COPD INHALER PRESCRIBING GUIDELINE

Fundamentals of COPD care
- Smoking cessation - offer treatment and support to stop smoking
- Offer pneumococcal and influenza vaccinations
- Offer exercise advice and pulmonary rehabilitation if indicated
- Develop a respiratory action plan with the patient
- Chronic cough and mucus production - consider trial of mucolytic and refer to physiotherapist where service is available
- Optimise treatment of co-morbidities
- Low BMI or obese - offer dietary advice (+/- calorie supplementation)

Inhaler Prescribing Principles
- Initiate therapy at level appropriate to patient’s stage of disease.
- Match the device type to the patient’s inspiratory flow rate.
- Use DPIs first line if suitable.
- Use MDIs with spacer in patients unsuitable for DPI.
- Check inhaler technique at every review and before treatment escalation.
- Use combination inhaler where appropriate.
- See information on greener inhaler prescribing on page 2.

Offer SABA (or SAMA if SABA intolerant) to use as needed
DPI option: Easyhaler® salbutamol 200mcg - ONE dose when required
MDI options:
- Salbutamol MDI 100mcg - TWO puffs when required (prescribe small volume inhaler e.g. Salamol® brand)
- Ipratropium bromide 20mcg - TWO puffs when required up to four times daily (SAMA)

If patient symptomatic and needing SABA every day or has exacerbations. Assess inhaler technique.

Symptomatic, no exacerbations OR Exacerbations:
- One or less per year and
- No hospitalisations and
- Eosinophils <0.3
- Two or more per year or
- One hospitalisation or
- Eosinophils > 0.3

Patient limited by increasing symptoms or exacerbations. Assess inhaler technique and adherence.

No exacerbations or exacerbations and eosinophils <0.3 Exacerbations and eosinophils >0.3

Revisit fundamentals of COPD care (see above). Ensure all interventions considered/optimised. Consider discussion at virtual MDT.

- Consider a trial of triple therapy.
- Perform CAT test before initiation and after three months to evaluate. A reduction in CAT of two units or more is significant.
- Change back to LABA+LAMA if no benefit.

Abbreviations
DPI: Dry Powder Inhaler
ICS: Inhaled corticosteroid
LABA: Long acting beta agonist
LAMA: Long acting muscarinic antagonist
MDI: Metered dose inhaler
SABA: Short acting beta agonist
SAMA: Short acting muscarinic antagonist
SMI: Soft mist inhaler (i.e. Respimat device)

Inhaler selection
Can the patient inhale quickly and deeply? (See https://www.guidelines.co.uk/respiratory/inhaler-choice-guideline/455503.article for further guidance)

Yes
Follow DPI pathway (preferred)

No
Can patient inhale slow and steady over four to five seconds?

Yes
Follow MDI/SMI pathway (provide and encourage spacer use with MDIs)

Offer LABA+LAMA (combination inhaler)
DPI option: Anoro® Ellipta 55/22mcg - ONE dose ONCE daily
MDI/SMI option: Spiolto® Respimat 2.5/2.5mcg – TWO puffs ONCE daily

Patient limited by increasing symptoms or exacerbations. Assess inhaler technique and adherence. Consider discussion at virtual MDT

No exacerbations or exacerbations and eosinophils <0.3 Exacerbations and eosinophils >0.3

ICS+LABA (combination inhaler)
DPI option: Relvar® Ellipta 92/22mcg – ONE dose ONCE daily
MDI option: Fostair® 100/6mcg with spacer – TWO puffs TWICE daily

Patient limited by increasing symptoms or exacerbations. Assess inhaler technique and adherence.

Triple therapy ICS+LABA+LAMA (combination inhaler)
DPI option: Trelegy® Ellipta 92/55/22mcg – ONE dose ONCE daily
MDI option: Trimbow® 87/5/9mcg with spacer – TWO puffs TWICE daily

Developed by the Formulary Subgroup of the Gloucestershire Respiratory Clinical Programme Group
Review date: April 2022
COPD INHALER PRESCRIBING GUIDELINE

Greener Inhaler Prescribing
- The NHS long term plan has committed the NHS to reducing greenhouse gas emissions from inhalers, with a target to reduce the carbon impacts of inhalers by 50% by 2030, and a drive to reduce MDI prescribing.
- Metered dose inhalers (MDIs) contain hydrofluorocarbon propellants which are powerful greenhouse gases.
- As such MDIs have a carbon footprint many times greater than DPIs and make up the largest proportion of the NHS carbon footprint of any group of medicines.
- Therefore if a patient is able to use both MDI and DPI they should be given a DPI.
- Ventolin® E沃halers should not be prescribed as they have a carbon footprint more than double that of the smaller volume Salamol® MDI.
- SMIs (Respimat device) do not contain a propellant and are therefore a greener inhaler choice. The reusable inhaler device may be used with six refill cartridges before it needs to be discarded.
- All inhalers should be returned to a pharmacy to be disposed of in an environmentally safe manner.
- In this guideline each inhaler is allocated a footprint symbol:
  - indicates a ‘greener’ choice
  - indicates a ‘less-green’ choice

Additional Information
- This guideline is intended to support the choice of treatment for new patients, or current patients who may benefit from a change of inhaler. Patients on alternative inhalers or devices should not be routinely switched unless this is the outcome of a COPD review.
- The intention is that, for the majority of patients requiring a new or changed inhaler, one of the above inhaler choices will be prescribed, using the brand names stated to minimise the risk of dispensing errors.
- Consider stopping new treatment if patient feels no improvement. (Symptomatic benefit is expected within 4 weeks. A longer trial period is needed to assess reduction in exacerbations).

Why dual bronchodilators?
- Evidence suggests that LABA/LAMA combination inhalers are more effective than monotherapy LAMA or LABA treatment.
- LABA/LAMAs are more effective at reducing symptoms and exacerbations and this does not appear to be associated with an increase in adverse effects.
- A reduction in symptoms can enable patients to become more active - ensure you give advice about how to increase activity and refer to pulmonary rehabilitation if appropriate.

Mucolytics
- Only prescribe a mucolytic to treat troublesome phlegm.
- Carbocisteine 750mg tds (£13.10) can be trialled for 4 weeks.
- If no effect - stop.
- If effective - reduce to maintenance dose (750mg bd).
- Consider using in winter months only.
- Mucolytics do not prevent exacerbations.

Inhaler Technique
- For MDI and SMI devices (with or without spacers) patients should be educated to inhale gently.
- For DPI devices patients should inhale forcefully (requiring a higher inspiratory flow rate than MDIs).
- Further information: https://www.rightbreathe.com

Inhaled corticosteroids (ICS)
- Patients who will derive greatest benefit are those have an eosinophil count of >0.3 x 10^9/L and a history of frequent exacerbations or hospitalisations.
- Use ICS at licensed dose for COPD in an ICS/LABA or triple combination inhaler licensed for COPD. There’s no evidence that increasing the dose gives greater benefit but it will increase side effects.
- Inhaled steroids increase the risk of pneumonia. Ensure they are only used in patients where benefit outweighs risk. If a patient has two or more pneumonia episodes re-evaluate benefit/risk and consider stopping ICS.

Eosinophils
- Measure baseline eosinophils when patient is well (a result from within past 6 months is acceptable).
- Eosinophil levels don’t tend to vary significantly unless the patient is ill or being treated with oral corticosteroids or methotrexate.
- Inhaled steroids at doses licensed for COPD don’t impact eosinophil counts significantly. Oral corticosteroids do.
- This guideline gives some suggested cut points but bear in mind the measure is a continuous variable:
  - Over 0.3 x 10^9/L indicates likely benefit from ICS but the higher the eosinophil count, the greater the likely benefit.
  - Under 0.3 x 10^9/L patients are unlikely to benefit from ICS.

Asthma/COPD Overlap
- If asthma/COPD overlap is suspected (e.g. childhood symptoms, diurnal variability, nocturnal symptoms, atopy/allergies, previous blood eosinophilia), then a trial of ICS+LABA first-line should be considered.

Spacer Devices
- Consider prescribing a compatible spacer for use with MDI devices in ALL patients, but especially those with sub-optimal inhaler technique.
- Spacers should be replaced at least annually.
Appendix:
- The following charts provide a cost comparison to aid decision making when the formulary recommended first-choice inhalers (page 1) are not suitable
- Prices correspond to 30 days’ treatment (SABA prices correspond to 200 doses of salbutamol 100mcg or 100 doses of terbutaline 500mcg, SAMA price corresponds to 200 doses of ipratropium)

Example:

<table>
<thead>
<tr>
<th>Preferred Inhaler (‘greener’ choice)</th>
<th>Preferred Inhaler (‘less green’ choice)</th>
<th>Alternative Inhaler (‘greener’ choice)</th>
<th>Alternative Inhaler (‘less green’ choice)</th>
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<tbody>
<tr>
<td>£0.00</td>
<td>£5.00</td>
<td>£10.00</td>
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SABA or SAMA

<table>
<thead>
<tr>
<th>Inhaler</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>Salmol (salbutamol)</td>
<td>£1.46</td>
</tr>
<tr>
<td>Ventolin Evoxhaler (salbutamol)</td>
<td>£1.50</td>
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<tr>
<td>Airomir (salbutamol)</td>
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<tr>
<td>Salbulin Novoliser refill (salbutamol)</td>
<td>£2.75</td>
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<tr>
<td>Easyhaler salbutamol</td>
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<tr>
<td>Salbulin Novoliser (salbutamol)</td>
<td>£4.95</td>
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<tr>
<td>Atrovent (ipratropium)</td>
<td>£5.56</td>
</tr>
<tr>
<td>Ventolin Accuhaler (salbutamol)</td>
<td>£6.00</td>
</tr>
<tr>
<td>Airomir Autohaler (salbutamol)</td>
<td>£6.02</td>
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<tr>
<td>Salmol Easi-breathe (salbutamol)</td>
<td>£6.30</td>
</tr>
<tr>
<td>Bricanyl Turbohaler (terbutaline)</td>
<td>£6.92</td>
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LABA + LAMA

<table>
<thead>
<tr>
<th>Inhaler</th>
<th>Price</th>
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<tbody>
<tr>
<td>Bevespi Aerosphere (glycopyrronium 7.2mcg/formoterol 5mcg) T puff bd</td>
<td>£32.50</td>
</tr>
<tr>
<td>Yanimo Respimat (olodaterol 2.5mcg/tiotropium 2.5mcg) TT puffs od</td>
<td>£32.50</td>
</tr>
<tr>
<td>Spiolto Respimat (olodaterol 2.5mcg/tiotropium 2.5mcg) TT puffs od</td>
<td>£32.50</td>
</tr>
<tr>
<td>Anoro Ellipta (vilanterol 22/umeclidinium 55) T puff od</td>
<td>£32.50</td>
</tr>
<tr>
<td>Ultibro Breezhaler (indacaterol / glycopyrronium) T puff od</td>
<td>£32.50</td>
</tr>
<tr>
<td>Duaklir Genuair (formoterol 12mcg/aclidinium 340mcg) T puff bd</td>
<td>£32.50</td>
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ICS + LABA

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Cost</th>
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<tr>
<td>Fobumix Easyhaler 320/9 (budesonide/formoterol) T puff bd</td>
<td>£21.50</td>
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<tr>
<td>Relvar Ellipta 92/22 (fluticasone furoate/vilanterol) 1 puff od</td>
<td>£22.00</td>
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<td>Symbicort 200/6 (budesonide/formoterol) MDI 2 puffs bd</td>
<td>£28.00</td>
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<tr>
<td>Symbicort 400/12 (budesonide/formoterol) Turbohaler 1 puff bd</td>
<td>£28.00</td>
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<tr>
<td>Symbicort 200/6 (budesonide/formoterol) Turbohaler 2 puffs bd</td>
<td>£28.00</td>
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<tr>
<td>Fostair 100/6 (beclometasone/formoterol) MDI 2 puffs bd</td>
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<tr>
<td>Fostair 100/6 (beclometasone/formoterol) Nexthaler 2 puffs bd</td>
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<tr>
<td>DuoResp 320/9 (budesonide/formoterol) Spiromax 1 puff bd</td>
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<td>DuoResp 160/4.5 (budesonide/formoterol) Spiromax 2 puffs bd</td>
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<tr>
<td>AirFluSal 500/50 (fluticasone/salmeterol) Forspiro 1 puff bd</td>
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<tr>
<td>Seretide 500 (fluticasone/salmeterol) Accuhaler 1 puff bd</td>
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ICS + LABA + LAMA

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Trelogy Ellipta (vilanterol 22/fluticasone 92/umeclidinium 55) T puff od</td>
<td>£44.50</td>
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<tr>
<td>Trimbow Nexthaler (formoterol 5/glycopyronium 9/beclometasone 88) TT puffs bd</td>
<td>£44.50</td>
</tr>
<tr>
<td>Trimbow MDI (formoterol 5/glycopyronium 9/beclometasone 87) TT puffs bd</td>
<td>£44.50</td>
</tr>
<tr>
<td>Trimec Aerosphere (formoterol 5/budesonide 160/glycopyronium 7.2) TT puffs bd</td>
<td>£44.50</td>
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