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Prescribing Practice Review

**No. 33
 COPD:
 Interventions
 for better
 outcomes**

Dear Dr Sample,

Chronic obstructive pulmonary disease (COPD) is mainly caused by tobacco smoking, which leads to irreversible airflow limitation. This *Prescribing Practice Review (PPR)* outlines interventions that slow progression of COPD, reduce exacerbations and improve quality of life:

Diagnose early using spirometry

Spirometry demonstrates airflow limitation and is needed to diagnose COPD. It identifies patients with early disease or those at risk, when airflow limitation is often asymptomatic.

Keep motivating patients to quit smoking by using brief interventions

Brief counselling for 3–5 minutes by a healthcare professional helps smokers to quit. Intensifying counselling and adding pharmacotherapy can increase the success of a quit attempt.

When using bronchodilators and/or inhaled corticosteroids, plan a trial period and assess response objectively; stop treatment if no response

Assess treatment response by the change in symptoms, ability to perform daily activities, exercise capacity and lung function. Drug treatments do not slow disease progression — stop treatment after the planned trial period if patients report no improvement.

Reserve antibiotics for acute exacerbations with purulent sputum plus increased sputum volume and/or dyspnoea

Use amoxicillin or doxycycline; only use macrolides, cephalosporins, or amoxicillin plus clavulanic acid if there is no response to these antibiotics.

A clinical audit is available to review diagnosis and treatment of COPD; see enclosed enrolment form for details. Other clinical audits for this year are listed below if you wish to plan for your participation:

Clinical audits in 2006	Enrol	Collect data	Complete
COPD diagnosis and treatment	May 2006	May–July 2006	by January 2007
Review of proton pump inhibitor prescribing	July 2006	July–September 2006	by March 2007
Use of analgesics	September 2006	September–November 2006	by April 2007

Yours sincerely



Dr Stephen Phillips
 Chair

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COPD: interventions for better outcomes

Key Messages

- Diagnose early using spirometry.
 - Keep motivating patients to quit smoking by using brief interventions.
 - When using bronchodilators and/or inhaled corticosteroids, plan a trial period and assess response objectively — Stop treatment if no response.
 - Reserve antibiotics for acute exacerbations with purulent sputum plus increased sputum volume and/or dyspnoea.
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Chronic obstructive pulmonary disease (COPD) is mostly caused by smoking, which leads to progressive irreversible airflow limitation. Optimal drug treatment can reduce exacerbations and improve quality of life.

Use spirometry to diagnose COPD early

Consider a diagnosis of COPD for any current or ex-smoker over the age of 35 years^{1,2}

In early COPD, airflow limitation is often asymptomatic.^{1,2} Patients usually seek medical help at a stage of dyspnoea when airflow limitation may already be moderate to severe.^{1,2}

Consider a diagnosis for patients with other smoking-related conditions; there is a high prevalence of COPD in patients with vascular disease and smoking-related carcinomas.¹

Spirometry is needed to confirm the diagnosis^{1,2}

Spirometry demonstrates airflow limitation. Physical examination or peak expiratory flow measurements alone are not diagnostic.^{1,2} Airflow limitation is not fully reversible when, after administering a bronchodilator:

- FEV₁ (forced expiratory volume in one second) is < 80% predicted, and
- FEV₁ to FVC (forced vital capacity) ratio is < 70%.^{1,2}

Consider asthma if there are reversible components

Spirometry also identifies patients at risk; an early indicator of COPD is when FEV₁ is > 80% but FEV₁/FVC is < 70%.¹

A clinically significant response to a bronchodilator is an increase in FEV₁ > 200 mL and > 12% above pre-bronchodilator level.^{1,2} Consider referral to a respiratory physician to exclude other diagnoses or complications.¹

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Stopping smoking is the most important intervention

Brief intervention by a healthcare professional helps smokers to quit	<p>Provide brief counselling (3–5 minutes) on smoking cessation by using the 5As approach:</p> <ul style="list-style-type: none">• Ask and identify smokers at every visit• Advise about the risks of smoking and benefits of quitting• Assess the motivation to quit• Assist cessation• Arrange follow-up within a week of the quit date and one month after.^{1–3}
Offer intensive intervention and/or pharmacotherapy	Telephone counselling (e.g. Quitline), group behavioural therapy, or counselling by a smoking cessation specialist can help smokers to quit. ³
Use nicotine replacement therapy with brief or intensive interventions	<p>Consider adding pharmacotherapy to counselling and support if patients smoke more than 10 cigarettes/day: cessation rates after 6–12 months range from 5–15% with placebo and 10–30% with either nicotine replacement therapy or bupropion (Zyban SR).^{3–7}</p> <p>Choose one nicotine product (gum, tablets or lozenges, patches or inhaler) and continue for up to 12 weeks.⁸ Heavy smokers may benefit from using a higher dose.^{3,8}</p>
Only use bupropion with intensive intervention	Bupropion* only has evidence for an effect in conjunction with intensive counselling and support. ^{3,6} Start bupropion at least 7 days before the quit date and continue for 7–9 weeks. ⁸
Combine therapies for smokers who relapse	Offer a combination of nicotine products (e.g. patches and gum) and/or intensify counselling and support, if one nicotine product is ineffective alone. ^{3,8} Add bupropion if a further relapse occurs. ^{3,5}

* Refer to the *Schedule of Pharmaceutical Benefits* for restrictions for prescribing bupropion (Zyban SR). Patients are only subsidised on the Pharmaceutical Benefits Scheme (PBS) for one treatment course (two Authority prescriptions) per year.

Introduce stepwise drug treatment in stable COPD

Drug treatments improve symptoms and quality of life	Monitor patients for changes in symptoms, daily activities and exercise capacity; improvements can occur without changes in FEV ₁ . ^{1,2,9,10} For patients with COPD and asthma, treat as for asthma. ¹
Start with inhaled short-acting bronchodilators	Use a short-acting beta ₂ agonist (salbutamol [Airomir, Asmol, Epaq] or terbutaline [Bricanyl]) or anticholinergic (ipratropium [Atrovent]) as needed. ^{1,2,9,10} Start regular treatment if symptoms worsen. ¹⁰ Ipratropium is suitable for regular use because it has a relatively long duration of action. ^{1,10} If needed, combine salbutamol or terbutaline with ipratropium [†] to improve symptom control and limit adverse effects. ^{1,10}
Step up to a long-acting bronchodilator if needed	Use a long-acting anticholinergic (tiotropium [Spiriva]) or long-acting beta ₂ agonist (formoterol [Foradile, Oxis] or salmeterol [Serevent]) [†] if symptoms are not controlled by short-acting bronchodilators. ^{1,9,10} If symptoms persist, try a different long-acting bronchodilator or combine a long-acting anticholinergic and beta ₂ agonist. ⁹

Tiotropium may be of more benefit than ipratropium to patients with frequent exacerbations

Tiotropium reduces exacerbations in patients with moderate to severe COPD — treating 14 patients with tiotropium for 1 year, instead of ipratropium or placebo, prevents 1 exacerbation.¹¹ Tiotropium is more likely than ipratropium to cause anticholinergic side-effects, particularly dry mouth; it may be unsuitable for patients intolerant of ipratropium.^{8,11}

Reassess response to long-acting beta₂ agonists if patients report no improvement

The effects of long-acting beta₂ agonists are generally small and inconsistent between studies.^{12–24} Patients with the greatest response to long-acting beta₂ agonists have some reversible airflow limitation.^{13–17}

Stop salmeterol or eformoterol if there is no change after 4 weeks.^{9,10,25} Restart if symptoms worsen; consider adding tiotropium to improve symptom control.^{9,10}

Consider inhaled corticosteroids in moderate to severe COPD (FEV₁ ≤ 50%)

Start an inhaled corticosteroid, with or without a long-acting beta₂ agonist[†], for patients with:

- a documented response to a short course (2 weeks) of oral corticosteroid, or
- 2 or more exacerbations per year requiring treatment with antibiotics or oral corticosteroids.^{1,2,9,10}

Oral corticosteroids do not predict the response to inhaled corticosteroids and should not be used to identify patients for such treatment.^{1,9,10} Assess response to inhaled corticosteroids by monitoring FEV₁ and symptoms every 2 weeks; stop if there is no improvement after 6 weeks.¹⁰ Inhaled corticosteroids reduce exacerbations compared with placebo (relative risk reduction 30%, 95% CI 16% to 42%).²⁶ This has been shown in patients with reversible or irreversible airflow limitation, but only with high doses and only in moderate to severe COPD.^{26–28}

Combining an inhaled corticosteroid and a long-acting beta₂ agonist improves symptoms and health-related quality of life, compared with inhaled corticosteroids alone.^{22–24,29}

Minimise systemic absorption of inhaled corticosteroids

Instruct patients to rinse their throat and mouth with water, and spit out, after inhalation.^{8,10} Advise patients who use a metered-dose inhaler (MDI) that a spacer reduces the risk of dysphonia.^{8,10}

Inhaled corticosteroids at high doses can increase the risk of osteoporosis, especially in patients with COPD; bruising and cataracts may also occur.^{1,8,10}

Consider theophylline if symptoms persist despite inhaled bronchodilators

Use theophylline for patients who do not respond to short-acting and/or long-acting bronchodilators, or who cannot use inhaled therapy.^{1,9,10} Only slow-release preparations have shown benefit in COPD.^{1,2} For further guidance on stepwise drug treatment for stable COPD see *NPS News 45*.

Check inhaler technique regularly

Optimal technique can be achieved with an MDI, breath-activated inhaler (e.g. Autohaler) or dry powder inhaler (DPI); however, ability to use varies and can decline within 2 months of first instruction.^{9,10,30} Where possible, minimise the different types of inhaler that the patient needs to use.

Nebulisers do not improve lung function

Use a spacer if the patient has difficulty with inhaler devices.^{8,9} Reserve nebulisers for symptoms which persist despite maximum inhaled therapy — nebulisers do not improve lung function compared with an MDI (with or without spacer) or DPI.^{9,10,30}

[†] Note: Tiotropium is the only long-acting bronchodilator subsidised on the PBS for COPD. Long-acting beta₂ agonists, inhaled corticosteroids, and combination inhaled corticosteroids and long-acting beta₂ agonists (budesonide/eformoterol [Symbicort] and fluticasone/salmeterol [Seretide]) are not listed on the PBS for COPD. Combination salbutamol and ipratropium (Combivent) is listed on the RPBS for COPD. Inhaled corticosteroids (excluding fluticasone/salmeterol) are not approved by the Therapeutic Goods Administration for COPD.

Complete a COPD action plan for acute exacerbations

Detect and manage exacerbations early to prevent deterioration and hospital admission¹

Give a COPD action plan to patients and/or their carers (available from the Australian Lung Foundation, www.lungnet.org.au). Consider supplying oral corticosteroids and/or antibiotics as part of the patient's management plan, to assist early treatment. Instruct patients to start treatment if there is an increase in 1 or more symptoms of: cough, wheeze or breathlessness; sputum purulence and/or volume; or fever.^{1,2,9,10}

Increase use of short-acting bronchodilators^{1,10}

Only use a nebuliser for exacerbations if symptoms persist using a spacer; if bronchodilators are needed more than 3 hourly, tell the patient to get medical attention.^{1,10} Step down treatment when symptoms resolve and review management.

Start a short course of oral corticosteroid

Use oral prednisolone 30–50 mg daily for 7–14 days then stop without taper; where continuous treatment is needed use the lowest dose.^{1,9,10} Oral corticosteroids prevent hospital re-admission or changes to therapy, restore lung function and improve dyspnoea in patients with acute exacerbations.³¹

Use antibiotics only if sputum purulence is present with increased sputum volume and/or dyspnoea¹⁰

Prescribe amoxicillin or doxycycline for 5–10 days; only use a macrolide antibiotic (e.g. erythromycin, roxithromycin), cephalosporin or amoxicillin plus clavulanic acid if there is no response to these and only use a macrolide if *Haemophilus influenzae* has been excluded.^{1,2,10} There is no evidence for antibiotic prophylaxis.^{1,2}

Influenza vaccinations reduce the relative risk of exacerbations, hospitalisation and death by 50%.^{1,2} Pneumococcal vaccination is also recommended.^{1,2,10}

Reviewer

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Online citations available at www.nps.org.au/healthpro

The information contained in this material is derived from a critical analysis of a wide range of authoritative evidence. Any treatment decisions based on this information should be made in the context of the clinical circumstances of each patient.



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