Choose devices the patient can and will use effectively; train the patient to use the device; check the patient's inhaler technique regularly at each visit; try to use same delivery device for each inhaled drug.
VERSION CONTROL

<table>
<thead>
<tr>
<th>Version Number</th>
<th>Date</th>
<th>Amendments made</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>March 14</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>February 15</td>
<td>Updated to include Spiriva Respimat</td>
</tr>
<tr>
<td>3</td>
<td>March 2015</td>
<td>Link added to MHRA safety update re: tiotropium</td>
</tr>
<tr>
<td>4</td>
<td>October 2015</td>
<td>LABA, LAMA &amp; LABA/LAMA inhalers updated</td>
</tr>
<tr>
<td>5</td>
<td>September 2017</td>
<td>GOLD principles included</td>
</tr>
<tr>
<td>6</td>
<td>Consultation</td>
<td>Non-inhaler section update and consolidation with long acting inhaler section v 1.5</td>
</tr>
</tbody>
</table>

**Background Information and the Rationale for Guideline Development.**

There have recently been developments in the treatment of COPD with the publication of new national / international guidelines, the licensing of new drugs and devices and requests by clinicians to use new inhalers. As the developments affect the current LMMG COPD guideline, the LMMG requested a review and update of the guideline.
Initial diagnosis and classification

Diagnosis
Consider diagnosis of COPD in anyone > 40 and is a smoker / ex-smoker with any of the following symptoms:
- Chronic cough
- Breathlessness on exertion
- Regular sputum production
- Wheeze
- Frequent winter bronchitis
And no clinical features of asthma

Assess patient exacerbation history and symptoms (mMRC and CAT scores)

<table>
<thead>
<tr>
<th>Exacerbations per year</th>
<th>CAT</th>
<th>mMRC</th>
<th>MRC (as on EMIS)</th>
<th>Patient Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 1 not leading to hospital admission</td>
<td>&lt;10</td>
<td>0-1</td>
<td>1-2</td>
<td>A</td>
</tr>
<tr>
<td>≥ 10</td>
<td>≥2</td>
<td>≥3</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>≥ 2 or ≥ 1 leading to hospital admission</td>
<td>&lt;10</td>
<td>0-1</td>
<td>1-2</td>
<td>C</td>
</tr>
<tr>
<td>≥10</td>
<td>≥2</td>
<td>≥3</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

This will provide a GOLD patient classification of both Grade and Group

Tests
- Post-bronchodilator spirometry (absolute & % predicted)
- Chest X-ray
- Full blood count
- BMI

Assess airflow limitation
In patients with post bronchodilator FEV₁/FVC <0.7 assess airflow limitation as per GOLD (2017)

<table>
<thead>
<tr>
<th>GOLD Grade</th>
<th>FEV₁ (% predicted)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOLD 1</td>
<td>≥ 80</td>
</tr>
<tr>
<td>GOLD 2</td>
<td>50-79</td>
</tr>
<tr>
<td>GOLD 3</td>
<td>30-49</td>
</tr>
<tr>
<td>GOLD 4</td>
<td>&lt;30</td>
</tr>
</tbody>
</table>

Assess patient exacerbation history and symptoms (mMRC and CAT scores)

<table>
<thead>
<tr>
<th>Exacerbations per year</th>
<th>CAT</th>
<th>mMRC</th>
<th>MRC (as on EMIS)</th>
<th>Patient Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 1 not leading to hospital admission</td>
<td>&lt;10</td>
<td>0-1</td>
<td>1-2</td>
<td>A</td>
</tr>
<tr>
<td>≥ 10</td>
<td>≥2</td>
<td>≥3</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>≥ 2 or ≥ 1 leading to hospital admission</td>
<td>&lt;10</td>
<td>0-1</td>
<td>1-2</td>
<td>C</td>
</tr>
<tr>
<td>≥10</td>
<td>≥2</td>
<td>≥3</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

This will provide a GOLD patient classification of both Grade and Group

Short acting inhaled therapy
- Start on SABA prn (may continue at all stages) or SAMA MDI (with spacer) prn.
- Review symptoms after 4 - 8 weeks.
- Remember to give patient a “Management Plan” and code patient records
- Ensure non-inhaler considerations are addressed (p4)

If symptoms continue or worsen, there are exacerbations or persistent breathlessness, consider using strategies according to GOLD classification (p5)
Non-inhaler considerations

Give Lifestyle Advice

- Smoking brief intervention at every opportunity
- Refer to Quittsquad www.quittsquard.nhs.uk 0800 328 6297
- Dietary advice - If BMI < 18 or > 30 (For obesity grading I – III refer to dietician)
- Exercise – promote gentle exercise

Advanced Disease

- If meet Gold Standard Framework criteria:
  - Ensure registered on EPACCS
  - Initiate advanced care planning
  - Identify preferred place of care
  - Discuss Community DNA-CPR if appropriate
  - Consider referral to Hospice for Respiratory Day Therapy

Comorbidities

- Look for and treat common co-morbidities:
  - Heart failure
  - Osteoporosis
  - Anxiety/depression

Immunisation

- Influenza, annually
- Pneumococcal, as per green book

Pulmonary Rehabilitation

- Refer patients with exercise limitation due to breathlessness for pulmonary rehabilitation (e.g. Community COPD Team, LCFT)

Theophylline

- Theophylline should only be used after a trial of short-acting bronchodilators and long-acting bronchodilators, or in patients who are unable to use inhaled therapy, as there is a need to monitor plasma levels and interactions.

Chronic productive cough

- Consider a 4-week trial of a mucolytic Carbocisteine 375mg - 2 capsules 3 times/day reducing to 2 capsules twice daily if good response.
- Continue only if symptomatic benefit. Do not use to prevent exacerbations.

Enhanced COPD Care Service

- Address social and occupational therapy issues

Long term Oxygen

- Refer patients with stable COPD and persistent oxygen saturation of <92% for oxygen assessment

Assess treatment

- Ask the patient the following:
  - Has the treatment made a difference?
  - Is breathing easier in any way?
  - Has sleep improved?
  - Can do some things that you could not do before or do the same things faster?
  - Are less breathless than before when doing things?
- Update patient records with coded responses for MRC scale & CAT score

Exacerbations

- Severe breathlessness or Rapid onset of breathlessness
- Cyanosis
- Worsening level of consciousness
- Acute confusion
- Receiving Long term oxygen therapy

- Worsening peripheral oedema
- Poor / deteriorating general condition
- Unable to cope at home/ lives alone
- Significant co-morbidity e.g. CVD, diabetes
- O2 sat < 90%

Breathlessness

- Increase frequency of short acting bronchodilator MDI i.e. Salbutamol or Ipratropium via spacer
- Prednisolone tablets 30mg each morning for 7-14 days

Purulent sputum production

- Follow your local antibiotic guidelines
- Prophylactic antibiotics are NOT recommended

PATIENTS at risk should always have COPD Rescue Pack available in the house for use as per their Clinical Management Plan

Refer to specialist when there is:

- Diagnostic uncertainty
- Uncontrolled severe COPD
- Onset of cor pulmonale
- Nebuliser assessment needed
- Assessment for surgery: bullous lung disease

NICE: www.nice.org.uk
GOLD: www.goldcopd.com
Patient information leaflets: www.patient.co.uk
GP airways group: www.gpiag.org
British Thoracic Society: www.brit-thoracic.org.uk
Green Book, can be found in Publications on www.dh.gov.uk
CAT Scores: http://www.catestonline.co.uk/
Acknowledgement: This summary guidance was originally based on the desktop guide developed by ELHE

Resources
Pharmacologic treatment algorithms by GOLD grading
Thick red boxes and arrows indicate the preferred GOLD treatment pathways

Group C
- LAMA + LABA
- LABA + ICS
- LAMA

Further exacerbation(s)

Group A
- Continue, stop or try alternative class of bronchodilator
- Evaluate effect
- A bronchodilator (short or long acting)

If still symptomatic and severe:
- Refer for pulmonary rehabilitation
- Consider referral to respiratory physician
- Consider referral for O₂ assessment
- Consider nebuliser assessment
- Consider palliative care issues

Group B
- LAMA + LABA
- Persistent symptoms
- Long acting bronchodilator (LABA or LAMA)

Group D
- Consider roflumilast if FEV₁<50% predicted and patient has chronic bronchitis (to be initiated by secondary care) TA461
- Consider macrolide (in former smokers for up to 12 months) to be initiated in secondary care
- LAMA + LABA + ICS
- Further exacerbation(s)
- LAMA + LABA
- LABA + ICS
- Persistent symptoms / further exacerbations
- LAMA

For stable patients review:
- annually for mild to moderate;
- at least 6 monthly for severe and very severe
Reviews should include spirometry.
Ensure recall date is highlighted to patient and coded on system.

The Global Initiative for Chronic Obstructive Lung Disease (GOLD 2017) strategy document recommends inhaled triple pharmacologic therapy (ICS/LAMA/LABA) ONLY for patients with advanced COPD with persistent symptoms and risk of exacerbations.
The current recommendation from the GOLD document for primary choice of a dual therapy, and their preferred route before escalation to triple therapy is a LABA / LAMA combination, citing that a LABA / LAMA combination was superior to a LABA / ICS combination in preventing exacerbations and other patient reported outcomes.
A Cochrane review also recently concluded that for the treatment of COPD, LABA / LAMA has fewer exacerbations, a larger improvement of FEV₁, a lower risk of pneumonia, and more frequent improvement in quality of life as measured by an increase over 4 units or more of the SGRQ when compared to LABA / ICS. Another randomised controlled trial did not demonstrate any benefit of adding an ICS to LABA plus LAMA on exacerbations. Therefore, when reviewing patients currently on a LABA / ICS combination it maybe more clinically appropriate for them to step treatment across to a LABA / LAMA combination before escalation of therapy to a triple combination.
Choose devices the patient can and will use effectively; train the patient to use the device; check the patient’s inhaler technique regularly at each visit; try to use same delivery device for each inhaled drug

**ELLIPTA strategy** (for LAMA, LABA+LAMA and LAMA plus LABA+ICS)

**Inspiratory Flow Rate Required:** Ellipta – MEDIUM/HIGH

**INCRUSE ELLIPTA (LAMA)** (Umeclidinium)

**ANORO ELLIPTA (LABA+LAMA)** (Umeclidinium + Vilanterol)

**INCRUSE ELLIPTA (LAMA)** (Umeclidinium)

**PLUS**

**RELVAR ELLIPTA 92/22 (ICS+LABA)** (Fluticasone + Vilanterol)
Choose devices the patient can and will use effectively; train the patient to use the device; check the patient’s inhaler technique regularly at each visit; try to use same delivery device for each inhaled drug

**RESPIMAT strategy** (for LABA, LAMA, LABA+LAMA) plus **FOSTAIR MDI** for (ICS +LABA)

**Inspiratory Flow Rate Required**: Respimat – LOW, MDI - LOW

<table>
<thead>
<tr>
<th>SPIRIVA Respimat (LAMA) (Tiotropium)</th>
<th>OR</th>
<th>STRIVERDI Respimat (LABA) (Olodaterol)</th>
</tr>
</thead>
</table>

**SPIOLTO** Respimat (LABA+LAMA) (Tiotropium + Olodaterol)

**SPIRIVA** Respimat (LAMA) (Tiotropium) **PLUS** FOSTAIR MDI (ICS+LABA) (Beclometasone + Formoterol)

**OR**

TRIMBOW (LABA/LAMA/ICS) (Formoterol, Glycopyrronium, Beclometasone)
Choose devices the patient can and will use effectively; train the patient to use the device; check the patient’s inhaler technique regularly at each visit; try to use same delivery device for each inhaled drug.

**GENUAIR strategy** (for LAMA and LABA+LAMA), **OXIS Turbohaler** (for LABA), and **SYMBICORT Turbohaler** or **FOSTAIR Nexthaler** (for ICS+LABA).

**Inspiratory Flow Rate Required:** Genuair and Turbohaler MEDIUM / HIGH, Nexthaler – MEDIUM

**EKLIRA Genuair (LAMA)** (Aclidinium) **OR** **OXIS Turbohaler (LABA)** (Formoterol)

**DUAKLIR Genuair (LABA+LAMA)** (Aclidinium + Formoterol)

**EKLIRA Genuair (LAMA)** (Aclidinium) **PLUS** **SYMBICORT Turbohaler (ICS+LABA)** (Budesonide + Formoterol) **OR** **FOSTAIR Nexthaler (ICS+LABA)** (Beclometasone + Formoterol)
Notes
The Medicines Management Team at MLCSU would like to thank all clinicians and commissioners in the Lancashire and South Cumbria Health Economy who provided valuable insight which was essential in the development of this guideline.

This guidance does not override the individual responsibility of health professionals to make decisions in exercising their clinical judgement in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer. For full prescribing information please refer to the BNF and SPC.

Bibliography

2. Chronic obstructive pulmonary disease in over 16s: diagnosis and management Clinical guideline [CG101] Published date: June 2010 https://www.nice.org.uk/guidance/cg101

| Leads for this guidance: Medicines management, Midlands and Lancashire CSU                                                                 |
|---|---|
| Version | 1.6 (Available online at http://www.lancsmmg.nhs.uk/, click on `Guidelines`) |
| Ratified by | Lancashire Medicines Management Group |
| Guidance effective from | November 2017 |
| Date of next review | November 2020 or in light of significant new evidence or guidelines |