COPD - Pharmacological management

A-Z Frankston-Mornington Peninsula local pathways > COPD > Chronic obstructive pulmonary disease (COPD)

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1 Care map information

Quick info:

This pathway was developed based on The COPDX Plan: Australian and New Zealand Guidelines for the management of Chronic Obstructive Pulmonary Disease 2014. Lung Foundation Australia and the international Map of Medicine COPD pathway.

Prevalence

The prevalence of Chronic Obstructive Pulmonary Disease (COPD) in Australia is estimated to be 8% for people aged 40 years and over, and 30% for people aged 75 and over [1]

Definition

• COPD is characterised by airflow obstruction [2-4]:
  • forced expiratory volume in 1 second (FEV_{1})/forced vital capacity (FVC) ratio less than 0.7 and the FEV1 less than 80% of the predicted value [4]
  • airflow obstruction is usually progressive, not fully reversible [2-5], and does not change over several months [2,4]
  • airflow limitation is usually associated with a chronic inflammatory response in the airways and the lung to noxious particles or gases [3]
• COPD is the preferred term for patients with airflow obstruction who were previously defined as having [2,4]:
  • chronic bronchitis
  • emphysema
  • Asthma-COPD Overlap Syndrome (ACOS) [3]:
  • is characterised by persistent airflow limitation with several features associated with asthma and other features associated with COPD

Scope of pathway

This pathway is for primary care services (GPs and mainstream health and community services) to assist with screening, identification and management of COPD.

Inclusions and exclusions

The COPD pathway includes the following information and pages:
1. Suspected COPD
2. Management of COPD
3. Pharmacological management of COPD
4. Acute exacerbation management of COPD.
It does not include management of acute exacerbation of COPD in secondary care.

Updates to this care map

If you notice any broken links or incorrect information in this care map, please email mapofmedicine@semphn.org.au

References:

2 Resources for patients, families and carers

Quick info:

**Phone services and support**
Lung Foundation Australia’s Information and Support Centre Free-call 1800 654 301

Quitline
13 QUIT (13 78 48)

Peninsula Health Community Health
1300 665 781

**Handouts and online resources**

Local services
Peninsula Health Community Health Quit Services

Lung Foundation Australia - patient support


Asthma Australia - Vic
http://www.asthmaaustralia.org.au/vic/home

COPD: Life is Calling
A website where people with COPD take steps towards meeting personal challenges and improving their lives.
http://www.copdlifeiscalling.com/

Lung Health Promotion Centre - The Alfred
http://www.lunghealth.org/

3 Clinician resources / COPDx resources

Quick info:

Executive summary of the COPDx guidelines (updated every 6 months)

Full COPDx guidelines
http://copdx.org.au/copd-x-plan/

COPDx Concise Guide for Primary Care

COPD Action Plan (includes useful pictorial guide for reliever medication


4 Overview of pharmacological management
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Quick info:
The aim of pharmacological treatment is to [1]
- treat symptoms (e.g. breathlessness) and/or
- prevent deterioration (either by decreasing exacerbations or by reducing decline in quality of life)

No pharmacological treatment has been shown to reduce mortality in COPD.
A stepwise approach is recommended, irrespective of disease severity, until adequate control has been achieved. [1]

Assessment of severity determines management.
Classification of severity of chronic obstructive pulmonary disease (COPD)
MILD: Few symptoms/ Breathlessness on moderate exertion/ Little or no effect on daily activities/ FEV\textsubscript{1} ≈ 60-80% predicted
MODERATE: Increasing dyspnoea/ Breathlessness walking on level ground/ Cough and sputum production/ Infections requiring steroids/ FEV\textsubscript{1} = 40-59% predicted
SEVERE: Dyspnoea on minimal exertion/ Daily activities severely curtailed/ Chronic cough/ FEV\textsubscript{1} < 40% predicted

References:

5 Treatment of Asthma-COPD Overlap Syndrome

Quick info:
In treatment of Asthma-COPD Overlap Syndrome (ACOS), initial treatment is as follows [1]:
- if the differential diagnosis is equally balanced between COPD and asthma:
  - start treatment for asthma with inhaled corticosteroids (ICS):
    - essential in preventing morbidity and even death in uncontrolled asthma
    - mild asthma symptoms – compared with those of moderate-to-severe COPD – may indicate significant risk of a life-threatening asthma attack
- if syndromic assessment suggests asthma or ACOS, or there is significant uncertainty about COPD diagnosis:
  - start treatment for asthma until further investigation has been completed:
    - inhaled ICS in low or moderate dose according to symptoms
    - a long-acting beta2-agonist (LABA) should be continued or added
    - NB: do not treat with LABA without an ICS if there are features of asthma
- if syndromic assessment suggests COPD:
  - start symptomatic treatment with bronchodilators or combination treatment, but not an ICS alone
  - treatment of ACOS should also include:
    - smoking cessation
    - pulmonary rehabilitation
    - vaccinations
    - treatment of comorbidities
    - assessment for osteoporosis
  - refer for further specialist investigation if further issues arise during ongoing management

Reference:

6 Mild symptoms with FEV\textsubscript{1} ~ 60% to LLN (lower limit of normal)

Quick info:
Mild symptoms [1]
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- Few symptoms
- Breathless on moderate exertion
- Recurrent chest infections
- Little or no effect on daily activities
- Chronic cough

Reference:

7 Moderate symptoms with FEV1 ~ 40-59% predicted

Quick info:
Moderate symptoms [1]
- increasing dyspnoea
- breathless walking on level ground
- increasing limitation of daily activities
- cough and sputum production
- exacerbations requiring oral corticosteroids and/or antibiotics

Reference:

8 Severe symptoms with FEV1 < 40% predicted

Quick info:
Severe symptoms [1]
- dyspnoea on minimal exertion
- daily activities severely curtailed
- experiencing regular sputum production
- chronic cough
- exacerbations of increasing frequency and severity

Reference:

9 Short-acting reliever medication

Quick info:
Short acting beta2-agonist (SABA) or short-acting muscarinic antagonist (SAMA) [1]:
- attention should be paid to teaching appropriate inhaler technique

Resources to refer to:
Stepwise Management of COPD - Table 1: Guide to addition of therapies
The Lung Foundation Australia wall chart Guide to inhalers
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References:
2. Stepwise Management of COPD - Table 1: Guide to addition of therapies, The Lung Foundation Australia

10 Inadequate improvement in symptoms

Quick info:
Follow up after 8 weeks and assess response to treatment based not just on lung function alone but also on [1]:
• symptom improvement
• exercise capacity
• activities of daily living (ADLs)
If there is no improvement in symptoms with a specific therapy consider the following before adding further therapy [2]:
• discuss adherance
• observe inhaler technique and consider further education or alternate inhaler that they find easier to use if difficulties observed
Refer to the COPDX plan for resources and strategies to support inhaler technique and adherence
If possible, patient preference should be taken into consideration in all decision making [1,3].
Additional therapy is as for moderate symptoms node.

References:

11 Symptom relief

Quick info:
Use a long-acting muscarinic antagonist (LAMA) and/or long-acting beta2-agonist (LABA)[1].
These medicines may also reduce exacerbations [1].
LAMA
• Tiotropium (Spiriva)
• Glycopyrronium (Seebri)
• Aclidinium (Bretaris)
• Umeclidinium (Incruse)
and/or
LABA
• Salmeterol (Serevent)
• Eformoterol (Oxis, Foradile)
• Indacaterol (Onbrez)
LABA/LAMA combination
• Indacaterol/glycopyrronium (Ultibro)
• Umeclidinium/vilanterol (Anoro)
• Tiotropium/Olodaterol (Spiolto)
• Aclidinium/enformoterol (Brimica) a SABA may be added to these.
Precautions [2]:
• LABA monotherapy should not be used when asthma and COPD co-exist.
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• Once a LAMA is commenced, ipratropium (a short-acting muscarinic antagonist (SAMA)) should be discontinued due to the potential for cardiac toxicity
• If starting a fixed dose LAMA/LABA combination inhaler, discontinue existing inhalers containing a LAMA or LABA.*
• If starting an ICS/LABA combination inhaler, discontinue existing inhalers containing a LABA.*
*Refer to Stepwise Management of COPD - Table 1: Guide to addition of therapies

References:
2. Stepwise Management of COPD - Table 1: Guide to addition of therapies, The Lung Foundation Australia

12 Exacerbation prevention
Quick info:
When FEV1 <50% predicted AND there are 2 or more exacerbations in the previous 12 months, consider commencing inhaled corticosteroids (ICS) [1] in addition to a LAMA and/or LABA.
Continue use of SABA and SAMA (if not using LAMA)
ICS/LABA
• Fluticasone propionate/salmeterol (Seretide)
• Budesonide/eformoterol (Symbicort)
• Fluticasone furoate/vilanterol (Breo)

Precautions [2]:
• LABA monotherapy should not be used when asthma and COPD co-exist.
• Once a LAMA is commenced, ipratropium (a SAMA) should be discontinued
• If starting a fixed dose LAMA/LABA combination inhaler, discontinue existing inhalers containing a LAMA or LABA.*
• If starting an ICS/LABA combination inhaler, discontinue existing inhalers containing a LABA.*
*Refer to Stepwise Management of COPD - Table 1: Guide to addition of therapies

References:
2. Stepwise Management of COPD - Table 1: Guide to addition of therapies, The Lung Foundation Australia

13 Adequate improvement in symptoms
Quick info:
Effectiveness of short-acting reliever medication should not be assessed by lung function alone and should include other measures, such as improvement in [1]:
• symptoms
• activities of daily living (ADLs)
• exercise capacity
• rapidity of symptom relief

Reference:

14 If patient remains symptomatic
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Quick info:

**Triple therapy:**
- if patient has received a LAMA with a LABA and has ACOS or more than 2 exacerbations in the past 12 months, add ICS.

### 15 Follow-up

**Quick info:**

**Follow-up:**
- for patients with mild or moderate disease, should take place at least annually, or more frequently if indicated [1,3,4]
- consider more frequent follow up (at least twice yearly) for patients [1]:
  - with newly diagnosed chronic obstructive pulmonary disease (COPD)
  - with very severe disease [3,4]
  - with frequent exacerbations (more than twice per year) or complications
  - who have recently been discharged from hospital
- should provide a written care plan [4]
- for all patients with COPD should include:
  - record results of spirometric tests at diagnosis (absolute and percentage of predicted) [3,4]
  - highlighting diagnosis in notes and computer database [3]
  - monitoring of:
    - exposure to risk factors [2], eg smoking [3,4]
    - disease progression and complications [2]
    - pharmacotherapy and other medical treatments [2], including compliance [3]
    - exacerbation history, including unscheduled visits to providers, telephone calls for assistance, and use of emergency care facilities [2]
  - ensuring vaccinations are up to date each year (influenza and pneumococcal if due)

**Measurements required include:**
- forced expiratory volume (FEV$_1$) and forced vital capacity (FVC) and Diffusing Capacity of the Lung for Carbon Monoxide (DLCO) [3]
- body mass index (BMI) [3]
- Medical Research Council (MRC) dyspnoea score [3]
- pulse oximetry/ oxygen saturation of arterial blood (SaO$_2$)

*See COPD - Management [link] for details.*

**References:**


### 16 Further options - theophylline & mucolytics

**Quick info:**

**Theophylline:**
- consider in patients who have already tried long-acting bronchodilators or who are unable to use inhaled therapy [3]
- can be used in combination with a beta2-agonist or muscarinic antagonist [3]
• use with caution in elderly patients due to [3]:
  • differences in pharmacokinetics
  • increased likelihood of co-morbidities
  • the use of other medications
• use slow release formulations (more predictable pharmacokinetics) [3]
• plasma levels must be monitored to ensure they do not reach the toxic range [3]
• reduce the dose by 50% if macrolide or fluoroquinolone antibiotics [1,3] (or other known drugs) are prescribed [3], by 50% [1]

Mucolytics [6]
• Oral Acetylcysteine (called NAC) 600mg b.d[1])
• continue if there is symptomatic improvement, eg reduction in [1,3]:
  • frequency of cough
  • sputum production
• A systematic review and a large randomised controlled trial showed high dose N-Acetylcysteine (≥ 600mg oral, bd) reduced acute exacerbations in moderate to severe COPD[6]
• some trials suggest they might be as useful as ICS
• overall benefits appear to be very small [2]

Maintenance use of oral corticosteroid therapy is not recommended [3]:
Anti-tussive therapy is not recommended for COPD.

References:
5. COPDX Concise Guide for Primary Care, The Lung Foundation Australia
6. Full COPDX Guidelines, The Lung Foundation Australia

17 Health promotion or preventative measures

Quick info:
Advice on health promotion and preventative measures includes [1]:
• smoking cessation – see 'Smoking cessation' care map
• pulmonary rehabilitation
• exercise advice
• nutrition and weight advice (aim for BMI 20-25)
• vaccination, including influenza and Pneumovax
• travel and leisure advice (for example, cruise travel is not recommended due to the high chance of patients catching influenza and other infectious illnesses; some destinations don't have adequate medical facilities)
• occupational advice and social support services
• patient education and self-management

Reference:
18 Follow-up

Quick info:

Follow-up:

• for patients with mild or moderate disease, should take place at least annually, or more frequently if indicated [1,3,4]
• consider more frequent follow up (at least twice yearly) for patients [1]:
  • with newly diagnosed chronic obstructive pulmonary disease (COPD)
  • with very severe disease [3,4]
  • with frequent exacerbations or complications
  • who have recently been discharged from hospital
• should provide a written care plan [4]
• for all patients with COPD should include:
  • highlighting diagnosis in notes and computer database [3]
  • record results of spirometric tests at diagnosis (absolute and percentage of predicted) [3,4]
  • monitoring of:
    • exposure to risk factors [2], eg smoking [3,4]
    • disease progression and complications [2]
    • pharmacotherapy and other medical treatments [2], including compliance [3]
    • exacerbation history, including unscheduled visits to providers, telephone calls for assistance, and use of emergency care facilities [2]
    • ensuring vaccinations are up to date each year (influenza and pneumococcal if due)
• for patients treated with mucolytics for chronic productive cough, should take place every few months [1]

Measurements required include:

• forced expiratory volume (FEV₁) and forced vital capacity (FVC) and DLCO [3]
• body mass index (BMI) [3]
• Medical Research Council (MRC) dyspnoea score [3]
• pulse oximetry/oxygen saturation of arterial blood (SaO₂)

See COPD - Management [link] for details.

References:


19 Consider referral to specialist if no improvement

Quick info:

Consider referral for the following [1]:

• frequent exacerbations / hospitalisations in spite of maximal inhaled therapy and completion of pulmonary rehabilitation
• oxygen therapy
• surgery: bullectomy, lung volume reduction, transplantation

Check compliance and inhaler technique as possible reasons for no improvement.

Reference:

20 REFERRAL - respiratory specialist

Quick info:

1. Peninsula Health Respiratory Services
   Respiratory Ph: (03) 9784 7050
   Sleep Laboratory Ph: (03) 9784 8334.
   GP referral guidelines for Peninsula Health outpatient services including Respiratory clinic

2. Peninsula Sleep and Respiratory Specialists
   Locations; Frankston and Rosebud West

3. Southern Region Respiratory Service
   Lung function testing and/or specialist consultation
   Locations; Frankston and Moorabbin

4. Peninsula Chest Clinic
   34 Cranbourne Road FRANKSTON, 3199, VIC
   Ph: (03) 9770 0099 Fax: (03) 9770 0096 peninsulachestclinic@netspace.net.au
Chronic obstructive pulmonary disease (COPD)
Medicine/Thoracic medicine/Chronic obstructive pulmonary disease (COPD)

Provenance certificate

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Overview
This document describes the provenance of the Frankston Mornington Peninsula COPD pathway.

This pathway was developed in June 2016.

The SEMPHN Care Pathways Program aims to improve the continuity of patient care between primary, community and hospital care settings in the Frankston-Mornington Peninsula region. Work groups comprising of experienced health professionals (GPs, specialists, nurses, allied health professionals) were established to review and localise pathways.

This pathway has been developed to improve outcomes for patients presenting to primary care services with COPD.

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Editorial methodology
This care map has been based on a Map of Medicine COPD care map developed according to the Map of Medicine editorial methodology. The content of this Map of Medicine care map has been modified based on high quality local guidelines and practice-based knowledge provided by contributors with front-line clinical experience (see contributors section of this document). This localised version of the evidence-based, practice informed care map has been consulted by relevant stakeholder representatives.
Chronic obstructive pulmonary disease (COPD)

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Conflicts of interest:

None

Disclaimers

It is not the function of the Pathways Program, SEM PHN to substitute for the role of the clinician, but to support the clinician in enabling access to know-how and knowledge. Users of the Map of
Chronic obstructive pulmonary disease (COPD)

Medicine/Thoracic medicine/Chronic obstructive pulmonary disease (COPD)

Medicine are therefore urged to use their own professional judgement to ensure that the patient receives the best possible care. Whilst reasonable efforts have been made to ensure the accuracy of the information on this online clinical knowledge resource, we cannot guarantee its correctness and completeness. The information on the Map of Medicine is subject to change and we cannot guarantee that it is up-to-date.