

COPD-X Summary of Changes V2.47, October 2016

Implications for Clinical Practice

The following changes have been identified as being the most significant and likely to have an impact on clinical practice:

O. Optimise Function

O6. Non-pharmacological interventions

Extensive amendments to sections on physical activity including the inclusion of strong evidence for the benefits of regular exercise in COPD patients and reference to current Australian and New Zealand guidelines for physical activity for adults.

Rearrangement of sub-sections with pulmonary rehabilitation (PR) section upfront (O6.1). Changes to this sub-section include:

- Inclusion of information about the aims of PR.
- Discussion about the recommended duration of programs with the conclusion that it is unclear whether longer programs bestow greater or more sustained benefits as there have been no RCTs comparing 8 week programs with longer programs.
- Discussion of which patient populations are likely to benefit from PR.
- Discussion of the role of disease-specific education within PR, although it is acknowledged that there have been few robust studies. One RCT in Australia failed to show any additional benefit.
- Inclusion of wording on maintenance programs with acknowledgement that more research is needed before any specific strategy can be recommended.

Expansion of O6.2 Exercise training to include a specific definition up front and including discussion of the following:

- Recommendations for exercise training for people with COPD based on the recommendations for healthy adults, but with some modifications necessary.
- Some support for the use of supervised ground based walking training as the sole modality of exercise training in people with moderate to severe COPD (evidence from an Australian multicentre RCT). It was noted that supervised walking training in isolation has a therapeutic role where access to pulmonary rehabilitation programs is limited or when specialised exercise equipment is unavailable.
- Limited evidence from a Cochrane review from RCTs conducted in a small number of patients with COPD that water-based exercise may confer short-term benefits in exercise capacity and quality of life. It may provide an alternative for people with COPD whose comorbidities preclude land-

based exercise training or when pulmonary rehabilitation programs are unavailable.

Separate sub-section O6.3 Inspiratory muscle training (previously included in exercise training sub-section).

Revision of sub-section on physical activity (previously O6.1) now O6.4 and renamed Physical activity and sedentary behaviour which includes a definition of physical activity upfront and discussion of the following:

- Reductions in physical activity commence early in the COPD disease trajectory and decline substantially across all severity stages of COPD. This decline is accompanied by deterioration in lung function and health status. Levels of physical activity are reduced further during hospitalisation for an AECOPD.
- Low levels of physical activity are associated with increased mortality and exacerbations in people with COPD.
- Regular physical activity is recommended for all individuals with COPD.
- Extensive discussion of the deleterious consequences of sedentary behaviour on people with COPD and inclusion of a table in Appendix 4 providing some strategies aimed at avoiding prolonged sedentary time.

D: Develop a plan of care

D3. Self-management

Addition of new paragraph discussing the effectiveness of action plans. A Dutch RCT in 142 COPD patients (spirometry confirmed) with frequent exacerbations and no other significant co-morbidities showed that action plans reduced exacerbation duration and severity and lead to a reduction in ED visits. The trial also reported on a significant reduction in overall health costs and suggests that action plans can be useful in particular sub-groups of COPD patients.

X: Manage eXacerbations

X2.2.3 Antibiotics for treatment of exacerbations

Inclusion of evidence from an Australian retrospective case series of 84 hospitalised COPD patients which found that antibiotic treatment was non-concordant with guideline recommendations in the majority of patients (86%), mainly due to over-use of intravenous antibiotics. Further efforts are needed to increase adherence to use of oral antibiotics in patients hospitalised with exacerbations of COPD.

X3.1 Controlled oxygen delivery

Inclusion of a paragraph stating that where there is evidence of acute respiratory acidosis (or a rise in PaCO₂), together with signs of increasing respiratory fatigue and/or altered level of consciousness, assisted ventilation should be considered. Early non-invasive positive pressure ventilation (NIV) may reduce the need for endotracheal intubation.

Appendix 4. Strategies that may assist in reminding people to reduce sedentary time

Table included in new Appendix.

All Changes

C. Confirm diagnosis and assess severity

Inclusion of corrected COPD Phenotypes diagram which now includes the clear circle in the middle of the emphysema circle.

C2.1 History

Addition of further detail about the CAT (COPD Assessment Tool) providing a description of what the total CAT scores mean in terms of the impact of COPD on an individual patient.

C2.5 COPD case finding

Inclusion of new paragraph on the lack of benefit of population screening based on the US Preventive Services Task Force's review of the evidence on screening asymptomatic adults for COPD. The review found no direct evidence to determine the benefits and harms of screening or to determine the benefits of treatment in screen-detected populations. On this basis, screening of asymptomatic adults for COPD was not recommended. The inclusion of this wording lead to small changes to the text of the existing wording to say that widespread population screening for COPD is not recommended. Targeted case finding as distinct from screening of asymptomatic adults for COPD is however recommended.

O. Optimise Function

O6. Non-pharmacological interventions

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- Inclusion of wording on maintenance programs with acknowledgement that more research is needed before any specific strategy can be recommended.

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07.2.1 Heart failure

New paragraph added: Effects on cardiac function have been further explored (Stone 2016) in a randomised crossover trial of fluticasone furoate/vilanterol versus placebo in patients with at least moderate COPD and bronchodilator-responsive gas trapping. Compared with placebo, active treatment was

associated with significantly reduced residual volume of the lung, and improved right and left ventricular filling indices and cardiac index.

07.2.2 Safety of beta-blockers

Inclusion of evidence from an observational study lending confidence to beta-blocker prescribing in COPD patients. The study suggested that beta-blocker treatment was associated with reduced mortality risk and exacerbation risk.

07.9 Bronchiectasis

Addition of new section highlighting the higher prevalence of bronchiectasis in moderate to severe COPD patients and stating that the presence of bronchiectasis influences the rate of respiratory infections and other adverse outcomes in COPD. The importance of identifying and managing co-existing bronchiectasis is stated.

D: Develop a plan of care

D3. Self-management

Addition of new paragraph discussing the effectiveness of action plans. A Dutch RCT in 142 COPD patients (spirometry confirmed) with frequent exacerbations and no other significant co-morbidities showed that action plans reduced exacerbation duration and severity and lead to a reduction in ED visits. The trial also reported on a significant reduction in overall health costs and suggests that action plans can be useful in particular sub-groups of COPD patients.

X: Manage eXacerbations

Addition of a new paragraph discussing a cohort of 150 severe COPD patients admitted with AECOPD at an Australian tertiary hospital which reported a 28% readmission rate at three months and a 12 month mortality rate of 24.5%.

X2.2.1 Inhaled bronchodilators for treatment of exacerbations

Inclusion of a paragraph discussing a small single centre pilot RCT in New Zealand where IV magnesium was added to standard bronchodilator therapy in AECOPD. There were significant improvements in FEV₁ at 120 mins, however, larger trials with meaningful clinical endpoints are required before this can be recommended as standard therapy.

X2.2.3 Antibiotics for treatment of exacerbations

Inclusion of wording from three studies on procalcitonin which has been proposed as a measure to determine if patients with AECOPD require oral antibiotics. In the study by Lin 2016, a meta-analysis was performed on four RCTs and in all, the use of antibiotics was strongly discouraged if procalcitonin was 0.1ng/ml or lower and encouraged if procalcitonin was above 0.25ng/ml.

This strategy was found to substantially reduce the overall use of antibiotics with no significant differences in re-hospitalisation or exacerbation rates. Since the publication of this meta-analysis, two further trials by Corti 2016 and Wang 2016 have also reported that procalcitonin reduces antibiotic use without increased complications. It should be noted that patients with pneumonia were excluded from these trials. Based on the evidence from these trials, it may be possible to withhold antibiotic therapy in patients presenting to the emergency department with an exacerbation of COPD, who are afebrile, have no pneumonia on chest imaging, and have a serum procalcitonin level of $<0.1\text{ng/ml}$. This test is not currently funded by Medicare in Australia and is only available in some centres.

X3.1 Controlled oxygen delivery

Minor amendment of previously included wording from a New Zealand study discussing the use of an education program to reduce high concentration oxygen delivery in patients transferred by ambulance to hospital to improve clarity.

Inclusion of a paragraph stating that where there is evidence of acute respiratory acidosis (or a rise in PaCO_2), together with signs of increasing respiratory fatigue and/or altered level of consciousness, assisted ventilation should be considered. Early non-invasive positive pressure ventilation (NIV) may reduce the need for endotracheal intubation.

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