Chronic obstructive pulmonary disease (COPD) - acute exacerbation

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Progress satisfactory

Consider pulmonary rehabilitation

Follow-up

Go to COPD Management

Refer to hospital-in-the-home, if appropriate

REFERRAL - pulmonary rehab
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 (FEV₁)/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@semphan.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 Chronic obstructive pulmonary disease (COPD) - acute exacerbation
Quick info:
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) [1]

A COPD exacerbation is characterised by [1]:
• a change in the patient’s baseline dyspnoea, cough and / or sputum that is beyond normal day-to-day variations
• being acute in onset
• possibly warranting a change in regular medication or hospital admission
Exacerbations become more frequent with [1]:
• prior exacerbations
• increasing COPD severity based on FEV1
• other predictors (including history of heartburn, poorer quality of life and elevated white cell count)

Triggers for exacerbations include [1]
• viral or bacterial respiratory infection
• left ventricular failure
• psychosocial stressors
• air pollution, cold weather, thunder storms (? reference)

In more than 55% of COPD exacerbations, the etiology is bacterial. [2,3]

Pulmonary embolism should be considered in patients who require hospitalisation for an acute exacerbation. [1]

References

5 Consider differential diagnoses

Quick info:
Consider the following differential diagnoses for an exacerbation:
• pneumonia [1,2]
• pneumothorax [1,2]
• left ventricular failure [2]
• pulmonary embolism [1,2,3]
• upper airway obstruction [2]
• pleural effusion [1,2]
• lung cancer [2]
• recurrent aspiration [2]
• cardiac arrhythmias [1]

References:
6 Prevention of exacerbation

Quick info:
COPD-X plan recommendations [1]
• Diagnose and manage exacerbations promptly
• Educate patients and carers on how to recognise and respond to exacerbations by combining action plans with self-management education and integrated care based on shared care arrangements.

Early diagnosis and treatment of exacerbations may improve recovery/quality of life, prevent hospital admission and delay COPD progression. [1]
• A delay (≥ 48 hours) in presentation for and initiation of treatment of an exacerbation doubles the chance of hospital admission.
• The patient should have rescue medication at home eg. oral corticosteroids and antibiotics.
• Preventing COPD exacerbations is important as mortality increases with the frequency of exacerbations, especially if these require hospitalisation.
• Education of the patient, carers and significant others may aid in the early recognition of exacerbations and avoid the need for hospitalisation.
• An action plan can aid the recognition of, and response to, an exacerbation but needs to be combined with comprehensive self-management support and integrated care based on shared care to reduce hospitalisation.

Self-management advice for patients at risk of an exacerbation should include[2]:
• encourage a quick response to symptoms of exacerbation by:
  • starting oral corticosteroid therapy if increased breathlessness interferes with activities of daily living (unless contraindicated)
  • starting antibiotic therapy if their sputum changes colour with increased sputum volume or increased breathlessness (two out of three required)
  • optimise therapy to control symptoms
  • increase frequency of bronchodilator
• give a course of antibiotics (subject to local current microbiological guidelines) and corticosteroid tablets to keep at home – monitor use of these drugs
• advise patient to contact their GP for review if action plan initiation has been required

References
Assess the need for hospital admission based on clinical findings and social circumstances [1].

Signs of a severe exacerbation include:

- marked dyspnoea [3]
- tachypnoea [3]
- pursed lip breathing [3]
- use of accessory respiratory muscles [2,3]
- paradoxical chest wall movements [2]
- worsening or new onset central cyanosis [2,3]
- worsening hypercapnia or acidemia
- haemodynamic instability [2]
- new onset peripheral oedema [2,3]
- deteriorated mental status [2]
- acute confusion [3]
- marked reduction in activities of daily living [3]

References:

8 Initial management

Quick info:
Prompt therapy for exacerbations results in [3,4]:
- less lung function deterioration
- faster recovery
- fewer admissions and subsequent readmissions

Management:
- increase frequency of short acting bronchodilator ie salbutamol, ipratropium bromide:
  - beta agonists are probably as effective by metered dose inhaler with spacer as by nebuliser [3]
  - if the patient becomes fatigued, consider using a nebuliser [1]
- choice of delivery should reflect the [3]:
  - dose of medication required
  - the ability of the patient to use the device
  - resources available to supervise therapy administration
- if patient is not taking a short-acting bronchodilator, issue an inhaler to use 'as required' or on a regular basis [3]
- if the patient is taking an 'as required' dose of a short-acting bronchodilator, increase the frequency and dose and consider adding a long-acting bronchodilator to control their symptoms [3]
- start treatment with oral steroids [3]:
  - prednisolone 0.5 mg.kg daily for 5 days for all patients with increased breathlessness and all patients admitted to hospital, if not contraindicated. Up to 2 weeks use should not require tapering
  - systemic corticosteroids [2]:
    - shorten recovery time
    - improve lung function (FEV1) and arterial hypoxaemia (PaO2)
• reduce risk of early relapse, treatment failure, and length of hospital stay
• start oral antibiotics [5]:
  • if patient has:
    • purulent sputum; and
    • increased breathlessness; and/or
    • increased sputum volume
  • amoxicillin 500mg three times daily for 5 days, or doxycycline 200mg stat and then 100mg once daily for 5 days
  • if patient is allergic to penicillin and doxycycline is contraindicated – clarithromycin 500mg twice daily for 5 days. Erythromycin or roxithromycin may also be used.
  • if antibiotic resistance suspected or poor response – amoxicillin-clavulanate for 5 days
  • risk factors for antibiotic resistant organisms include:
    • co-morbid disease
    • severe COPD
    • frequent exacerbations
    • antibiotics taken in last 3 months

References:

9 Patient cannot be managed at home

Quick info:
Indications for hospitalisation of patients with COPD [1]:
• Marked increase in intensity of symptoms
• Patient has an 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 hypoaxemia or cor pulmonale
  • Newly occurring arrhythmia
  • SpO2 < 92%, if this is new.
  • Not maintaining SpO2 between 88-92% if on home oxygen

Lung Foundation Australia provides a COPD Action Plan in editable pdf format, and as a rich text format for uploading into Medical Director and Best Practice

References
10 Patient can be managed at home

Quick info:
Indicators that a patient is appropriate for care at home (including residential aged care facilities) rather than requiring admission to hospital include:

- mild exacerbation – increased cough, sputum, and mild increase in breathlessness [3]
- respiratory rate less than 24 breaths per minute [3]
- oxygen saturation (\(\text{SaO}_2\)) greater than 92% or at usual hypoxic baseline level [3]
- cyanosis absent [2]
- mental status is unchanged and the patient is fully alert [2,3] if living alone without supervision
- patient does not have [3]:
  - arrhythmia
  - signs of heart failure
- able to cope at home [2]
- able to eat and sleep [3]
- patient is supported by family members [3] or carers
- has adequate mobility [3]

A referral to Hospital in the Home may be appropriate if a patient [5]:

- requires antibiotics eg has a chest x-ray that indicates pneumonia
- is unable to tolerate oral antibiotics (eg due to nausea or delerium) and requires intravenous antibiotics
- and is otherwise safe to remain at home

Hospital-in-the-home (HITH):

- is safe and effective [2]. HITH has been shown to have comparable outcomes to hospital management when measuring [3];
  - forced expiratory volume in 1 second (\(\text{FEV}_1\))
  - mortality
  - health-related quality of life (QoL)
- is an alternative way of caring for patients with exacerbations who would otherwise be admitted to hospital [2]
- provides medical care that would usually be provided in hospital (eg IV antibiotics)
  - treatment recommendations are the same as for hospitalised patients [1]
  - if a person is appropriate for and can tolerate oral antibiotics, they do not require HITH
- can access other disciplines and services as required, including:
  - a consultant respiratory physician,[4]
  - allied health professionals experienced in managing chronic obstructive pulmonary disease (COPD) [2]
  - nurses [3], eg specialist respiratory nurses [2,4]
  - physiotherapists [2,3,4]
  - occupational therapists [2]
  - other community support services including social support mechanisms[2]

For Residents in Aged Care Facilities (RACFs), there is the additional option of the Residential InReach (ROSS-RIR) Program. This program provides multi-disciplinary care to prevent unecessary admission to hospital.

RIR works closely with HITH which also provides services into RACFs, and can complement the specialised nursing services that HITH provides. HITH and RIR will cross refer where appropriate.

Recommendations about which patients should be considered for hospital-in-the-home – selection depends on multiple medical, functional and social factors and should take into account patients’ preferences about such treatment [2] – early discharge is generally favoured by patients [3]

References:
COPD - Acute exacerbation management

5. Australian Therapeutic Guidelines (COPD)

11 REFERRAL - Emergency Department via ambulance,

Quick info:
Frankston ED Consultant
Ph: 9784 7196
Fax: 9784 7284
Frankston Patient Enquiries
Ph: 9784 7777

Rosebud ED Consultant
Ph: (03) 5986 0624 / 0429 421 850
Fax: (03) 5986 0728

12 Refer to hospital-in-the-home, if appropriate

Quick info:
Hospital in the Home - Peninsula Health
Hospital in the Home operates seven days a week with medical / nursing cover 24 hours per day. Visits occur seven days a week between 8am – 8pm

FRANKSTON
Level 1Frankston Integrated Health Centre, 2 Hastings Rd Frankston, VIC, 3199
Contact Details(03) 9784 7241 (BH)
Monday – Friday: 8.00am – 4.00pm
After Hours: (03) 9784 7777 - ask to speak to the Hospital in the Home nurse

Residential Inreach Program (ROSS - RIR)
Refer through ACCESS;
ph 1300 665 781

13 Further investigations, assessment and management

Quick info:
Investigations and assessment:
• pulse oximetry – the National Institute for Health and Clinical Excellence (NICE) [1]:
  • recommend that pulse oximetry is of value if severe exacerbation is clinically evident
  • advises reference to local protocols for use of oximetry in guiding oxygen therapy
• the following are not routinely recommended [1,2]:
  • sputum culture (unless past history of resistant or atypical organisms)
  • blood tests
  • electrocardiogram (ECG) – indicated if the resting heart rate is:
If patients have been referred to a hospital-at-home scheme [2]:

- the first visit should be carried out on the day after initiation of the scheme
- the following should be recorded:
  - level of dyspnoea
  - cough
  - sputum colour
  - sputum volume
- the following should be measured:
  - pulse
  - blood pressure (BP)
  - respiratory rate
  - temperature
  - oxygen saturation (SpO₂) and fractional inspired oxygen concentration (FiO₂)
- a copy of the clinical notes and observations should be left at the patient's home
- assess treatment compliance and nebuliser/oxygen usage
- encourage telephone contact with a respiratory practitioner (there is insufficient evidence to justify setting up telemetry for hospital-at-home patients)
- An episode of Hospital in the home care is usually completed within two weeks

Further management:

- Ensure patients are aware of the correct use of medications (including oral antibiotics), optimum duration of treatment, and adverse effects of prolonged oral corticosteroids [1].

References:


14 Monitor patient following exacerbation

Quick info:
Patients' recovery should be monitored by regular clinical assessment of their symptoms and their functional capacity, in order to [1,2]:

- optimise current treatment
- assess whether a change in medication is appropriate
- discuss vaccinations
- consider adding new treatments, if appropriate
- review the patient's self-management plan
- provide information on recognising exacerbations and early intervention
- may also be an opportunity to initiate discussion of Advanced Care Planning (ACP)

References:


15 Refer to Emergency Department if progress not satisfactory
Quick info:
If there are signs of deterioration, admit to hospital [1,2].
Assess progress by [2]:
• change in symptoms
• functional capacity
• activities of daily living, ie ability to cope

References:

16 Progress satisfactory

Quick info:
Assess progress by [1]:
• improvement in symptoms
• functional capacity
• activities of daily living, ie ability to cope
Assessment should also include [1]:
• re-assessment of:
  • inhaler technique
  • the patient's understanding of the recommended treatment regime
  • advice on smoking cessation as necessary – see 'Smoking cessation' care map

Reference:

17 Consider pulmonary rehabilitation

Quick info:
Pulmonary rehabilitation should be offered to patients with chronic obstructive pulmonary disease (COPD), including those who have had a recent hospitalisation for an acute exacerbation [1], with a view to improving [2]:
• exercise capacity
• dyspnoea
• health status
• psychological wellbeing including anxiety and depression

Patients with COPD, with all grades of severity, gain significant benefit from rehabilitation [3]

References:

18 REFERRAL - pulmonary rehab
19  REFERRAL - Emergency Department

Quick info:
Frankston ED Consultant
Ph: 9784 7196
Fax: 9784 7284

Frankston Patient Enquiries
Ph: 9784 7777

Rosebud ED Consultant
Ph: (03) 5986 0624 / 0429 421 850
Fax: (03) 5986 0728

20  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 [4]:
  • 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 take place regularly if there has been a change in medication
• should provide a written care plan/self-management plan [3]
• of all patients with COPD should include:
  • highlighting diagnosis in notes and computer database [3]
  • record of results of spirometric tests at diagnosis (absolute and percentage of predicted) [3]
  • monitoring of:
    • exposure to risk factors [2], eg smoking [3]
    • 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)
• of patients treated with mucolytics for chronic productive cough, should take place every few months
Measurements required include [3]:
• forced expiratory volume in 1 second (FEV₁) and forced vital capacity (FVC)
• body mass index (BMI)
• Medical Research Council (MRC) dyspnoea score
• pulse oximetry/ oxygen saturation (SaO₂) in patients with severe disease

Clinical assessment to include:
• detailed history and examination [2]
• measurement of spirometry before and after bronchodilator medication [2,3]
• smoking status and desire to quit [3] – see the 'Smoking cessation' care map
• adequacy of symptom control, eg:
  • breathlessness [1,2,3]
  • exercise tolerance [1,2,3]
  • estimated exacerbation frequency [3]
  • cough and sputum production [1]
• health status [2]
• anxiety and depression status [4]
• presence of complications, including cor pulmonale [3]
• inhaler technique [3]
• need for referral to specialist and therapy services [3]
• need for pulmonary rehabilitation [3]

References:
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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To cite this pathway, use the following format:


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)

Contributors

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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.