Medicines Management of Chronic Obstructive Pulmonary Disease (COPD) (Chronic & Acute)

Guidelines for Primary Care

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**Medicines Management of Chronic COPD**

All COPD patients still smoking, regardless of age, should be encouraged to stop, and offered help (including drug therapy) to do so, at every opportunity. Contact the Wandsworth Stop Smoking Service on 020 8871 5062.

- Patients should have a diagnosis of COPD, confirmed by post-bronchodilator spirometry.
- The choice of drug should take into account the patient's response to a trial of the drug, side effects, patient preference, potential to reduce exacerbations and cost.
- Some patients may require unlicensed doses and devices and this should be decided on an individual basis, with specialist input.
- It is good practice to review all new treatment initiated and check inhaler technique regularly.

**Persistent breathlessness – FEV1 >50% aim for maximum bronchodilation**

Add: **Long Acting Beta Agonist (LABA)**

- Continue SABA or SAMA prn

1st line: Formoterol 12mcg BD (£24.80)

2nd line: Salmeterol 50mcg BD (£29.26)

3rd line: Indacaterol 150mcg - 300mcg OD

If OD dosing preferred (£29.26)

Assess response and if persistent breathlessness, combine bronchodilators

**LAMA + LABA and Continue SABA prn**

1st line: Duaklir Genuair (acilinium + formoterol) BD (£32.50)

OR Ulitbro Breezhaler (glycopyrronium + indacaterol) OD (£32.50)

2nd line: Anoro Ellipta (umeclidinium + vilanterol) OD (£32.50)

Assess response and if persistent COPD symptoms and/or continual exacerbations, irrespective of FEV1

**Inhaled Corticosteroid (ICS) + LABA in a combination inhaler**

STOP LABA + LAMA combination inhaler.

START ICS + LABA combination and ADD LAMA monotherapy (Box 1)

**FEV1 < 50% and/or History of exacerbations**

Add: **Long Acting Muscarinic Antagonist (LAMA)**

Continue SABA prn. Discontinue SAMA

1st line: Tiotropium Handihaler 18mcg OD (£34.87)

2nd line: If tiotropium ineffective or not tolerated, use:

- Seebri (Glycopyrronium Bromide) OD (£27.50)

OR Eklira (Acilinium Bromide) BD (£28.60)

3rd line: Incruse Ellipta (umeclidinium) OD (£27.50)

If the patient does not demonstrate satisfactory technique with Tiotropium handihaler, consider Tiotropium Respimat 2.5mcg: 2 puffs OD. Use with caution in patients with known cardiac rhythm disorders – MHRA advice

**Triple therapy**

Add: **Long Acting Muscarinic Antagonist (LAMA)**

Continue SABA prn. (Discontinue SAMA)

See Box 1 across for choices.

**Inhaled Corticosteroid (ICS) + LABA in a combination inhaler**

1st line: DuoResp Spiromax 320/9 (budesonide/formoterol) 1 puff BD (£29.97)

OR Symbicort Turbohaler (budesonide/formoterol): 200mcg/6mcg: 2 puffs BD or 400mcg/12mcg: 1 puff BD (£38.00)

OR Fostair pMDI 100/6 (beclometasone/formoterol): 2 puffs BD (£29.32)

2nd line: Seretide 500 Accuhaler (fluticasone/salmeterol): 1 puff BD (£40.92)

3rd line: Relvar Ellipta 92/22mcg (fluticasone furoate/vilanterol): 1 puff OD (£27.80)

If ICS declined or not tolerated, consider LABA + LAMA

Patients with COPD receiving ICS, at any dose, are at increased risk of non-fatal pneumonia, which is greatest in patients who are older, have severe airflow limitation or a low BMI.

**Note:** Seretide Evohaler® is not licensed in COPD. However, if this is the most suitable device for the patient, consider using a spacer.

Consider a trial of **carbocisteine** capsules 750mg tds for 6-8 weeks then 750mg bd if there is an improvement in sputum production and reduction in viscosity. For further information, see Appendix 2.
## Appendix 1: Rationale

### Long Acting Beta Agonist (LABA) Selection

<table>
<thead>
<tr>
<th>Line</th>
<th>Choice</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Formoterol</td>
<td>Most cost-effective LABA. Faster onset of action. Available as pMDI/DPI</td>
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<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Salmeterol</td>
<td>Cost effective and available as pMDI/DPI. Use if 1&lt;sup&gt;st&lt;/sup&gt; line choice not tolerated or device unsuitable</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Indacaterol</td>
<td>If OD dosing is preferred. Available as DPI</td>
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### Long Acting Muscarinic Antagonist (LAMA) Selection

<table>
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<th>Line</th>
<th>Choice</th>
<th>Reason</th>
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</thead>
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<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Tiotropium Handihaler</td>
<td>Long term evidence &amp; safety data. Available as a DPI</td>
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</table>

If the patient does not demonstrate satisfactory technique with Tiotropium handihaler, consider Tiotropium Respimat 2.5mcg; 2 puffs OD. **Use with caution** in patients with known cardiac rhythm disorders – MHRA advice.

If tiotropium ineffective or not tolerated, use:

<table>
<thead>
<tr>
<th>Line</th>
<th>Choice</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Seebri OR Eklira</td>
<td>If OD dosing preferred. Available as DPI</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt;</td>
<td>Incurella</td>
<td>Lack of long term evidence &amp; safety data. Available as DPI</td>
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</table>

### LABA + LAMA combination inhaler selection

<table>
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<th>Line</th>
<th>Choice</th>
<th>Reason</th>
</tr>
</thead>
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<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>Duaklir Genuair OR Ultibro Breezhaler</td>
<td>If BD dosing is preferred. Available as DPI</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
<td>Anoro Ellipta</td>
<td>Lack of long safety data. Available as DPI</td>
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</table>

### ICS + LABA combination inhaler selection

<table>
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<tr>
<th>Line</th>
<th>Choice</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>DuoResp Spiromax OR Symbicort Turbohaler OR Fostair pMDI</td>
<td>Branded generic version of Symbicort 400/12 (cost-effective option). Available as DPI</td>
</tr>
</tbody>
</table>

If Turbohaler device is preferred. Available as DPI.

If pMDI is a preferred device.

| 2<sup>nd</sup> | Seretide 500 Accuhaler | Long term evidence & safety data. More costly than 1<sup>st</sup> line options |

Note: Seretide Evohaler<sup>®</sup> is not licensed in COPD. However, if this is the most suitable drug & device for the patient, advise using a spacer.

| 3<sup>rd</sup> | Relvar Ellipta | Lack of long term evidence & safety data. Available as DPI |

If ICS declined or not tolerated, consider LABA + LAMA.

Be aware of the potential risk of developing side effects (including non-fatal pneumonia) in people with COPD treated with high-dose inhaled corticosteroids.

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PMDI = pressurised Metered Dose Inhaler
DPI = Dry Powder inhaler
Medicines Management of Chronic Obstructive Pulmonary Disease (COPD)

For the management of COPD, this fact sheet must be read in conjunction with NICE guidelines. The main treatment goals are to reduce exacerbations, reduce hospital admissions and to improve patient’s quality of life.

- All patients who smoke should be encouraged to stop smoking and offered help at every opportunity as smoking cessation is one of the most important components of their treatment. For further information regarding smoking cessation services, contact the local Stop Smoking Services.
- Patients who have a MRC score of 3 or more should be referred for Pulmonary Rehabilitation.
- Pneumococcal vaccination and an annual influenza vaccination should be offered to all patients with COPD.

Key Messages

- Inhaled short acting beta-2 agonists (SABA) or short acting muscarinic antagonists (SAMA) should be used as required for the relief of breathlessness in mild COPD. A combination of both can be used if the patient remains symptomatic on single therapy.

- Long acting beta-2 agonists (LABA) or long acting muscarinic antagonists (LAMA) should be used to control symptoms in patients with stable COPD who remain breathless or have exacerbations despite using short acting bronchodilators as necessary with an FEV₁ of 50% or greater. Once daily LAMA usage is recommended in preference to four-times-daily SAMA usage in patients with stable COPD. If using a LAMA, discontinue SAMA – refer to LAMA guidelines Appendix 1 for further information.

- Long acting beta-2 agonists (LABA) PLUS long acting muscarinic antagonists (LAMA) in a combination inhaler can be used if patient remains persistently breathless, with less than 2 exacerbations per year.

- Inhaled corticosteroid (ICS) with LABA combination inhaler should be used to control symptoms in patients with stable COPD who remain breathless or have exacerbations, with an FEV₁ of ≤ 50% despite therapy with a SABA, SAMA or LAMA.

- A combination of an ICS + LABA inhaler and a LAMA inhaler is recommended for patients with continual exacerbations or persistent COPD symptoms, irrespective of FEV₁.

- Care must be taken regarding potential risk of developing side effects (including non-fatal pneumonia) in patients treated with high dose inhaled corticosteroids – the risks should be discussed with the patient.

Additional information:

The choice of drug(s) should take into account the patient’s response to a trial of the drug, the drug’s side effects, patient preference and cost. Patients should have their inhaler technique reviewed by a competent healthcare professional to ensure they are using it correctly.

Other treatments:

- Prednisolone (oral corticosteroid) 30mg daily for 7-14 days is recommended in the treatment of COPD exacerbations for all patients with significant increase in breathlessness and all hospital admitted patients, unless contraindicated. Maintenance use of oral corticosteroids is not normally recommended. In cases where maintenance therapy is appropriate, the lowest possible dose should be used. Patient response to oral corticosteroids cannot be used to predict response to inhaled corticosteroid therapy, and should not be used to identify patients suitable for inhaled corticosteroids.

- Osteoporosis prophylaxis should be considered for patients requiring frequent courses or a maintenance dose of oral corticosteroids. e.g. Adcal D3.

- Theophylline has a limited place in therapy and should only be used after a trial of SABA and LABA inhalers or in patients who are unable to use inhaled therapies. Theophylline levels need to be monitored every 6-12 months or more often if toxicity is suspected. Measure trough level immediately pre-dose. Levels should be between 10-20mg/litre. Common signs of toxicity include tachycardia, palpitations, nausea and headache. Particular caution should be taken in the elderly as the plasma–theophylline concentration is increased in this group of patients. Caution in elderly patients and smokers due to pharmacokinetic differences. Prescribe by brand name only. Monitor drug interactions (check BNF).
• **Mucolytics** (e.g. carbocysteine) can be considered in patients with a chronic productive cough of sputum. Treatment should only be continued if there is symptomatic improvement (e.g. reduction in cough frequency or sputum). Mucolytics should not be routinely used as prevention of an exacerbation in patients with stable COPD. For further information see Appendix 2.

• **Oral antibiotics** are recommended for exacerbations causing purulent sputum. Prophylactic antibiotics is not recommended in the management of stable COPD\(^2\). For further information refer to WCCG Primary Care antibiotic guidelines.

• **Stand by antibiotics** – decision to prescribe should be at GP’s discretion in appropriate patients.

• **Roflumilast** is recommended by NICE, only in the context of research as part of a clinical trial for adults with severe COPD (FEV\(_1\) post-bronchodilator < 50% predicted) associated with chronic bronchitis with a history of frequent exacerbations as an add-on to bronchodilator treatment\(^3\).

• Long-term, short-term and ambulatory **oxygen therapy** is also recommended for patients meeting necessary criteria\(^1\)- Refer to the Community Respiratory Nurse Specialist.

• Refer patients diagnosed under the age of 40 years, or rapid FEV1 decline, or repeated infections or if diagnosis in question, to respiratory specialists for management

**NOTE:**
All black triangle drugs are subject to additional monitoring. This will allow quick identification of new safety information. Healthcare professionals are asked to report any suspected adverse reactions on a Yellow Card at [www.mhra.gov.uk/yellowcard](http://www.mhra.gov.uk/yellowcard)

For further information on any drugs, see current BNF or Summary of Product Characteristics (SmPC) [www.emc.medicines.org.uk](http://www.emc.medicines.org.uk)

References:

2. WCCG Primary Care Antibiotic Guidelines 2015
Appendix 2

Guidance on the use of Mucolytics in Chronic Obstructive Pulmonary Disorder (COPD)

Introduction
Consider mucolytic therapy for patients with a chronic cough productive of sputum, including COPD. Mucolytics can help increase the ability to expectorate sputum by reducing its viscosity. Treatment with mucolytic agents has shown a small but significant reduction in acute exacerbations and total number of days disability. It has been suggested if patients take mucolytics regularly through the winter months, it could result in a 20% reduction in exacerbations, which in turn may prevent hospitalisations. They are safe and well tolerated.

Licensed Indications
Mucolytics are used for adjunctive therapy for respiratory tract disorders characterised by excessive, viscous mucus to help increase the ability to expectorate sputum by reducing its viscosity. Treatment should be continued if there is symptomatic improvement – i.e. a reduction in frequency of cough and sputum production.

Place in Therapy

- Patients should have a confirmed diagnosis of COPD with a chronic cough and sputum production
- Patients should have a cough and sputum on most days for 3 months in 2 consecutive years
- Patients should be in a chronic, stable, but symptomatic state
- Exclude differential diagnosis such as bronchiectasis, rhinitis, post nasal drip, lung cancer

Dose

- Carbocisteine is available in capsule and liquid preparations
- Initially 2250mg daily in divided doses (375mg capsules x 2 tds or 15mls liquid tds) and reducing to 1500mg daily in divided doses (375mg capsules x 1 qds or 10mls liquid tds)

Monitoring
Patients should be reviewed after one month of commencing treatment. Only continue with carbocisteine if there is a reported reduction in frequency of cough and sputum production and that the patient perceives a benefit in the mucolytic treatment.

Do not routinely use for the prevention of exacerbations in stable COPD.

References

Medicines Management of Acute COPD

An exacerbation is a sustained worsening of the patient’s symptoms from their usual stable state which is beyond normal day-to-day variations, and is acute in onset.

Commonly reported symptoms are:
- worsening breathlessness
- cough
- increased sputum production and change in sputum colour.

The change in these symptoms often necessitates a change in medication

Initial management:

1. **Short Acting Bronchodilators:**
   - Increase frequency of short-acting bronchodilator use.
   - Consider using a spacer or using a nebuliser, if appropriate
   - Nebulised doses: 2.5mg/2.5ml QDS and increase up to 6 times per day, if necessary

2. **Oral Corticosteroids:**
   - Prednisolone 30mg daily for 7-14 days
   - For all patients with significant increase in breathlessness, sputum or cough and all patients admitted to hospital, unless contraindicated.
   - Patients should be made aware of the adverse effects of prolonged steroid therapy
   - Osteoporosis prophylaxis should be considered for patients requiring frequent courses of oral corticosteroids
   - Routine use of oral steroids in stable COPD is NOT recommended

3. **Oral Antibiotics:** if increased dyspnoea and purulent sputum
   - **1st line:** Amoxicillin 500mg, 3 times a day for 5-7 days OR
     - Doxycycline 200mgs STAT then 100mgs daily for 5-7 days
     - Clarithromycin 500mg twice daily for 5-7 days [if penicillin allergic and doxycycline contraindicated]
   - **2nd line: (If treatment failure, send sputum sample first)** Co-amoxiclav 625mgs, 3 times a day for 7 days
     - In acute exacerbations of COPD 30% are viral, 30-50% are bacterial, the remainder are undetermined.
     - Exacerbations without purulent sputum do not need an antibiotic unless consolidation on chest x-ray or clinical signs of pneumonia
     - If sputum is sent for culture, antibiotic treatment should be based on sensitivity results
### Wandsworth CCG Recommended Inhalers as per local Guidelines

*This list is not exhaustive*

<table>
<thead>
<tr>
<th>Name</th>
<th>Class</th>
<th>Inhaler Type [Metered Dose Inhaler or Dry Powder Inhaler]</th>
<th>Licensed for Asthma Note: Licensed age restrictions apply. See BNF or SPC</th>
<th>Licensed for COPD</th>
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