™, Asmol™) • terbutaline (Bricanyl™)		✓	✓	✓	✓	✓	✓
SAMA	• ipratropium (Atrovent™)	✓			✓		✓	
LAMA	• tiotropium (Spiriva™/Braltus™) • glycopyrronium (Seebri™) • aclidinium (Bretaris™) • umeclidinium (Incruse™)	✓			✓		✓	
LABA	• salmeterol (Serevent™) • formoterol (Oxis™, Foradile™) • indacaterol (Onbrez™)	✓	✓	✓				
LABA/ LAMA	• indacaterol/glycopyrronium (Ultibro™) • umeclidinium/vilanterol (Anoro™) • tiotropium/olodaterol (Spiolto™) • aclidinium/formoterol (Brimica™)	✓						
ICS/LABA	• fluticasone propionate/salmeterol (Seretide™/SalplusF™/Cipla™) • budesonide/formoterol (Symbicort™/DuoResp™) • fluticasone furoate/vilanterol (Breo™)		✓	✓	✓			
ICS/LAMA/ LABA	• fluticasone furoate/umeclidinium/ vilanterol (Trelegy™)	✓						

Relievers

SABA: Short-acting $beta_2$-agonists

Ventolin® MDI *salbutamol*
Asmol® MDI *salbutamol*
Airomir™ Autohaler® *salbutamol*
Bricanyl® Turbuhaler® *terbutaline*

SAMA: Short-acting muscarinic antagonist

Atrovent® MDI *ipratropium*

Maintenance

LAMAs: Long-acting muscarinic antagonists

Incruse® Ellipta® *umeclidinium*
Braltus® Zonda® *tiotropium*
Spiriva® Respimat® *tiotropium*
Spiriva® HandiHaler® *tiotropium*
Seebri® Breezhaler® *glycopyrronium*
Bretaris® Genuair® *aclidinium*

LAMA/LABA combinations

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

LABAs: Long-acting $beta_2$-agonists

Onbrez® Breezhaler® *indacaterol*
Foradile® Aerolizer® *formoterol*
Oxis® Turbuhaler® *formoterol*
Serevent® Accuhaler® *salmeterol*

ICS/LABA combinations

Symbicort® Rapihaler™ *budesonide/formoterol*
Symbicort® Turbuhaler® *budesonide/formoterol*
Seretide® Accuhaler® *fluticasone propionate/ salmeterol*
Seretide® MDI *fluticasone propionate/ salmeterol*
DuoResp® Spiromax® *budesonide/formoterol*
Breo® Ellipta® *fluticasone furoate/ vilanterol*
Fluticasone + Salmeterol Cipla®/Salplus®® MDI *fluticasone propionate/ salmeterol*

ICS: Inhaled corticosteroids (for patients with COPD and Asthma)

Fluticasone Cipla MDI *fluticasone propionate*
Flixotide® MDI *fluticasone propionate*
Arunity® Ellipta® *fluticasone furoate*
QVAR® MDI *beclometasone*
Alvesco® MDI *ciclesonide*
Flixotide® Accuhaler® *fluticasone propionate*
Pulmicort® Turbuhaler® *budesonide*

ICS/LABA combination

Flutiform® MDI *fluticasone propionate/ formoterol*

ICS/LABA/LAMA

Trelegy® Ellipta® *fluticasone furoate/ umeclidinium/ vilanterol*

Flare Up Medicines

1. Antibiotics (Refer to Therapeutic Guidelines: Antibiotic: www.tg.org.au)
2. Oral steroids (prednisone, prednisolone)

Notes

- Handihaler, Breezhaler, Zonda and Aerolizer devices require a capsule to be loaded into the device. All other devices are preloaded.
- Where possible, metered dose inhalers (MDI) should be used with a spacer
- ICS monotherapy is not indicated for COPD without co-existing asthma
- **Shaded = PBS listed for asthma only**

Watch inhaler device technique videos on your device through ZAPPAR

1. Download **ZAPPAR** from Google Play or iTunes app store.
2. Open the app.
3. Scan this page.
4. Choose the inhaler device video.

GET ZAPPAR ZAP THE CODE

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Stepwise Management update

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- Update since 2019
- Inclusion of **C**onfirm diagnosis – spirometry
- Inclusion of **O**ptimise function. **P**revent deterioration. **D**evelop a plan of care
- New PBS criteria for ICS/LAMA/LABA therapy
- New inhalers
- Minimise inhaler device polypharmacy
- Long-term non-invasive ventilation

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C Case finding and confirm diagnosis

- What risk factors contribute to COPD?
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C Case finding and confirm diagnosis

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What risk factors contribute to COPD?

- **Cigarette smoking** Fletcher 1977, Tashkin 1996, Anthonisen 2002
- Dusty occupations
- Air pollution (indoor, outdoor)
- Asthma
- Parental smoking
- Genetic, socioeconomic and nutritional factors

Widespread population screening for COPD is not recommended

Guirguis-Blake 2016

Consider COPD in:

- patients > 35 years of age with breathlessness, cough, and/or sputum production
- all smokers/ex-smokers > 35 years of age

SR Strong Recommendation

ME Moderate Quality Evidence

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C Case finding and confirm diagnosis

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What is the first step in the diagnosis of COPD?

If COPD is suspected, document a thorough history of:

SR Strong Recommendation

LE Low Quality Evidence

- Age of onset of symptoms
- Smoking history
- History of prematurity
- History of childhood respiratory problems including asthma
- Occupational and environmental exposures
- Triggers
- Family history

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C Case finding and confirm diagnosis

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How is COPD confirmed?

Perform pre- and post-bronchodilator spirometry NHLBI/WHO 2001

Persistent airflow limitation that is not fully reversible

- Postbronchodilator **FEV_1/FVC ratio < 0.7** and
  FEV_1 < 80% predicted

SR Strong Recommendation

HE High Quality Evidence

Lung Foundation Australia

- **COPD cannot be diagnosed on clinical features and/or chest x-ray findings alone**
- Many patients with COPD have some reversibility of airflow limitation
- Interpret borderline spirometry results with caution: repeat spirometry, consider alternative diagnoses

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Is it COPD or asthma?

Asthma and COPD may co-exist

- A larger bronchodilator response may point to concurrent asthma

If the FEV_1 response to bronchodilator is:

≥ 400 mL:

consider asthma, or coexisting asthma and COPD

< 400 mL (but ≥ 200 mL and ≥ 12%):

consider an asthma component depending on history and pattern of symptoms

SR Strong Recommendation
ME Moderate Quality Evidence
WR Weak Recommendation
LE Low Quality Evidence

Global Initiative for Asthma 2019

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C Case finding and confirm diagnosis

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Is it COPD or another condition?

Perform further investigations to confirm or exclude conditions with a similar presentation to COPD

SR Strong Recommendation
LE Low Quality Evidence

- Chest x-ray
- Full blood count, biochemistry
- Complex lung function tests (gas transfer, lung volumes)
- ECG
- Echocardiography
- Exercise stress testing

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C Case finding and confirm diagnosis

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How is severity of COPD confirmed?

COPD SEVERITY	Typical FEV_1	Typical symptoms	History of exacerbations	Comorbid conditions*
	Mild ≈ 60 - 80% predicted	• few symptoms • breathless on moderate exertion • little or no effect on daily activities • cough and sputum production	Frequency may increase with severity	Present across all severity groups
	Moderate ≈ 40 - 59% predicted	• breathless walking on level ground • increasing limitation of daily activities • recurrent chest infections • exacerbations requiring oral corticosteroids and / or antibiotics		
	Severe < 40% predicted	• breathless on minimal exertion • daily activities severely curtailed • exacerbations of increasing frequency and severity		

- Symptoms may not correlate with spirometry
- Exacerbations can occur at any stage of COPD
- **History of exacerbations predicts future exacerbations**

Agusti 2010

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O Optimise function

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- Optimising function: Where to start?
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- When should referral to specialist respiratory services be made?

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	Increasing COPD severity		
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OPTIMISE function. PREVENT deterioration. DEVELOP a plan of care.

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Optimise function

What non-pharmacological strategies are recommended?

- Offer brief **smoking cessation** counselling at every visit to all current smokers

SR Strong Recommendation
HE High Quality Evidence

Fletcher 1977, Tashkin 1996, Anthonisen 2002

- Refer all symptomatic patients to **pulmonary rehabilitation**

SR Strong Recommendation
HE High Quality Evidence

Spruit 2013, McCarthy 2015, Alison 2017

- Re-assess and consider re-referral to pulmonary rehabilitation for patients who have stopped being active

SR Strong Recommendation
ME Moderate Quality Evidence

- Encourage regular **physical activity** for all patients with COPD

SR Strong Recommendation
ME Moderate Quality Evidence

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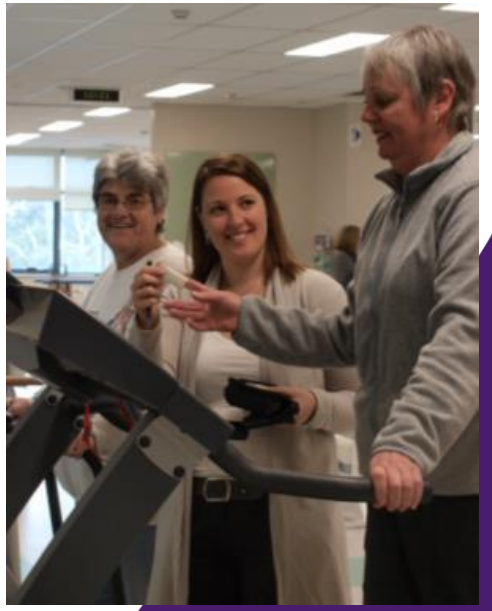

Better Living with COPD'
Lung Foundation Australia

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O Optimise function

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What is the recommended approach to prescribing pharmacological therapies?

Aims:

1. Treat symptoms
2. Prevent exacerbations and deterioration

Principles:

- **Stepwise approach**
- Short-acting bronchodilators – relievers
- Long-acting bronchodilators – maintenance therapy
- Inhaled corticosteroids – for repeated exacerbations

SR Strong Recommendation
ME Moderate Quality Evidence

SR Strong Recommendation
HE High Quality Evidence

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O Optimise function

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Where to start?

Assessment is the first step to optimising function

- A validated assessment tool is a convenient way to measure baseline functional status and to measure response to treatment
- Assess functional status and impact of COPD regularly:

- traditional history taking
- symptom checklists
- validated assessment tools

  COPD Assessment Test (CAT)

  Modified Medical Research Council (mMRC) dyspnoea scale

SR Strong Recommendation

ME Moderate Quality Evidence

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O Optimise function

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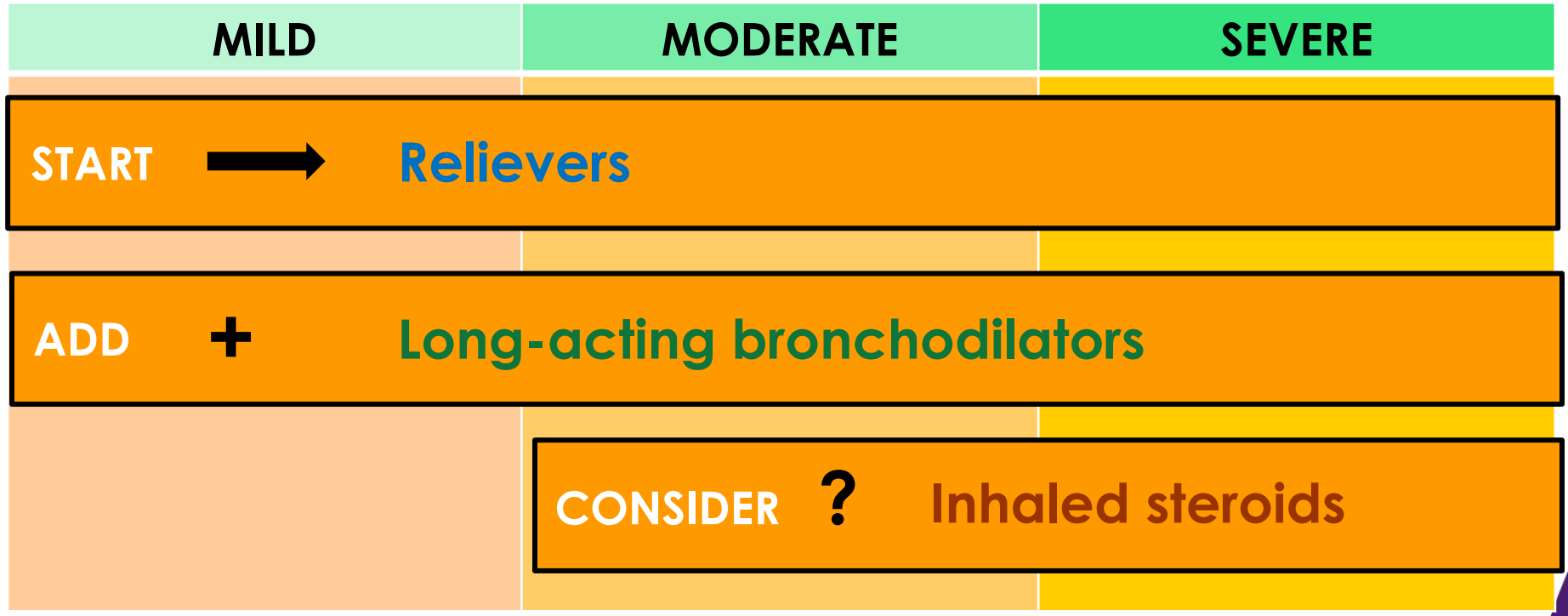
Pharmacological therapies



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Optimise function

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Short-acting bronchodilators

MILD	MODERATE	SEVERE
START → Relievers		

Ram 2003, Appleton 2006

Short-acting relievers

- SABA = Short-acting beta$_2$-agonists
- SAMA = Short-acting muscarinic antagonists


Ventolin® MDI
salbutamol


Asmol® MDI
salbutamol


Airomir™ Autohaler®
salbutamol


Bricanyl® Turbuhaler®
terbutaline


Atrovent® MDI
ipratropium

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O Optimise function

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Long-acting bronchodilators

MILD	MODERATE	SEVERE
START → Relievers		
ADD + Long-acting bronchodilators		

Bretaris® Genuair®
aclidinium

Long-acting bronchodilators

LAMA = Long-acting muscarinic antagonist

or

LABA = Long-acting $beta_2$-agonist

Braltus®
Zonda®
tiotropium

Spiriva® HandiHaler®
tiotropium

Spiriva® Respimat®
tiotropium

Onbrez® Breezhaler®
indacaterol

Incruse® Ellipta®
umeclidinium

Seebri® Breezhaler®
glycopyrronium

Barr 2005, Vogelmeier 2011, Donohue 2013

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Long-acting bronchodilators

MILD	MODERATE	SEVERE
START → Relievers		
ADD + Long-acting bronchodilators		

Long-acting bronchodilators

- Consider need for combination **LAMA/LABA** depending on symptomatic response

Ultibro® Breezhaler®
indacaterol/ glycopyrronium


Spiolto® Respimat®
tiotropium/ olodaterol

Anoro® Ellipta®
umeclidinium/ vilanterol

Brimica® Genuair®
aclidinium/ formoterol

Bateman 2013, Wedzicha 2013, Wedzicha 2016

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O Optimise function

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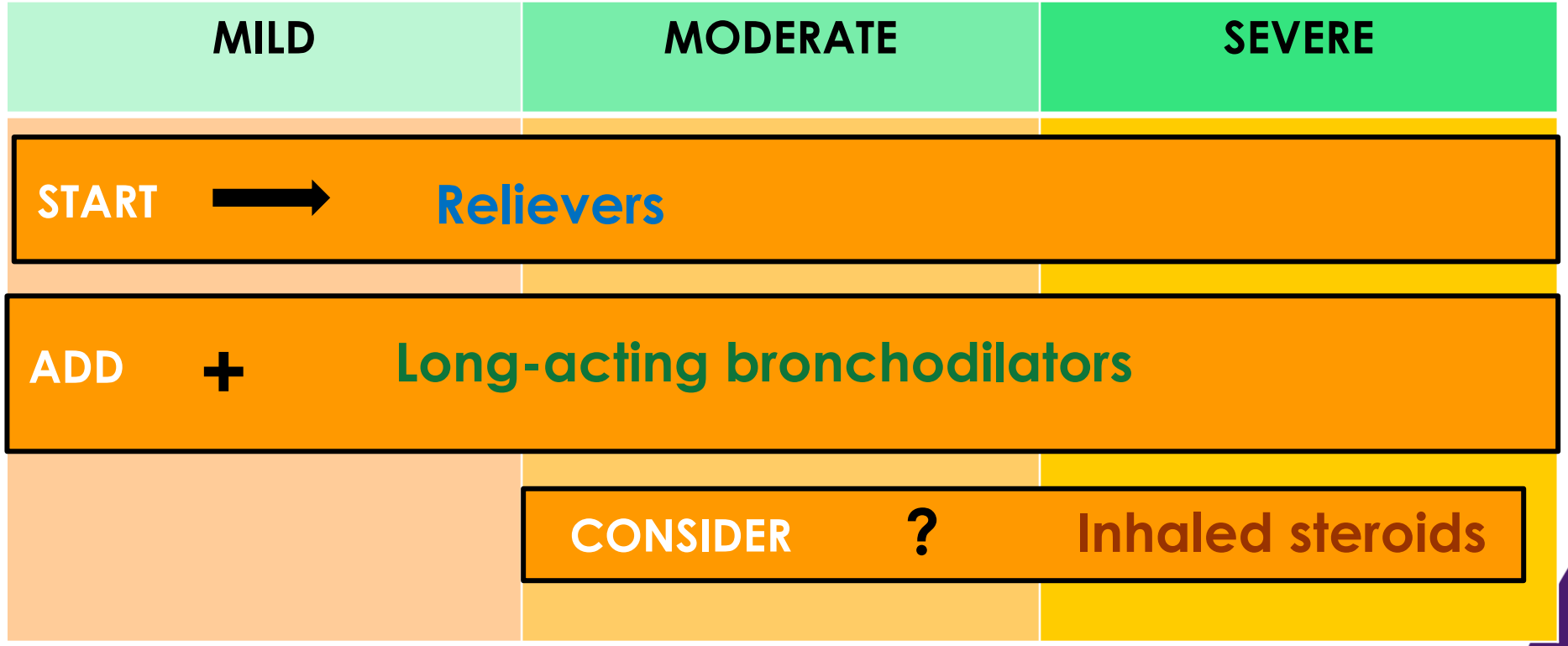
Inhaled corticosteroids



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O Optimise function

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Inhaled corticosteroids (ICS)

ICS/LABA + LAMA or ICS/LABA/LAMA

Symbicort® Rapihaler™ *budesonide/formoterol*
Symbicort® Turbuhaler® *budesonide/formoterol*
Seretide® Accuhaler® *fluticasone propionate/ salmeterol*
Seretide® MDI *fluticasone propionate/ salmeterol*
DuoResp® Spiromax® *budesonide/formoterol*
Breo® Ellipta® *fluticasone furoate/ vilanterol*
Fluticasone + Salmeterol Cipla®/SalplusF® MDI *fluticasone propionate/ salmeterol*
Trelegy® Ellipta® fluticasone furoate/ umeclidinium/ vilanterol

Dransfield 2013, Nannini 2013

Zheng 2018, Calzetta 2019

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	Increasing COPD severity		
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Pharmacological interventions (inhaled medicines)**

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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

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Relievers

SABA: Short-acting beta$_2$-agonists


Ventolin® MDI
salbutamol


Asmol® MDI
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Airomir™ Autohaler®
salbutamol


Bricanyl® Turbuhaler®
terbutaline

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Spiriva® HandiHaler®
tiotropium


Seebri® Breezhaler®
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LAMA/LABA combinations


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Spiolto® Respimat®
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LABAs: Long-acting beta$_2$-agonists


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Symbicort® Rapihaler™
budesonide/formoterol


Symbicort® Turbuhaler®
budesonide/formoterol

ICS: Inhaled corticosteroids (for patients with COPD and Asthma)


Fluticasone Cipla MDI fluticasone propionate


Flixotide® MDI
fluticasone propionate


Arunity® Ellipta® fluticasone furoate


QVAR® MDI
beclometasone


Alvesco® MDI
ciclesonide


Flixotide® Accuhaler®
fluticasone propionate


Pulmicort® Turbuhaler®
budesonide

ICS/LABA combination


Flutiform® MDI
fluticasone propionate/ formoterol


Seretide® Accuhaler®
fluticasone propionate/ salmeterol


Seretide® MDI
fluticasone propionate/ salmeterol


DuoResp® Spiromax®
budesonide/formoterol


Breo® Ellipta®
fluticasone furoate/ vilanterol


Fluticasone + Salmeterol Cipla®/SalplusF® MDI
fluticasone propionate/ salmeterol

ICS/LABA/LAMA


Trelegy® Ellipta®
fluticasone furoate/ umeclidinium/ vilanterol

Flare Up Medicines

1. Antibiotics (Refer to Therapeutic Guidelines: Antibiotic: www.tg.org.au)
2. Oral steroids (prednisone, prednisolone)

Notes

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O Optimise function

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When should inhaler technique and adherence be reviewed?

Preferably at each visit: **Check**

- **Adherence** with non-pharmacological treatment e.g.
  - Smoking cessation
  - Immunisation
  - Exercise
  - Oxygen therapy

ME Moderate Quality Evidence
SR Strong Recommendation

- **Adherence** with pharmacological treatment

SR Strong Recommendation
ME Moderate Quality Evidence

- **Inhaler technique**
  - Especially in older, frail and cognitively impaired patients

https://lungfoundation.com.au/resources/
Search: inhaler device technique

- Consider a home medicines review by a consultant pharmacist

SR Strong Recommendation
ME Moderate Quality Evidence

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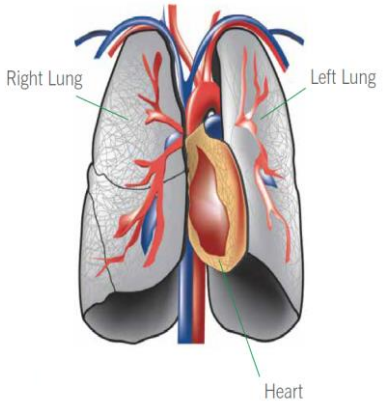
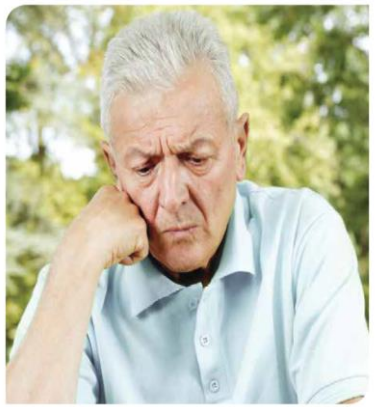
Optimise function

How should treatment of comorbidities be optimised?

Be alert to common comorbidities, including:

- Cardiovascular disease
- Anxiety/depression
- Osteoporosis
- Lung cancer
- Obstructive sleep apnoea





Yang *et al*. Expert Opin Ther Targets 2011;15:439-456

Vanfleteren 2013

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When should referral to specialist respiratory services be made?

Refer patients to specialist respiratory services for:

- Diagnostic uncertainty
- Persistent unexplained respiratory symptoms, haemoptysis, ankle oedema
- Frequent chest infections
- Hypoxaemia
- Bullous lung disease
- Early COPD <40 y.o.
- Dysfunctional breathing
- Sleep-disordered breathing
- Assessment for lung transplant or lung volume reduction

SR Strong Recommendation

ME Moderate Quality Evidence

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P Prevent deterioration

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- Why give smoking cessation advice?
- How can exacerbation risk be reduced?
- Why immunise against influenza and pneumococcal infection?
- Should mucolytics be used?
- Who benefits from long-term oxygen therapy?

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Why give smoking cessation advice?

Smoking cessation is the most important intervention to prevent development and worsening of COPD

- For all smokers, offer brief counselling and details for Quitline (13 QUIT or 13 7848) as a minimum intervention at every visit

SR Strong Recommendation
HE High Quality Evidence

- For smokers who continue to smoke, offer both **counselling** and **nicotine dependence** treatment, provided there are no contraindications
- A combination of pharmacological interventions and non-pharmacological strategies such as counselling and exercise improve effect

RACGP: Supporting smoking cessation: A guide for health professionals

Fiore 2008, Parkes 2008, Tashkin 2011, Stead 2012, Zwar 2014, Jimenez-Ruiz 2015, Cahill 2016, van Eerd 2016, Lancaster 2017, RACGP 2019

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P Prevent deterioration

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How can exacerbation risk be reduced?

- Optimise **pharmacotherapy** and refer to **pulmonary rehabilitation** to reduce the risk of exacerbations
- Identify and treat patients with **exacerbation** symptoms early using increased doses of bronchodilators, antibiotics if infection is evident, and oral corticosteroids for moderate to severe exacerbations
- Implement **written action plans** to treat exacerbations early

SR Strong Recommendation
HE High Quality Evidence

Wilkinson 2004, Anzueto 2010, Hurst 2010

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Why immunise against influenza and pneumococcal infection?

- Vaccination reduces the risks of exacerbation associated with influenza and pneumococcal infection
  Kopsaftis 2018 Walters 2017
- Ensure all patients with COPD receive **influenza vaccine** immunisation
  - annual immunisation is strongly recommended and should be actively promoted in patients with COPD
- **Pneumococcal vaccination** should be given according to the Australian Immunisation Handbook

SR Strong Recommendation
ME Moderate Quality Evidence

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Who benefits from long-term oxygen therapy?

- **Long-term oxygen therapy** has survival benefits for COPD patients with resting hypoxaemia:

  $PaO_2 \leq 55$ mmHg or

  $PaO_2 \leq 59$ mmHg plus evidence of polycythaemia, pulmonary hypertension or right heart failure

- For stable patients with possible persisting hypoxaemia (suggested by SpO_2 <92% measured using a pulse oximeter), refer to specialist respiratory services to assess the need for oxygen therapy McDonald 2016

Lung Foundation Australia: Home oxygen booklet

SR Strong Recommendation

HE High Quality Evidence

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Weitzenblum 1985, Siafakas 1995, Tarpy 1995, Gorecka 1997, Zielinski 1998

D Develop a plan of care

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- What is good chronic disease care and what are the benefits?
- How can health professionals improve quality of life and reduce disability?
- What is self-management support and how can patients benefit?
- What other services can benefit patients?
- When and how should palliative care be considered?

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D Develop a plan of care

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What is good chronic disease care and what are the benefits?

- Good chronic disease care anticipates the wide range of needs in patients with COPD
- COPD imposes burdens for both patients and carers
- For patients, disability increases with COPD severity and is worsened by numerous complications and comorbid conditions
- **COPD multidisciplinary care** incorporating elements such as exercise, self-management education and use of a COPD action plan for exacerbation management can improve exercise capacity and health-related quality of life, and reduce hospitalisation

Zwerink 2014, Jolly 2016, Jonkman 2016

- Implement systems to enable structured care, regular recall and clinical review of patients with COPD

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D Develop a plan of care

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How can health professionals improve quality of life and reduce disability?

- **Clinical support teams** working with the primary healthcare team can help enhance quality of life and reduce disability for patients with COPD
- A clinical support team including healthcare professionals from a range of disciplines should be involved in comprehensive management of patients with COPD and their comorbid conditions
- The available members of the clinical support team depend on the context of practice (e.g. rural versus urban)
- A **GP Management Plan** (GPMP) and **Team Care Arrangement** (TCA) based on the agreed management goals of the patient and that includes a written COPD action plan is a practical method of enlisting this clinical support team
- **Patients, carers**, and other family or friends should be engaged in the activities of the clinical support team

WR Weak Recommendation
LE Low Quality Evidence

SR Strong Recommendation
ME Moderate Quality Evidence

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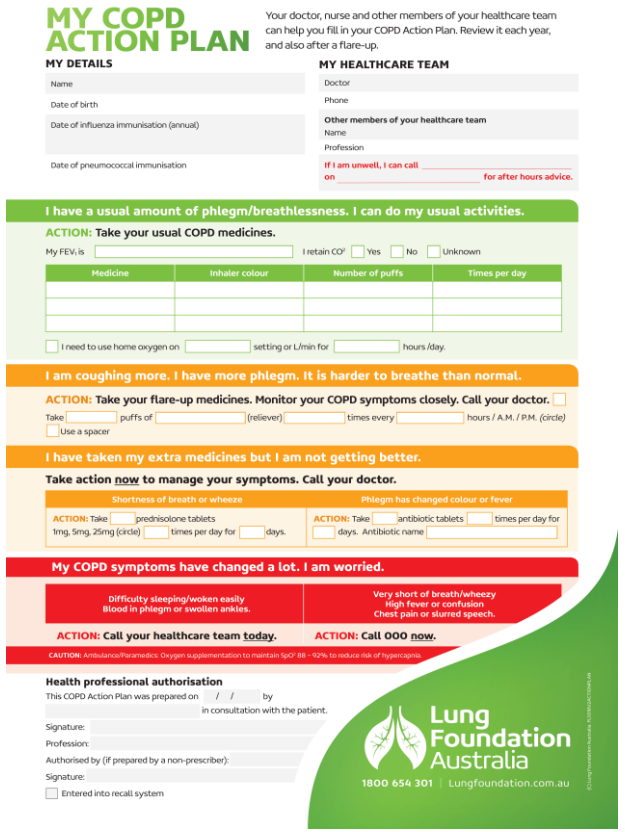
D Develop a plan of care

What is self-management support and how can patients benefit?

- Provide self-management support to assist patients to set and achieve realistic goals
- Within the context of a self-management program, develop a **written action plan** in partnership with patients and significant others which indicates medicines, doses and actions to take for maintenance therapy and for exacerbations


MY COPD ACTION PLAN

Your doctor, nurse and other members of your healthcare team can help you fill in your COPD Action Plan. Review it each year, and also after a flare-up.

MY DETAILS

Name

Date of birth

Date of influenza immunisation (annual)

Date of pneumococcal immunisation

MY HEALTHCARE TEAM

Doctor

Phone

Other members of your healthcare team

Name

Profession

If I am unwell, I can call ____ on ____ for after hours advice.

I have a usual amount of phlegm/breathlessness. I can do my usual activities.

ACTION: Take your usual COPD medicines.

My FEV$_1$ is ____ I retain CO^2 ☐ Yes ☐ No ☐ Unknown

Medicine	Inhaler colour	Number of puffs	Times per day

☐ I need to use home oxygen on ____ setting or L/min for ____ hours /day.

I am coughing more. I have more phlegm. It is harder to breathe than normal.

ACTION: Take your flare-up medicines. Monitor your COPD symptoms closely. Call your doctor. ☐

Take ____ puffs of ____ (reliever) ____ times every ____ hours / A.M. / P.M. *(circle)*

☐ Use a spacer

I have taken my extra medicines but I am not getting better.

Take action now to manage your symptoms. Call your doctor.

Shortness of breath or wheeze	Phlegm has changed colour or fever
ACTION: Take ____ prednisolone tablets 1mg, 5mg, 25mg (circle) ____ times per day for ____ days.	ACTION: Take ____ antibiotic tablets ____ times per day for ____ days. Antibiotic name ____

My COPD symptoms have changed a lot. I am worried.

Difficulty sleeping/woken easily Blood in phlegm or swollen ankles.	Very short of breath/wheezy High fever or confusion Chest pain or slurred speech.
ACTION: Call your healthcare team today.	ACTION: Call 000 now.

CAUTION: Ambulance/Paramedics: Oxygen supplementation to maintain SpO^2 88 – 92% to reduce risk of hypercapnia.

Health professional authorisation

This COPD Action Plan was prepared on ____ / ____ / ____ by ____ in consultation with the patient.

Signature: ____

Profession: ____

Authorised by (if prepared by a non-prescriber): ____

Signature: ____

☐ Entered into recall system

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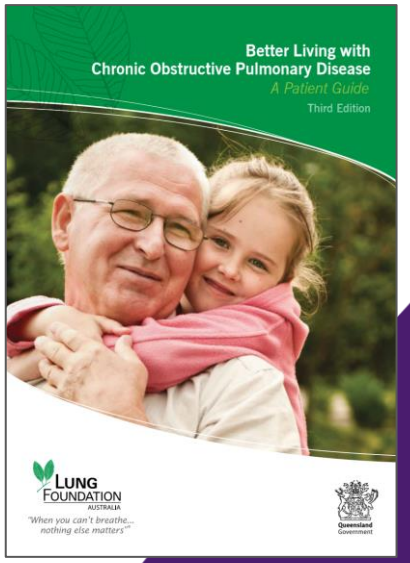

SR Strong Recommendation

ME Moderate Quality Evidence

Lorig 1999, Zwerink 2014, Howcroft 2016, Lenferink 2017

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D Develop a plan of care

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What other services can benefit patients?

- **Support groups** provide education and psychological support and are one aspect of patient self-management support
  - Lung Foundation Australia provides access to an Australia-wide network of affiliated patient support groups, including in rural and remote areas
- Lungs in Action is the community-based exercise maintenance program for patients with stable chronic lung disease and stable chronic heart failure post-rehabilitation

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When and how should palliative care be considered?

- For patients and / or their caregivers with unmet needs, a **palliative or supportive approach** should be offered at any stage in the illness concurrently with optimal, disease-directed care
- For patients, unmet needs may include poorly controlled physical symptoms (such as breathlessness), psychosocial or spiritual issues, and information needs
- The palliative approach should be provided by the usual treating team, together with specialist palliative care services if required
- **Advance care planning** supports individuals to discuss their beliefs, values, future treatment wishes and goals of care early in their illness – this includes discussing treatment limitations regarding resuscitation and ventilation

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X Manage eXacerbations

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Primary Care Webinar

- How is a COPD exacerbation defined?
- What are the benefits of early diagnosis and treatment of exacerbations?
- When should a patient with COPD be hospitalised?
- Can patients with an exacerbation be treated at home?
- Are inhaled bronchodilators effective for treatment of exacerbations?
- Are oral corticosteroids effective for treating exacerbations?
- When are antibiotics beneficial in treating a patient with an exacerbation?
- Is oxygen beneficial in treating a patient with an exacerbation?
- When is non-invasive ventilation (NIV) effective?
- Following an exacerbation, how soon can pulmonary rehabilitation be commenced?
- What is the best approach to post-hospital care after an exacerbation?

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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).

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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.

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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

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Manage eXacerbations

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How is a COPD exacerbation defined?

- A **COPD exacerbation** is characterised by a change in the patient's baseline dyspnoea, cough and/or sputum that is beyond normal day-to-day variations, is acute in onset and may warrant a change in regular medicine or hospital admission

- Triggers for exacerbations include: Seemungal 2001
  - viral or bacterial respiratory infection
  - left ventricular failure
  - air pollution
  - pulmonary embolism
  - psychosocial stressors

Aleva 2017

- Recognise the possibility of an exacerbation in all patients who experience an increase in symptoms, especially patients at increased likelihood of these events (prior exacerbation, more severe disease)

SR Strong Recommendation
ME Moderate Quality Evidence

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What are the benefits of early diagnosis and treatment of exacerbations?

- **Early diagnosis** and **prompt management** of exacerbations improve recovery/quality of life, reduce hospitalisation, and may prevent progressive functional deterioration

SR Strong Recommendation
HE High Quality Evidence

Wilkinson 2004

- Preventing COPD exacerbations is important as mortality increases with the frequency of exacerbations, especially if these require hospitalisation

Guererro 2016

- A **COPD action plan** can aid the recognition of, and response to, an exacerbation
  - reduce exacerbations and in-hospital health care
  - education and support required

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Howcroft 2016

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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.

SEND TO HOSPITAL

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.

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.

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copdx.org.au

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When should a patient with COPD be hospitalised?

- Marked increase in **intensity of symptoms**
- **Exacerbation** characterised by increased dyspnoea, cough or sputum production, plus one or more of the following:
  - inadequate response to appropriate community-based management
  - inability to walk between rooms when previously mobile
  - inability to eat or sleep because of dyspnoea
  - cannot manage at home even with homecare resources
  - high-risk comorbid condition (pulmonary or non-pulmonary)
  - altered mental status suggestive of hypercapnia
  - worsening hypoxaemia or cor pulmonale
  - newly occurring arrhythmia
  - worsening or new hypoxaemia measured with pulse oximetry

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Can patients with an exacerbation be treated at home?

When selecting patients for **home management**, look for:

Jeppesen 2012

- presence of ability to cope
- good level of activity and general condition
- social support
- normal level of consciousness
- absence of cyanosis, rapid onset, worsening peripheral oedema, significant comorbidity, respiratory failure

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Are inhaled bronchodilators effective for treatment of exacerbations?

- Inhaled bronchodilators are effective for initial treatment of acute exacerbations
- MDI with a spacer are as effective as nebulisers
- In patients with exacerbations, prescribe increased doses of inhaled bronchodilator, such as:

  salbutamol (400 – 800 mcg), 4 - 8 puffs via MDI and spacer
  every 3 - 4 hours, titrated to response

Cates 2006

SR Strong Recommendation
ME Moderate Quality Evidence

- Check technique – consider cognition, manual dexterity, and press and breathe coordination between actuation and inhalation

SR Strong Recommendation
LE Low Quality Evidence

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Are oral corticosteroids effective for treating exacerbations?

- Oral corticosteroids reduce the severity of, and shorten recovery from exacerbations

- In patients with exacerbations, prescribe oral corticosteroids:

  prednisolone 30 - 50 mg

  for 5 days and then stop

  mane with food

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HE High Quality Evidence

Walters 2014

- Tapering the dose after a short course is generally not required

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X Manage eXacerbations

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When are antibiotics beneficial in treating a patient with an exacerbation?

- Exacerbations with clinical features of infection (increased volume and change in colour of sputum and/or fever) benefit from antibiotic therapy

Seemungal 2001, Patel 2002, Vollenweider 2018

- In patients with exacerbations and clinical features of infection, prescribe:
  - oral **amoxicillin** (500 mg every 8 hours, or 1 g every 12 hours)

  or
  - oral **doxycycline** (100 mg daily for 5 days)

SR Strong Recommendation
HE High Quality Evidence

- If the response to initial antibiotic therapy is inadequate, optimise bronchodilators and oral corticosteroid therapy and reassess the diagnosis
- If the patient is not improving and the sputum culture grows a resistant organism, a change in antibiotics should be considered

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Is oxygen beneficial in treating a patient with an exacerbation?

- Controlled oxygen delivery targeting the SpO_2 goal 88 - 92% is indicated for hypoxaemia in patients with exacerbations — Beasley 2015
- In patients with COPD and hypoxaemia:

  SR Strong Recommendation
  ME Moderate Quality Evidence

  administer oxygen via nasal cannula

  aiming for SpO_2 of 88 - 92%
- Avoid over-oxygenation or high concentrations of oxygen in patients with COPD, as this may lead to acute respiratory failure and death — Austin 2010

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When is non-invasive ventilation (NIV) effective?

- In patients with an acute exacerbation, the following are indications for non-invasive ventilation:
  - **hypercapnia** ($PaCO_2$ > 45mmHg) and
  - **respiratory acidosis** (blood pH < 7.35)
- NIV can reduce mortality, length of stay in hospital and the need for endotracheal intubation
- Clinical features that suggest respiratory failure include confusion, drowsiness, restlessness, and cyanosis

Osadnik 2017

SR Strong Recommendation

HE High Quality Evidence

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Following an exacerbation, how soon can pulmonary rehabilitation be commenced?

- In patients who have had an exacerbation, **refer to pulmonary rehabilitation** as soon as acute instability has resolved
- 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
  - has been shown to be safe

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ME Moderate Quality Evidence

Alison 2017, Ryrso 2018

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What is the best approach to post-hospital care after an exacerbation?

- **Hospital discharge plans/clinical summaries** should be shared with the primary care team in a timely manner (preferably within 24 hours of discharge)
- Patients with COPD discharged from hospital should be reviewed by a member of the **primary healthcare team** within 7 days of discharge
- Patients discharged with chronic cough and ongoing sputum production should be monitored closely and taught airway clearance techniques by a respiratory physiotherapist if they have difficulties clearing secretions

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LE Low Quality Evidence

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Key Aspects of Management

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Key messages from the COPD-X guidelines

Confirm diagnosis

- **Spirometry** detects airflow limitation (FEV_1/FVC <0.7)

Optimise function

- **Pulmonary rehabilitation** and regular exercise are highly beneficial
- **Inhaled medicines** improve symptoms and reduce exacerbations

Prevent deterioration

- **Smoking cessation** is essential
- **Influenza** and **pneumococcal vaccinations** reduce exacerbations

Develop plan of care

- **COPD action plans** for self-management reduce hospitalisations

Stepwise guide

e**X**acerbation management

- **Exacerbations** should be prevented, and treated early

Exacerbation checklist

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