



# Chronic Obstructive Pulmonary Disease (COPD) Guideline

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Guideline

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## 1. Diagnosing COPD

COPD is characterised by persistent respiratory symptoms and airflow limitation.

The common respiratory symptoms include breathlessness, cough and/or sputum production.

COPD may be punctuated by periods of worsening of respiratory symptoms called exacerbations.

In most patients, COPD is associated with significant concomitant chronic diseases, which increase its morbidity and mortality.

**Consider any patient over the age of 35 with symptoms of (in varying proportions):**

- breathlessness
- chronic cough
- regular sputum production
- history of exposure to risk factors, especially cigarette smoking
- repeated chest infections.

**Post bronchodilator spirometry must confirm diagnosis.**

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## 2. Risk Factors

**Exposure:**

- Tobacco smoking
- Occupational dusts or chemicals
- Indoor and outdoor air pollution/particulates
- Cannabis smoking
- Respiratory infections in childhood.

**Host:**

- Alpha-1- antitrypsin deficiency
- Lower socio-economic status
- Asthma.

## 3. Diagnostic Tests

**All new diagnoses of COPD require spirometry.**

A post bronchodilator FEV<sub>1</sub>/FVC ratio < 0.7 (Note: spirometers often express this as 70%) indicates the presence of chronic airflow limitation and is a diagnostic criterion for COPD.

Reversibility testing is not necessary for the diagnosis, or to plan treatment.

Consider asthma if the FEV<sub>1</sub> returns to normal or results in an increase of >400mls post-bronchodilator.

Individuals may have both asthma and COPD (The Asthma COPD overlap syndrome has features of both asthma and COPD).

In trying to distinguish between COPD and asthma, a careful history of childhood symptoms such as variable wheeze, or atopy (eczema, rhinorrhea, hayfever etc.) and nocturnal symptoms is essential.

## Assessment

The goals of assessment in COPD are to determine:

- the level of airflow limitation
- the impact of disease on the patient's health status
- the risk of exacerbations and hospital admissions.

No single measure provides an adequate assessment of the severity of the disease in an individual patient. Severity assessment has implications for therapy and relates to prognosis.

The severity of airflow obstruction is defined as follows:

Post-bronchodilat or FEV1	≥80%predicted	50-79%predicted	30-49%predicted	<30%predicted
FEV1/VC	Ratio <0.7 (70%)	Ratio <0.7 (70%)	Ratio <0.7 (70%)	Ratio <0.7 (70%)
	<b>MILD</b>	<b>MODERATE</b>	<b>SEVERE</b>	<b>VERY SEVERE</b>

Patients with a post FEV1/VC ratio < 0.7 may have mild COPD but in the elderly, this can lead to an over-diagnosis of COPD.

The FEV1 poorly reflects the degree of disability in COPD.

A more comprehensive assessment of severity includes assessing the degree of airflow obstruction and the known prognostic factors as follows:

- Symptoms (modified MRC scale or CAT)
- Risk of exacerbations
- Co-morbidities
- BMI
- Oxygen saturation (SaO<sub>2</sub>)
- Cor pulmonale.

PLEASE TICK IN THE BOX THAT APPLIES TO YOU (ONE BOX ONLY) (Grades 0-4)	
mMRC Grade 0. I only get breathless with strenuous exercise.	<input type="checkbox"/>
mMRC Grade 1. I get short of breath when hurrying on the level or walking up a slight hill.	<input type="checkbox"/>
mMRC Grade 2. I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level.	<input type="checkbox"/>
mMRC Grade 3. I stop for breath after walking about 100 meters or after a few minutes on the level.	<input type="checkbox"/>
mMRC Grade 4. I am too breathless to leave the house or I am breathless when dressing or undressing.	<input type="checkbox"/>

† Fletcher CM. BMJ 1960; 2: 1662.

Modified MRC (mMRC) dyspnoea score is a simple tool to assess degree of breathlessness in COPD.

Example: I am very happy 0 ~~1~~ 2 3 4 5 I am very sad

		SCORE					
I never cough	0 1 2 3 4 5	I cough all the time					
I have no phlegm (mucus) in my chest at all	0 1 2 3 4 5	My chest is completely full of phlegm (mucus)					
My chest does not feel tight at all	0 1 2 3 4 5	My chest feels very tight					
When I walk up a hill or one flight of stairs I am not breathless	0 1 2 3 4 5	When I walk up a hill or one flight of stairs I am very breathless					
I am not limited doing any activities at home	0 1 2 3 4 5	I am very limited doing activities at home					
I am confident leaving my home despite my lung condition	0 1 2 3 4 5	I am not at all confident leaving my home because of my lung condition					
I sleep soundly	0 1 2 3 4 5	I don't sleep soundly because of my lung condition					
I have lots of energy	0 1 2 3 4 5	I have no energy at all					
			<b>TOTAL SCORE</b>				

COPD Assessment Test and the CAT logo are trademarks of the GlaxoSmithKline group of companies. © 2009 GlaxoSmithKline. All rights reserved.

The COPD assessment test (CAT) also provides a comprehensive assessment of symptoms.

#### 4. Assess Risk of Exacerbations

COPD exacerbations are defined as an acute worsening of respiratory symptoms that result in additional therapy. Classified as:

- Mild (treated with short acting bronchodilators [SABDs] only)
- Moderate (treated with SABDs plus antibiotics and/or oral corticosteroids)
- Severe (patient requires hospitalization or visits the emergency room)
- Severe exacerbations may also be associated with acute respiratory failure.

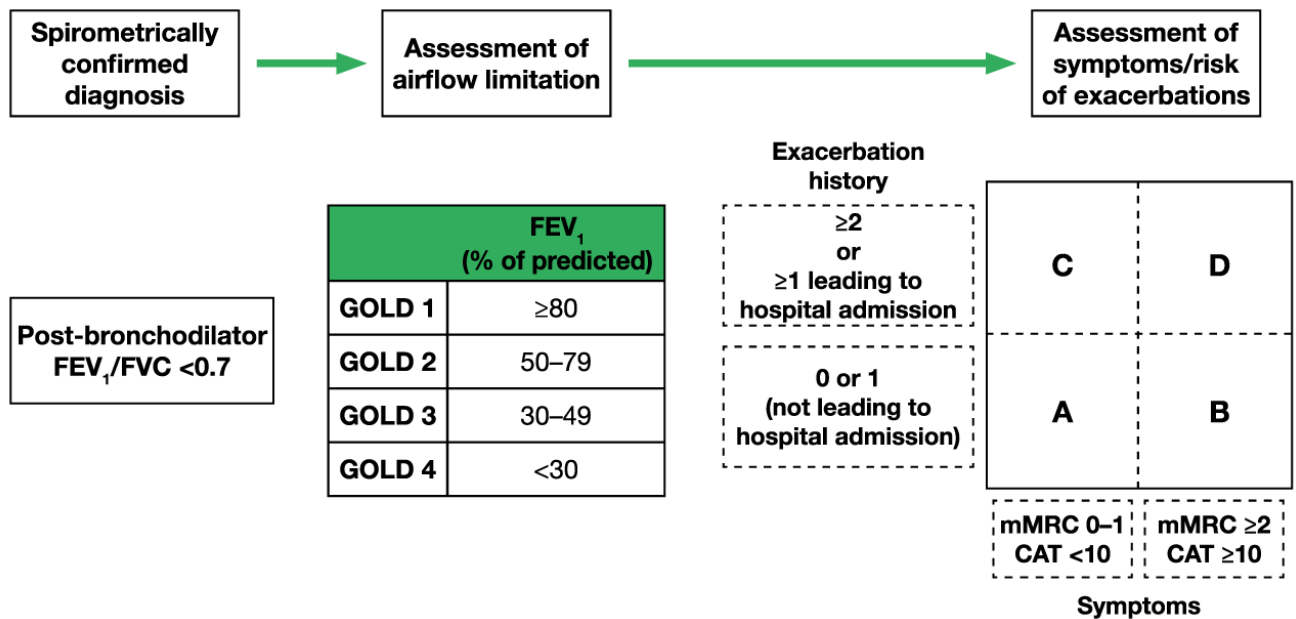
#### 5. Assess Co-morbidities

COPD is associated with all of the conditions listed below. They have many risk factors in common. Consider and treat these conditions. Untreated co-morbidities lead to poor clinical outcomes:

- cardiovascular disease
- depression/anxiety
- osteoporosis
- carcinoma of the lung

- weight loss and skeletal muscle dysfunction including muscle wasting
- diabetes

## 6. ABCD Assessment Tool



FEV<sub>1</sub>=forced expiratory volume in the first second; FVC=forced vital capacity; mMRC=modified Medical Research Council; CAT=COPD assessment test.

### Examples

Consider two patients:

- Both patients with FEV<sub>1</sub> < 30% of predicted
- Both with CAT scores of 18
- But, one with 0 exacerbations in the past year and the other with 3 exacerbations in the past year.
- Both would have been labelled GOLD D in the prior classification scheme.

With the new proposed scheme, the subject with 3 exacerbations in the past year would be labelled GOLD grade 4, group D.

- The other patient, who has had no exacerbations, would be classified as GOLD grade 4, group B.

## 7. Chest X-ray

A chest x-ray is not essential to establish the diagnosis of COPD however is often helpful when considering alternative diagnoses.

A chest x-ray is part of the post- diagnosis assessment, especially with patients who smoke.

Clinicians should have a low threshold for requesting a chest x-ray in any patient who smokes and has respiratory symptoms.

A chest x-ray **must** be done if:

- patient is not responding to treatment
- there is a possibility of a new or alternative diagnosis

- the patient's condition is worsening.

## 8. Other Investigations

Investigation	Reason
Serial domiciliary peak flow measurements	<ul style="list-style-type: none"> <li>• to exclude asthma if diagnostic doubt remains</li> </ul>
Alpha-1 antitrypsin	<ul style="list-style-type: none"> <li>• if early onset (&lt; 45 years), minimal smoking history or family history</li> </ul>
Transfer factor for carbon monoxide (TLCO)	<ul style="list-style-type: none"> <li>• to investigate symptoms disproportionate to spirometric impairment</li> </ul>
CT scan of the thorax	<ul style="list-style-type: none"> <li>• to investigate symptoms disproportionate to spirometric impairment</li> <li>• to investigate abnormalities on CXR,</li> <li>• rule out associated bronchiectasis</li> <li>• to assess suitability for surgery/ endobronchial valves</li> </ul>
ECG	<ul style="list-style-type: none"> <li>• to assess cardiac status if features of cor pulmonale</li> </ul>
Echocardiogram	<ul style="list-style-type: none"> <li>• to assess cardiac status if features of cor pulmonale</li> </ul>
Pulse oximetry	<ul style="list-style-type: none"> <li>• to assess need for oxygen therapy</li> <li>• if cyanosis or cor pulmonale present or if FEV<sub>1</sub> &lt; 50% predicted</li> </ul>
Sputum culture	<ul style="list-style-type: none"> <li>• to identify organisms if sputum is persistently present and purulent or during an exacerbation</li> </ul>

## 9. Treatment of COPD

### 9.1 Treatment aims to:

- Reduce risk factors
- Relieve symptoms
- Improve exercise tolerance
- Improve health status
- Prevent and treat complications
- Prevent and treat exacerbations
- Reduce the effects of co-morbidities
- Reduce mortality
- Maximize the patients and carers understanding of the disease.

### Reduce risk factors by:

- Stop smoking (this reduces the rate of progression of the disease)
- Flu vaccination
- Pneumococcal vaccination
- Pulmonary rehabilitation.

### Measure treatment effectiveness by:

- Improvement in symptoms
- Increase in activities of daily living
- Improvement in exercise tolerance.

### Questions to assess response to therapy:

- Has your treatment made any difference to you?
- Is your breathing any easier?
- Can you do things now that you could not do before?
- Can you do things now faster than before?
- Can you do the same things now but with less breathlessness?

## 9.2 Inhaler therapy for stable disease (also see appendix for colored flow chart):

The assessment of COPD takes into account many factors that define the severity of COPD. This in turn helps with decisions on the most appropriate therapy options.

There have been many recent changes in the drugs and delivery systems for inhalers, used in COPD. The Lothian Joint Formulary (LJF) revised its advice for drugs to use for COPD in 2018.

The following drugs are recommended by the LJF for use in COPD (see Appendix 1 for help with this):

SABA	<b>Salbutamol or Terbutaline prn</b>	
SAMA	<b>Ipratropium Bromide</b>	(1-2 puffs four times daily)
LAMA	<b>Umeclidinium Bromide</b>	(1 puff once daily)
	<b>Tiotropium Respimat</b>	(2 puffs once daily)
	<b>Glycopyrronium</b> (Seebri Breezhaler)	(1 capsule once daily)
LABA/LAMA	<b>Anoro Ellipta</b> (umeclidinium with vilanterol)	(1 puff once daily)
	<b>Spiolto Respimat</b> (Tiotropium with olodaterol)	(2 puffs once daily)
	<b>Ultibro Breezhaler</b> (Glycopyrronium with indacaterol)	(1 capsule once a day)
ICS/LABA	<b>Fostair</b> (100/6) (beclomethasone and formoterol)	(2 puffs twice daily)
	<b>Relvar</b> (92/22) (Fluticasone and vilanterol)	(1 puff once daily)

\*SABA = Short-Acting Beta Agonist/SAMA = Short-Acting Muscarinic Antagonist/LABA = Long-Acting Beta Agonist/LAMA = Long-Acting Muscarinic Antagonist/ICS = Inhaled Corticosteroid.

**ICS/LABA/LAMA triple therapy device is in the formulary now too: Trimbow MDI and Trelegy Ellipta, follow GOLD guidelines to choose appropriate patients for this (see Appendix 1).**

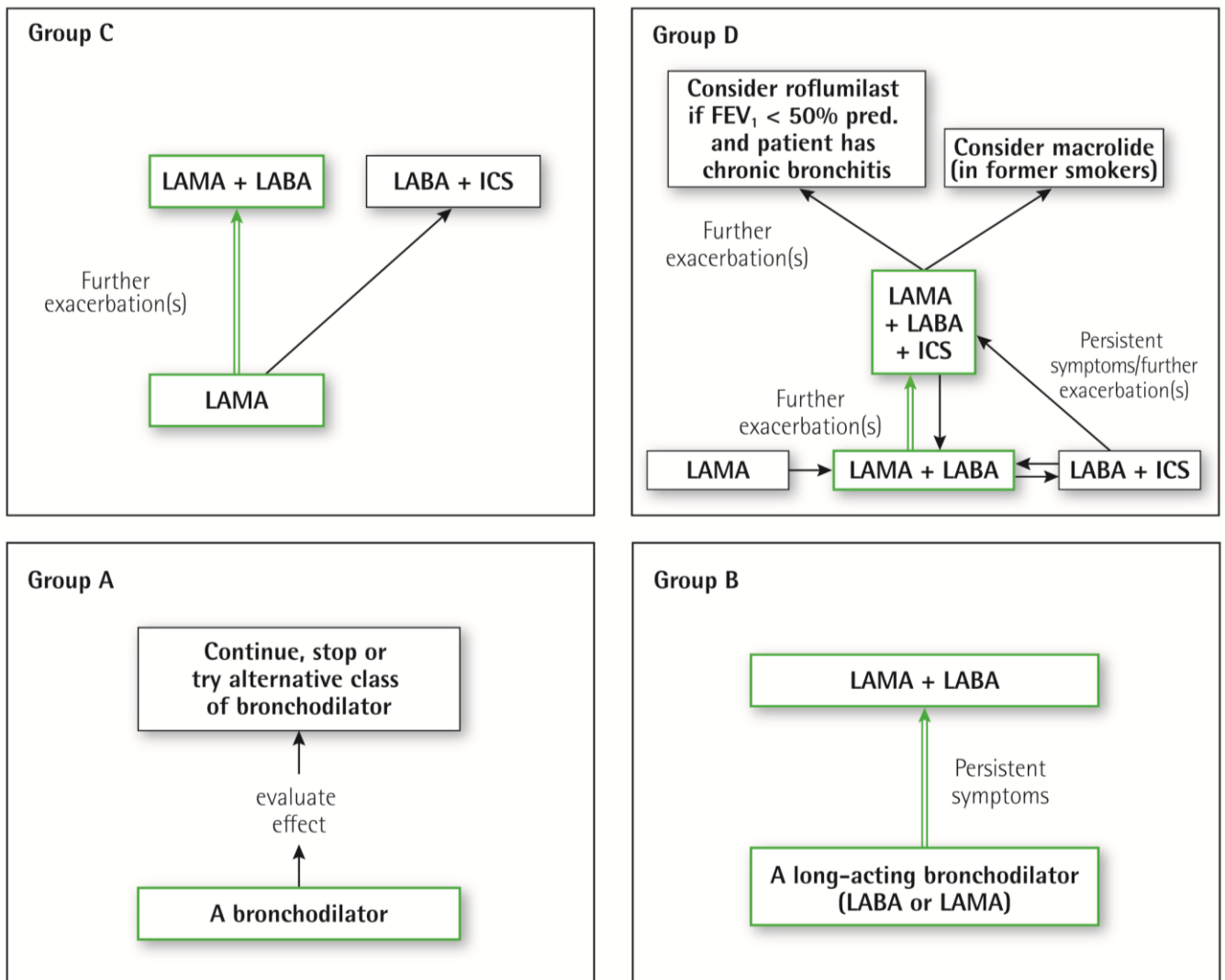
It is important to note that in Scotland the Scottish Medicines Consortium (SMC) has not accepted the use of any LABA + ICS combination inhaler where the FEV<sub>1</sub>>50%. Individual clinicians should take account of SMC's advice when exercising their clinical judgment.

Low dose theophylline may exert a small bronchodilator effect in stable COPD and that is associated with modest symptomatic benefits, no role of increasing the dosage to attain therapeutic levels. Long-term azithromycin therapy reduces exacerbations over one year in patients with severe COPD (consult a specialist prior to starting this).

Long-term use of oral glucocorticoids has numerous side effects without any evidence of benefit in COPD.



### 9.3 Pharmacologic treatment by GOLD grade: Highlighted boxes and arrows indicate preferred treatment



Preferred treatment = →

### 9.4 Frequently Asked Questions

#### Can the FEV<sub>1</sub> be used to assess the response to treatment?

*While the FEV<sub>1</sub> measurement is critical to establishing COPD diagnosis, it is seldom useful when assessing the response to therapy*

*Judge clinical response by improvement of symptoms, exercise tolerance, activities of daily living*

*The mMRC scale of breathlessness score may show improvements in breathlessness. However, meaningful improvements in symptoms can occur without any change in this score and thus it is not used to assess the response to treatment.*

**What is the place of theophylline?**

*This may be given for a trial period after treatment with long-acting bronchodilator/ICS combination inhaler therapy has failed or symptoms persist.*

*Monitor response and continue treatment only if the symptoms improve. Monitor plasma levels and be aware that many drugs can modify theophylline metabolism, including smoking.*

**Should oral corticosteroids be used for maintenance treatment?**

*In COPD, it is not recommended that they be used for maintenance.*

**Should inhaled corticosteroids be used alone in patients with COPD?**

*They do not have a license for COPD and should not be prescribed alone.*

**What benefit can combination inhalers (Inhaled corticosteroids / long acting beta agonists) provide patients with COPD?**

*Combination inhalers can:*

- *reduce breathlessness*
- *improve lung function*
- *reduce exacerbations*
- *improve the quality of life.*
- *they should be used for patients with severe airways obstruction (FEV1 < 50% of predicted, see treatment chart) and repeated exacerbations*
- *the patient should be checked after a few months and the clinical benefit of the inhaler should be reviewed. The inhaler should be stopped if no clinical benefit is achieved.*
- *(see treatment chart on [page 9](#))*

*However, inhaled corticosteroids may increase the incidence of pneumonia especially in the elderly.*

*The cost efficiency of combined inhalers should be considered.*

*Types of inhaler differ in price and new preparations now have varied dosage regimes.*

**Should mucolytics be used?**

*The Lothian Joint Formulary Committee has not approved their use and the evidence is poor.*

*If prescribed they should be reassessed after one month for any benefits.*

## 10. Delivery Systems

**The correct delivery system is as important as the drug used**

**INHALERS**

Be sure to:

- teach the technique and re-check (focus on inspiratory flow and hand to breath coordination)
- be familiar with different types of inhalers
- inhalers if a patient is having trouble coping with a certain type
- encourage the use of spacer devices when needed.

## NEBULISERS

- Nebuliser assessments trials should be done by secondary care respiratory physicians (this gives an added benefit to the patient of having the nebuliser maintained)
- Nebulisers are only considered in patients with severe airways obstruction (FEV1 < 50 predicted) if the patient has excessive or distressing shortness of breath despite maximum therapy
- Nebulised therapy should not continue to be prescribed without confirming improvement in one or more of the following:
  - a reduction in symptoms and/or
  - an increase in activities of daily living or exercise capacity.

## 11. Oxygen Therapy

### Short-burst oxygen therapy (SBOT)

There is no good evidence to support the use of short burst oxygen therapy.

### Long-term oxygen therapy (LTOT)

- LTOT can prolong life. It is indicated in patients with hypoxaemia ( $\text{PaO}_2 < 7.3 \text{ kPa}$ ) when in a stable condition;
- or  $\text{PaO}_2$  between 7.3 kPa and 8.0 kPa if there is evidence of pulmonary hypertension, peripheral edema suggesting cor pulmonale, or polycythemia (hematocrit > 55%).

Secondary care assessment is required for the provision of long-term oxygen therapy.

Consider long-term oxygen therapy in patients with:

- severe airflow obstruction
- cyanosis
- polycythemia
- raised JVP or peripheral oedema
- pulmonary hypertension
- $\text{O}_2$  saturation of < 92% while breathing air.

Patients who continue to smoke will rarely be considered for long-term oxygen therapy.

### Consider ambulatory oxygen therapy in mobile patients on long-term oxygen therapy.

#### Oxygen therapy;

- Can only be prescribed by the Respiratory consultants or the respiratory Nurse specialists in each acute hospital
- Can only be prescribed after careful assessment applying the above criteria.
- All community oxygen in Scotland is supplied by Dolby Vivisol.

## 12. Pulmonary Rehabilitation

Evidence shows that pulmonary rehabilitation benefits all patients with COPD, particularly those with severe to very severe COPD or an MRC breathlessness score of three or more.

Patients with moderate COPD are usually still active and have fewer symptoms.

All patients with repeated exacerbations or who are admitted to hospital with an exacerbation should be fast tracked for pulmonary rehabilitation.

Pulmonary rehabilitation:

- Improves exercise tolerance
- Improves the quality of life
- Reduces symptoms
- Reduces the number of exacerbations
- Reduces hospital admissions
- Is available in all CHPs (in Edinburgh CHP, home-based rehabilitation is available).

For contact information see section 18 ([page 14](#))

### 13. Exacerbations

#### Symptoms:

- Increase in shortness of breath
- Increase in cough
- Increase in sputum volume and purulence
- Decreased exercise tolerance
- Drowsiness.

Consider prescribing a long-acting  $\beta$ 2 agonist/steroid combination inhaler if the FEV1 is < 50%.

Consider and select patients who may benefit from having antibiotics and steroids at home.

Patients should be encouraged to start treatment early in an exacerbation. Use the Lothian self-management plan ([see Appendix 2](#))

If the patient is drowsy they should always be admitted unless palliative care is considered.

Patients in the community should have oximetry available to help assess exacerbation severity.

[See: Protocol for management of COPD exacerbation in primary care, section 20.](#)

#### Criteria for discharge:

- Patient and carer understand use of inhalers
- Home care arrangements in place, for example oxygen, supported home care and specialist nurse follow-up
- Family, patient, nurses, AHP, community health partnership (CHP) staff and medical staff confident that the patient will cope
- Follow up at respiratory clinic or by specialist nurse within 4 to 6 weeks in community respiratory team services (see CHP variations)
- COPD self-management plan.

### 14. Referral for Consultant Opinion

#### Consider referral if:

- diagnosis is unclear
- patient has very severe COPD (FEV1 < 30% of predicted)
- cor pulmonale (fluid retention or peripheral oedema)
- increasing shortness of breath

- haemoptysis
- rapidly decreasing FEV1
- for assessment for O2 therapy if oxygen saturation (92% or less) while breathing air
- for consideration for interventional bronchoscopic or surgical treatment (endobronchial valves, bullectomy, lung volume reduction surgery, lung transplantation)
- patient is less than 40 years old
- symptoms are disproportionate to pulmonary function
- patient has frequent infections/exacerbations
- for assessment for nebuliser.

Please note there are now community respiratory teams focusing on COPD management, based in Edinburgh City (7 day service) and Midlothian (Monday-Friday) as well. These teams focus mainly on exacerbation management and hospital admission prevention along with facilitated discharges from secondary care.

## 15. Palliative Care

Many patients will reach a stage in their illness where palliative care should be considered and will be of benefit. Making an exact prognosis is difficult in COPD.

The 'surprise' question may help - "would you be surprised if this patient died in the next year?"

If the answer is "no" the patient may be in the palliative phase of their illness. Some patients may express this by saying "hospital admissions make me feel worse rather than better."

In the palliative care stage the focus should change. Discuss interventions with the patient to maximise their understanding and decision-making.

### Things to consider:

- Share understanding with colleagues (palliative care register)
- Concentrate on symptom reduction
- Maximise the patient's understanding of their illness
- Consider an anticipatory care plan for palliative care (symptoms, place of care, DNAR, essential treatments)
- Notify out of hours for DNAR status and special notes
- Maximise support for family
- Opioids, benzodiazepines, and tricyclic antidepressants should be used when appropriate for breathlessness in patients with end-stage COPD unresponsive to other medical therapy ([see Palliative Care guidelines](#)).

## 16. Travelling with COPD

### Patients travelling with long-term oxygen therapy need advanced planning (one month before departure):

- All community oxygen in Scotland is supplied by Dolby Vivisol
- All patients in Scotland can have oxygen delivered to their holiday destination with advanced planning
- All patients travelling within the UK can have oxygen supplied with advanced planning
- All requests should be made by the patient to Dolby Vivisol, by telephoning the

number attached to all oxygen equipment

- The NHS does **not** supply oxygen when travelling outside the UK
- Air travel involves exposure to a relatively hypoxic environment during a flight. **The great majority of patients can and do fly without difficulty.**

**Guidelines indicate:**

- Patients with moderate or severe COPD and resting saturation over 95% are safe to fly without oxygen
- All patients on long-term oxygen therapy plus oxygen saturation below 92% on air should arrange in advance for in-flight oxygen
- Patients with significant COPD and oxygen saturation between 92% and 95% may benefit from a referral for a fitness-to-fly test. During a flight the degree of de-saturation in this group is unpredictable (refer to respiratory outpatient department).

## 17. Help Agencies for Patients and Carers

Organisation	Website/Email	Telephone Number
Breatheasy Groups	<a href="http://www.lunguk.org/supporting-you/breathe-easy">www.lunguk.org/supporting-you/breathe-easy</a>	
VOCAL (Edinburgh & Midlothian)	<a href="http://www.vocal.org.uk">www.vocal.org.uk</a>	0131 622 6666
Carers of West Lothian	<a href="http://www.carers-westlothian.com">www.carers-westlothian.com</a>	01506 448000
Carers of East Lothian	<a href="http://www.coel.org.uk">www.coel.org.uk</a>	0131 665 0135
Carers Scotland	<a href="http://www.carerscotland.org">www.carerscotland.org</a>	0808 808 7777

## 18. Patient Information – websites, helplines and leaflets

Organisation	Website	Telephone Number
<b>Chest, Heart &amp; Stroke Scotland</b>	<a href="http://www.chss.org.uk">www.chss.org.uk</a>	0808 801 0899
COPD Specific information & booklets	<a href="http://www.chss.org.uk/chest-information-and-support/common-chest-conditions/copd/">www.chss.org.uk/chest-information-and-support/common-chest-conditions/copd/</a>	
<b>British Lung Foundation</b>	<a href="http://www.lunguk.org">www.lunguk.org</a>	03000 030 555
COPD Specific information	<a href="http://www.lunguk.org/you-and-your-lungs/conditions-and-diseases/copd.htm">www.lunguk.org/you-and-your-lungs/conditions-and-diseases/copd.htm</a>	
<b>Quit Your Way Scotland – Smoking Helpline</b>	<a href="http://www.nhsinform.scot/campaigns/quit-your-way-scotland">www.nhsinform.scot/campaigns/quit-your-way-scotland</a>	0800 84 84 84

## 19. Contacts

<b>Respiratory Nurse Specialist Service</b>	
Royal Infirmary of Edinburgh	0131 242 1878
St John's Hospital	01506 523865
Western General Hospital	0131 537 1799
<b>Pulmonary Rehabilitation</b>	
Edinburgh Community Respiratory Team (Astley Ainsley Hospital)	07826 894 067
Midlothian Community Respiratory Team (Bonnyrigg Health Centre)	0131 270 8890
Edinburgh (Leith CTC receiving location for all Edinburgh Referrals)	0131 536 6372 and 07969 334 704
West Lothian (St John's Hospital Physiotherapy Department receiving location for all West Lothian referrals)	0787 242 2546
East and Midlothian: Midlothian Community Hospital and Musselburgh Patient Roodlands Patients (All referrals should go to Midlothian Community Hospital)	07500 765 919
<b>Edinburgh Improved Anticipatory Care and Treatment Team (IMPACT)</b>	
All Edinburgh Localities	07917215009
Edinburgh South Office Number	0131 469 2906
Edinburgh North Office Number	0131 200 4155
<b>Lothian Respiratory Managed Clinical Network (MCN)</b>	
<a href="http://intranet.lothian.scot.nhs.uk/Directory/respiratory/Pages/Respiratory%20MCN.aspx">http://intranet.lothian.scot.nhs.uk/Directory/respiratory/Pages/Respiratory%20MCN.aspx</a>	

## 20. Protocol for Management of COPD Exacerbation in Primary Care

Chronic obstructive pulmonary disease (COPD) can be punctuated by exacerbations (a change in the patient's baseline breathlessness, cough, and/or sputum volume or purulence that is beyond normal day-to-day variations, is acute in onset, and may warrant a change in regular medication in a patient with underlying COPD).

They are classified as:

- Mild (treated with short acting bronchodilators only, SABDs)
- Moderate (treated with SABDs plus antibiotics and/or oral corticosteroids) or
- Severe (patient requires hospitalization or visits the emergency room). Severe exacerbations may also be associated with acute respiratory failure.

Bronchodilators and corticosteroids are the mainstay of treatment of exacerbations. Antibiotics should be used for patients with an increase in breathlessness, volume of sputum and sputum purulence, or an increase in two of these symptoms if increased sputum purulence.

Many patients with an exacerbation of COPD can be managed successfully at home.

All acute exacerbations can also be assessed and cared for by:

Edinburgh Community Respiratory Team (CRT)	07826 894 067 8am – 6pm (Monday to Friday) 8.30am – 4.30pm (Saturday & Sunday)
Midlothian Community Respiratory Team (CRT)	0131 270 8890 and 07779 967 349 8.30am – 4.30pm (Monday to Friday)
West Lothian REACT (for patients over 75 years)	01506 524149 8.30am – 6pm (Monday to Friday)

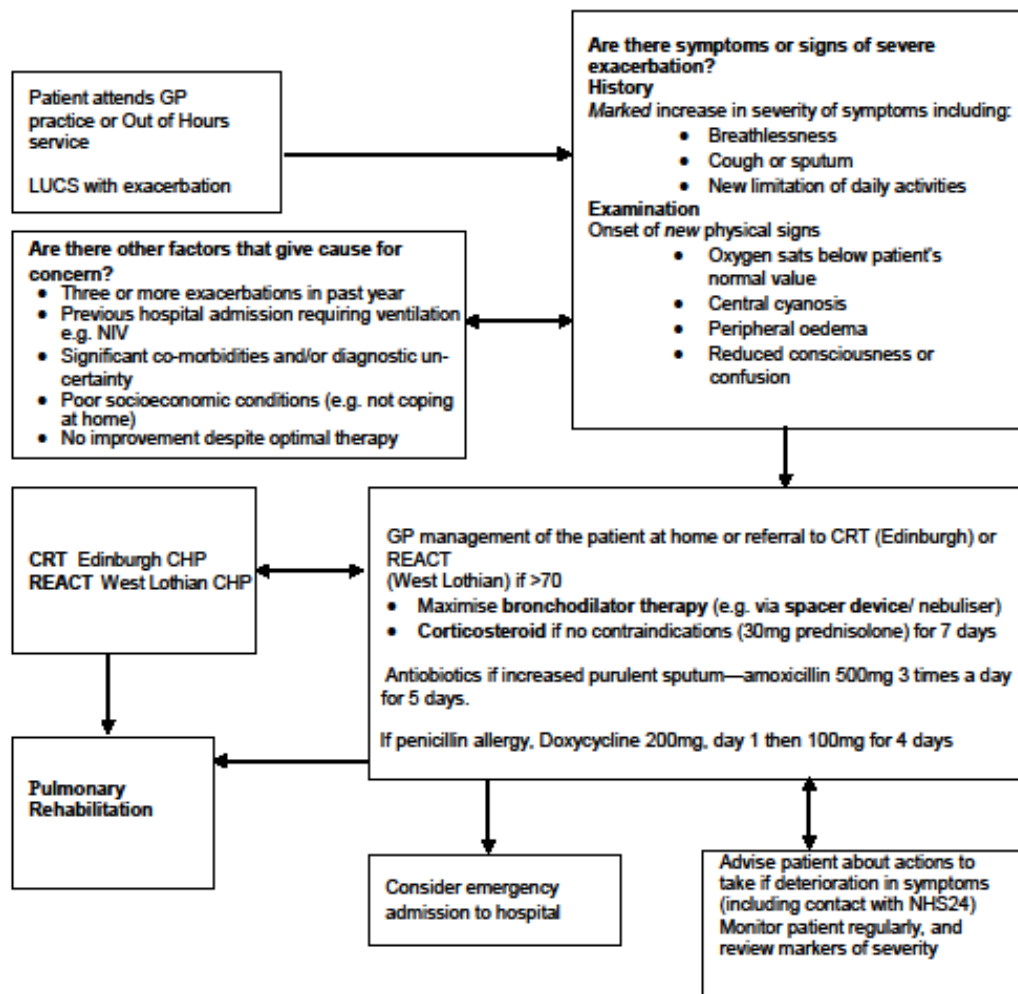
These community based teams will help and advise or take over the care of patients. The CRT may enable treatment of exacerbations in the community thus preventing the need for hospital admission. The CRT has admitting rights.

LUCS and the CRT have direct telephone contact for advice from a respiratory consultant. Patients should be considered for direct admission to hospital if there is evidence of a severe exacerbation of COPD (oxygen saturations significantly below the patient's normal measurement, or confusion) and for those who do not respond to initial treatment.

Decisions about management of a patient with an exacerbation of COPD will vary depending on the patient's individual circumstances including the severity of their underlying disease, the presence of other medical conditions, and their social situation. The community teams can manage complex cases and so help support patient care at home.



## Protocol for COPD Exacerbations in Primary Care



## 21. References

All information sourced from both GOLD guidelines and NICE guidelines in addition to Lothian material.

GOLD (2017) *Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease*

Global Initiative for Chronic Obstructive Lung Disease [www.goldcopd.com](http://www.goldcopd.com)

NICE (2004) *Management of chronic obstructive pulmonary disease in adults in primary care*

National Institute for Clinical Excellence [www.nice.org.uk/guidance/CG12/101](http://www.nice.org.uk/guidance/CG12/101)

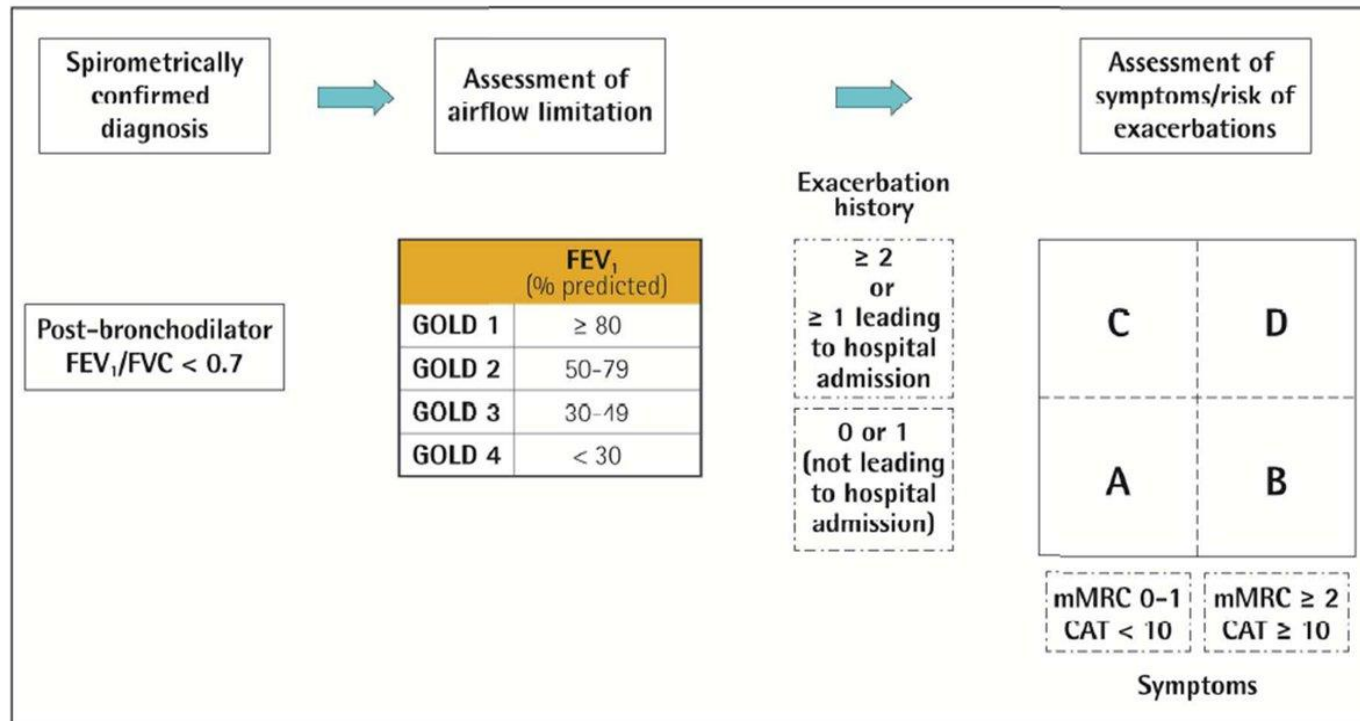
Lothian Joint Formulary [www.ljf.scot.nhs.uk](http://www.ljf.scot.nhs.uk)

[Lothian palliative care in advanced lung disease guideline](#)

[BTS Guideline for Domiciliary Oxygen](#)

Prescribing: Move up or down according to assessment of risk and symptoms. **Prescribe by brand name** (except for Salbutamol MDI 100mcg) including device, name and strength.

GOLD Classification		Inhaler Class	Lothian Formulary 1 <sup>st</sup> Choices		Lothian Formulary 2 <sup>nd</sup> Choice (all dry powder inhalers)
			MDI or Soft-Mist Option	Dry Powder Option	
<b>Low Risk:</b> ≤ 1 exacerbations per year (not leading to hospital admission)	<b>A</b> Low risk Less symptoms	<b>SABA</b> (Short Acting Beta 2 Agonist)	 <b>Salbutamol CFC Free (MDI) 100mcg</b> Dose: 1 - 2 puffs when required up to 4 times daily	OR  <b>Salbutamol Easyhaler® 100mcg</b> Dose: 1 - 2 puffs when required up to 4 times daily	 <b>Bricanyl Turbohaler® (Terbutaline) 500mcg</b> Dose: 1 inhalation when required
	<b>B</b> Low risk More symptoms	<b>LAMA</b> (Long Acting Muscarinic Antagonist)	 <b>Spiriva Respimat® (Tiotropium) 2.5mcg</b> Dose: 2 puffs once a day	OR  <b>Incruse Ellipta® (Umeclidinium) 55mcg*</b> Dose: 1 inhalation once a day	 <b>Seebri Breezhaler® (Glycopyrronium) 44mcg*</b> Dose: 1 inhalation once a day
<b>C</b> High risk Less symptoms					
<b>High Risk:</b> ≥ 2 exacerbations or ≥1 leading to hospital admission per year	<b>B</b> Low risk More symptoms	<b>LABA + LAMA</b> (Long Acting Beta 2 Agonist + Long Acting Muscarinic Antagonist)	 <b>Spiolto Respimat® 2.5/2.5mcg (Tiotropium / Olodaterol)</b> Dose: 2 puffs once a day	OR  <b>Anoro Ellipta® 55*/22mcg (Umeclidinium / Vilanterol)</b> Dose: 1 inhalation once a day	 <b>Ultibro Breezhaler® 43*/85mcg (Glycopyrronium / Indacaterol)</b> Dose: 1 inhalation once a day
	<b>C</b> High risk Less symptoms				
<b>Less Symptoms:</b> mMRC 0 or 1 CAT < 10	<b>C</b> High risk Less symptoms	<b>LABA + ICS</b> (Long Acting Beta 2 Agonist + Inhaled Corticosteroid)	 <b>Fostair® Inhaler 100/6mcg (Beclometasone / Formoterol)</b> Dose: 2 puffs twice daily	OR  <b>Relvar Ellipta® 92/22mcg (Fluticasone Furoate / Vilanterol)</b> Dose: 1 inhalation once daily	 <b>Fostair Nexthaler® 100/6mcg (Beclometasone / Formoterol)</b> Dose: 2 inhalations twice daily
<b>More Symptoms:</b> mMRC ≥ 2 CAT ≥ 10	<b>D</b> High risk More symptoms	<b>LABA + LAMA + ICS</b> (Long Acting Beta 2 Agonist + Long Acting Muscarinic Antagonist + Inhaled Corticosteroid)	 <b>Trimbow® 87/5/9*mcg (Beclometasone / Formoterol / Glycopyrronium)</b> Dose: 2 puffs twice a day	OR  <b>Trelegy Ellipta® 92/55*/22mcg (Fluticasone / Umeclidinium / Vilanterol)</b> Dose: 1 inhalation once a day	<p><b>NOTE:</b> Fostair® 200/6 and Relvar®184/22 are <b>NOT</b> licensed for use in COPD</p> <p>Please ensure any inhaler containing an <b>Antimuscarinic</b> (LAMA, LABA+LAMA, LAMA+LABA+ICS) is <b>withheld/discontinued</b> if a patient is receiving <b>Ipratropium Nebules</b>.</p>



MRC Breathlessness Scale:

Table 2.5. Modified MRC dyspnea scale <sup>a</sup>	
PLEASE TICK IN THE BOX THAT APPLIES TO YOU (ONE BOX ONLY) (Grades 0-4)	
mMRC Grade 0. I only get breathless with strenuous exercise.	<input type="checkbox"/>
mMRC Grade 1. I get short of breath when hurrying on the level or walking up a slight hill.	<input type="checkbox"/>
mMRC Grade 2. I walk slower than people of the same age on the level because of breathlessness, or I have to stop for breath when walking on my own pace on the level.	<input type="checkbox"/>
mMRC Grade 3. I stop for breath after walking about 100 meters or after a few minutes on the level.	<input type="checkbox"/>
mMRC Grade 4. I am too breathless to leave the house or I am breathless when dressing or undressing.	<input type="checkbox"/>

<sup>a</sup> Fletcher CM. BMJ 1960; 2: 1662.

# Self-Management Plan for COPD

This is **your** personal management plan. Bring it with you every time you see a nurse or doctor about your COPD

The aim of this plan is to help you have better control of your chronic obstructive pulmonary disease (COPD). It will enable you to monitor your symptoms and to know what to do if you have an exacerbation. An exacerbation is a rapid and sustained worsening of your symptoms that may warrant a change to your regular treatment.

This plan includes sections for recording medication, monitoring symptoms and treating exacerbations.

Name: \_\_\_\_\_

Date of birth: \_\_\_\_\_ CHI: \_\_\_\_\_

Diagnosis/diagnoses: \_\_\_\_\_

GP practice contact number (Mon to Fri, 8am to 6pm)  
\_\_\_\_\_

Outside these hours, phone NHS 24 on **111**

Community/nurse  
Respiratory service \_\_\_\_\_

Date for review ____/____/____
-----------------------------------



## Usual COPD symptoms when WELL

### Breathlessness score

Please record the mMRC breathlessness score (see below) that describes your symptoms when you are well.

Date: \_\_\_\_\_ Score: \_\_\_\_\_

### Modified Medical Research Council (mMRC) breathlessness scale

Grade	Degree of breathlessness related to activities
0	Not troubled by breathlessness except on strenuous exercise
1	Short of breath when hurrying or walking up a slight hill
2	Walks slower than contemporaries on level ground because of breathlessness or has to stop for breath when walking at own pace
3	Stops for breath after walking about 100m or after a few minutes on level ground
4	Too breathless to leave the house, or breathless when dressing or undressing

### Sputum production

The normal colour of your sputum is \_\_\_\_\_

How much sputum do you produce each day? \_\_\_\_\_

### Cough

Do you normally have a cough? \_\_\_\_\_

### Swollen ankles

Do you normally have ankle swelling? \_\_\_\_\_

### Usual respiratory medications

Inhaler/tablet name	Preparation	Dose and frequency
1		
2		
3		
4		
5		
6		

### Oxygen saturation level

Normal oxygen saturation is 92% or above (note in some COPD patients your baseline oxygen saturation could be 88-92%. Please check with your clinician).

Your usual level is \_\_\_\_\_%

### How do I keep well...

- Take daily exercise
- Eat a good balanced diet
- Drink plenty of liquids
- Do not smoke, and avoid smoky environments
- Plan ahead and have things to look forward to
- Always have enough medications. Never run out
- Take all medication regularly as prescribed whether you think they help at the time or not
- Make sure you get your annual "flu" vaccination.

**If you have an oxygen monitor at home, know your baseline level from your clinician and check you oxygen level only after 10-15 minutes of resting after any exertion.**



## Your COPD may be **GETTING WORSE** if you have any of the following symptoms...

- More breathless than usual
- An increase in the amount or change in colour of your sputum
- A new or increased cough
- New or increased ankle swelling
- More frequent use of reliever medication
- Less able to do your normal activities or they are taking longer because of shortness of breath.

### What action to take if your COPD symptoms are getting worse:

- Increase reliever medication
- Balance activity with plenty of rest
- Eat little and often
- Drink plenty of fluids.

### Continue to monitor your symptoms closely.

- If your symptoms improve within two days, continue your usual medication
- If they are no better or getting worse, continue with the increased dose of reliever medication (see page 4).



## What to do if you have an **EXACERBATION?**

You are having an exacerbation if you have **two** of the following three signs:

- 1) Are much more breathless than usual
- 2) Have an increase in the amount of sputum
- 3) Have a change in colour of sputum

**Standby exacerbation medication** (see also page 5)

### **Steroids (prednisolone)**

If you have two or more signs then start taking **prednisolone**.

**Dose of prednisolone - 40mg once a day for 5 days**

### **Antibiotics**

If one of these signs is a change in the colour of your sputum also start an antibiotic.

### What to do if you have an exacerbation of your COPD:

- Contact your GP or your practice nurse
- Contact the community/nurse respiratory service
- Start taking your standby supply of steroids and/or antibiotics
- Other \_\_\_\_\_

**Preparation:** \_\_\_\_\_

**Dose:** \_\_\_\_\_

**If you experience an exacerbation of COPD, and start prednisolone and/or antibiotics, ALWAYS advise your GP or practice nurse as soon as possible.**





## **For further information contact:**

NHS Lothian Respiratory MCN:

[www.lothianrespiratorymcn.scot.nhs.uk](http://www.lothianrespiratorymcn.scot.nhs.uk)

NHS Inform: [www.nhsinform.co.uk](http://www.nhsinform.co.uk)

British Lung Foundation: [www.blf.org](http://www.blf.org)

Chest, Heart & Stroke Scotland: [www.chss.org.uk](http://www.chss.org.uk)

Long Term Conditions Alliance

Scotland Self Management: [www.myconditionmylife.org](http://www.myconditionmylife.org)

Smokeline: [www.canstopsmoking.com](http://www.canstopsmoking.com)

Dolby Medical (home oxygen supplies): **0800 833 531**

## **Carer organisations:**

Edinburgh: [www.vocal.org.uk](http://www.vocal.org.uk)

East Lothian: [www.coel.org.uk](http://www.coel.org.uk)

West Lothian: [www.carers-westlothian.com](http://www.carers-westlothian.com)

Midlothian: [www.vocal.org.uk](http://www.vocal.org.uk)

## **Patient Websites:**

Active Scotland: [www.activescotland.org.uk](http://www.activescotland.org.uk)

My Lungs, My Life: [www.mylungsmylife.org](http://www.mylungsmylife.org)

**To re-order copies of this plan please  
contact the NHS Lothian Resource Centre on  
[resource.centre@nhslothian.scot.nhs.uk](mailto:resource.centre@nhslothian.scot.nhs.uk)**

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