Chronic Obstructive Pulmonary Disease (COPD)

Resident with exacerbation of COPD
(see Recognising COPD exacerbations - Practice point 1)

1. Isolate resident and place under standard and transmission-based precautions until GP review.
2. Sit resident upright in position of comfort and check vital signs - review Recognition of the deteriorating resident.
3. Where the resident has a COPD action plan, follow the plan.
4. Where oxygen saturations are less than 88%, deliver controlled oxygen via nasal cannulae, titrated to achieve oxygen saturations of 88 to 92% - see Oxygen therapy in a resident with COPD (see Practice point 2).
5. If not immediately life-threatening, review Checklist for contact and verbally contact GP*.
6. With GP input, commence treatment with bronchodilators:
   - In severe exacerbations or inability to comply with proper inhalation technique using metered dose inhaler (MDI), administer 2.5 to 5mg nebulised salbutamol** and nebulised ipratropium (atrovent) 500mcg (using compressed air)
   - Mild to moderate exacerbations in the cognitively intact resident are initially treated with metered-dose inhaler (MDI) salbutamol via a spacer (4 to 8 puffs, one at a time) and if no response add (except in residents taking a long-acting muscarinic antagonist [LAMA]) MDI ipratropium 80mcg- review how to use a spacer and MDI here
   - Ensure regular administration of salbutamol and ipratropium as per advice of GP

STABLE VITALS

Identify and escalate
Red flags for deterioration
(see Practice point 3)

RED FLAGS PRESENT

RED FLAGS ABSENT

With GP, undertake Assessment of the resident with likely COPD exacerbation (see Practice point 4)

Assess for Escalation criteria (see Practice point 5)

ESCALATION CRITERIA ABSENT

ESCALATION CRITERIA PRESENT

Refer to HHS RaSS at GP discretion

UNSTABLE VITALS

Review advance care plan and refer to
Management of residents with unstable vital signs

DEVELOPS RED FLAGS

1. Where infection is suspected, GP to consider need for antibiotics (see Practice point 6).
2. GP to consider prednisone 30mg to 50mg for 5 days unless contraindicated.
3. Maintain oxygen saturations at 88 to 92 per cent (note: oxygen therapy should be controlled - usually 0.5 to 2.0L/minute via nasal prongs titrated to support oxygen saturations of 88 to 92 per cent in order to reduce death rates).
4. Provide supportive cares and prevent complications (see Practice point 7).
5. Increase monitoring of vital signs and look for development of red flags or escalation criteria.

FAILS TO IMPROVE OR DEVELOPS ESCALATION CRITERIA

UNSTABLE VITALS

1. Continue to monitor progress closely.
2. With GP and resident, update or develop a COPD action plan.
3. Implement preventive measures for future exacerbations of COPD (see Practice point 8).

*Where timely, arrange telehealth or face-to-face GP review
**Note: Nebulisers may increase risk of respiratory virus transmission (e.g. influenza, COVID-19) ensure staff use appropriate PPE and deliver nebuliser in single room with door closed

Chronic Obstructive Pulmonary Disease (COPD) practice points

1) Recognising COPD exacerbations

Exacerbation of COPD presents in a resident with a prior history of COPD (or a history of long-term smoking) with an acute change that goes beyond the resident's day-to-day baseline in any of the following:

1. Increased shortness of breath and / or reduced exercise tolerance.
2. Increased cough.
3. Sputum (volume or colour).

Also consider exacerbation of COPD in any resident with a prior history or COPD or a history of long-term smoking who develops tachypnoea, drowsiness or increasing ankle oedema.

2) Oxygen therapy in a resident with COPD exacerbation

Oxygen therapy is indicated in residents with COPD who are experiencing an exacerbation and have oxygen saturations of less than 88%.

Excessive supplemental oxygen is associated with depression of ventilation and increase risk of death - therefore oxygen delivery should be controlled and titrated to oxygen saturations of 88 to 92%. Delivery of oxygen should be via nasal cannulae - an oxygen flow rate of 0.5 to 2.0 L per minute is usually sufficient.

High flow oxygen via a Hudson mask or a non-rebreather mask should be avoided as it may depress breathing and increase risk of death by 78% in patients with COPD.

It is very important therefore to avoid high flow oxygen. Oxygen should not be used to deliver nebulised bronchodilators - these should instead be delivered using compressed air; this allows simultaneous delivery of controlled oxygen by nasal prongs where required.

3) Red flags for deterioration in resident with COPD exacerbation

If any of the following red flags are identified in residents who have an exacerbation of COPD, review the resident's advance care plan, consult resident or substitute health decision maker (or nominated decision support person) and refer to Management of residents with unstable vital signs pathway. The following are considered red flags in the resident with a COPD exacerbation:

- Vital signs in the red or danger zone and unresponsive to bronchodilator therapy - refer to Recognition of the deteriorating resident
- Altered mental state or difficult to rouse relative to baseline
- The resident has significant agitation or distress not responsive to bronchodilator therapy
- Vomiting or inability to eat or sleep due to shortness of breath
- Associated chest pain
- Worsening hypoxaemia (oxygen saturations lower than usual for the resident) or inability to speak in sentences (where resident can usually do this) despite bronchodilator therapy

Note: a decision to transfer a resident to hospital with an exacerbation of COPD should always consider resident goals of care and be respectful of informed choice by the resident (or substitute decision maker).

4) Assessment of the resident with a suspected exacerbation of COPD

Goals of assessment of the resident with suspected exacerbation of COPD are to:

1. Confirm an exacerbation of COPD and determine severity.
2. Identify the cause of COPD exacerbation.
3. Identify complications of COPD exacerbation.

Confirm an exacerbation of COPD and determine severity

- On history, confirm symptoms as per Practice point 1
- Perform an assessment of vital signs: where vital signs are unstable, refer to the Management of Unstable Residents Pathway to guide response

Chronic Obstructive Pulmonary Disease (COPD) practice points (cont'd)

4) Assessment of the resident with a suspected exacerbation of COPD (cont'd)

- Examine the resident for evidence of respiratory distress or focal chest findings or red flags - presence of red flags suggest severe exacerbation of COPD or an alternate cause
- Where aligned to a resident's goals of care, consider performing full blood count and electrolytes

Identify causes of COPD exacerbation (infective versus non-infective) using:

- History from the resident and carers (and family where appropriate and relevant) for:
  - Fevers
  - Rigors (uncontrolled shivering and shaking)
  - Increased sputum volume and / or change in sputum colour - presence of both these features is highly correlated with bacterial infection
  - Focal chest findings such as focal crackles that do not clear with coughing
- Consider performing a respiratory virus PCR on a nasopharyngeal swab as more than 60% of exacerbations of COPD are caused by viral infection; early identification of influenza or COVID-19 will allow early implementation of anti-viral therapy and may limit outbreak size and duration
- Refer to Acute Respiratory Infection (potential or confirmed COVID-19 or influenza) pathway

Identify complications of COPD exacerbation including:

1. Pneumonia - suspect if both increased sputum volume and / or change in sputum colour.
2. Pneumothorax or pulmonary embolus - suspect if associated pleuritic chest pain or failure of symptoms to resolve with treatment.
3. Dehydration and / or electrolyte abnormalities.
4. Cardiac arrhythmia or ischemia.

5) Escalation criteria

First screen for red flags as above. Where there are no red flags, presences of any of the following may prompt escalation to HHS RaSS at GP discretion (or in resident's nearing end of life, to the resident's palliative care provider) if any of:

- Red flags in a resident who has conservative goals of care and does not wish to be transferred to hospital
- Resident is not improving despite institution of regular bronchodilators, prednisone and antibiotictherapy
- Clinical evidence of dehydration
- Diagnostic uncertainty
- Unclear goals of care in a resident with frequent exacerbations of COPD

6) Antibiotics in residents with an exacerbation of COPD

Antibiotics are indicated in residents with COPD exacerbation where there is:

1. Increased sputum volume and change in sputum colour.
2. Or in severe exacerbations of COPD (presence of red flags).

Where indicated, use:

Amoxicillin 1g orally every 12 hours for 5 days

OR

Doxycycline 100mg orally daily for 5 days (ensure resident sits upright for at least 30 minutes after taking doxycycline to avoid distal oesophageal ulceration)

Chronic Obstructive Pulmonary Disease (COPD) practice points (cont'd)

7) Supportive cares for residents with an exacerbation of COPD

Supportive care for residents with an exacerbation of COPD includes:

1. Avoid dehydration - tachypnoea is associated with increased insensible fluid loss; where there is no clinical concern for heart failure, increase frequency of offering of fluids.
2. Optimise nutritional intake:
   - Offer small, frequent, high calorie meals to minimise dyspnoea
   - Support resident to remain upright for 15 to 30 minutes post-meals to reduce risk of reflux
3. Attention to skin integrity through regular pressure injury prevention.
4. Falls risk management plan - residents with COPD are at increased risk of falls, particularly where steroids have been prescribed.
5. Delirium prevention and management - residents with COPD exacerbations are at increased risk of delirium. Where this occurs, there should be assessment to identify and manage precipitating factors (where such management is aligned to goals of care). Precipitating factors of delirium in COPD include, for example, hypoxia, hypercarbia, underlying infection or medications.
6. Symptom relief - where goals of care are active, this should be achieved through use of bronchodilators (salbutamol and ipratropium), controlled oxygen therapy targeting oxygen saturations of 88 to 92%, steroids and where indicated, antibiotics. Where symptoms persist despite maximal therapy, consider consultation with the local HHS RaSS team at GP discretion or transition to a palliative approach, as guided by informed choice of the resident or their substitute decision maker. In a person with palliative goals of care, treatment of the underlying cause (where this is reversible) may still be clinically appropriate where this aligns with the resident's wishes. Guidance for strategies (drug and non-drug) to relieve breathlessness or dyspnoea with a palliative approach to care is found here - non-drug strategies may include increasing cool air movement around the resident such as with use of a fan (exclude COVID-19 / influenza prior to use of a fan), optimising resident positioning to assist breathing, adjusting activities to accommodate shortness of breath and implementing distraction / relaxation techniques.

8) Prevention of exacerbations of COPD and improving outcome

Prevention of exacerbations of COPD and / or improving outcomes of residents with COPD is possible through implementation of the following strategies:

1. Vaccination against influenza, COVID-19, and Streptococcus pneumoniae.
2. Offer smoking cessation strategies for residents who continue to smoke.
3. Assess inhaler technique to ensure device is appropriate to a resident's cognition and physical abilities to use.
4. Refer to physiotherapist for:
   - Individualised, graded exercise appropriate to the resident's goals of care and comorbidities
   - Appropriate airway clearance techniques to aid in clearance of secretions
5. With GP, review COPD action plan and regular medications for COPD management and align to COPD-X guidance (where the guidance aligns to resident's goals of care).
6. Assess nutritional status and refer to dietitian - small, frequent meals may improve intake and reduce dyspnoea.
7. Review need for long-term oxygen therapy.
8. Consider severity of COPD in the context of the resident's life trajectory:
   - Where a resident has severe limitations to mobility and / or severe COPD, consider referral to palliative care service at discretion of GP
   - Where goals of care remain active, consider referral to Respiratory or General Medicine outpatients of the HHS where HHS OPD referral guidelines are met

Chronic Obstructive Pulmonary Disease (COPD) references

1. Dabscheck E, George J, Hermann K, McDonald CF, McDonald VM, McNamara R, et al. COPD-X Australian guidelines for the diagnosis and management of chronic obstructive pulmonary disease: 2022 update. Med J Aust. 2022;217(8):415-23.
2. Austin MA, Wills KE, Blizzard L, Walters EH, Wood-Baker R. Effect of high flow oxygen on mortality in chronic obstructive pulmonary disease patients in prehospital setting: randomised controlled trial. BMJ. 2010;341:c5462.
3. Barjaktarevic IZ, Milstone AP. Nebulized Therapies in COPD: Past, Present, and the Future. Int J Chron Obstruct Pulmon Dis. 2020;15:1665-77.
4. Taffet GE, Donohue JF, Altman PR. Considerations for managing chronic obstructive pulmonary disease in the elderly. Clin Interv Aging. 2014;9:23-30.
5. Ranzini L, Schiavi M, Pierobon A, Granata N, Giardini A. From Mild Cognitive Impairment (MCI) to Dementia in Chronic Obstructive Pulmonary Disease. Implications for Clinical Practice and Disease Management: A Mini-Review. Front Psychol. 2020;11:337.
6. Respiratory guidelines: oxygen therapy. 2020. Melbourne: Therapeutic guidelines.
7. Palliative care: respiratory symptoms in palliative care. 2016. Melbourne: Therapeutic guidelines.
8. Chronic obstructive pulmonary disease. 2020. In: Therapeutic Guidelines: respiratory [Internet]. Melbourne: Therapeutic Guidelines.
9. Zarowitz BJ, O'Shea T. Chronic obstructive pulmonary disease: prevalence, characteristics, and pharmacologic treatment in nursing home residents with cognitive impairment. J Manag Care Pharm. 2012;18(8):598-606.
10. Pleasants RA, Radlowski PA, Davidson HE. Optimizing Drug Therapies in Patients with COPD in the US Nursing Home Setting. Drugs Aging. 2019;36(8):733-45.

Chronic Obstructive Pulmonary Disease (COPD) version control

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