NHS
Hampshire and Isle of Wight

COPD Management and Prescribing Guidelines

Investigations checklist

- Post-bronchodilator spirometry
- Chest x-ray
- Full blood count
- Oxygen saturation
- 12 lead ECG +/- Pro-BNP

Symptom burden assessed by:

MRC breathlessness score
Or CAT: **catestonline.org**

MRC Grade 1	I only get breathless with strenuous exercise
MRC Grade 2	I get short of breath when hurrying on the level or walking up a slight hill
MRC Grade 3	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
MRC Grade 4	I stop for breath after walking about 100 meters or after a few minutes on the level
MRC Grade 5	I am too breathless to leave the house or I am breathless when dressing or undressing

Core principles

- confirm diagnosis with quality assured spirometry and use eosinophil count and exacerbation history to guide drug choice
- check inhaler technique before prescribing any inhaler
- choose device on individual assessment thinking of the environmental impact

Step 1: Assessment

Suspect COPD in over 35 year old smoker/ex-smoker, with:

- progressive persistent exertional breathlessness
- chronic cough
- sputum production
- frequent winter bronchitis

Step 2: Diagnosis

Perform quality assured post-bronchodilator spirometry looking for FEV1/FVC or FEV1/VC of <0.7 (or less than LLN if available)

Step 3: Refer

- Influenza and pneumococcal vaccination
- Smoking cessation support (if smoker)
- Pulmonary rehabilitation for education and exercise training (especially if MRC ≥3)
- Oxygen assessment if sats are less than 92% on air

Red flags

- Haemoptysis
- Chest pain
- Unexplained weight loss
- Clubbing
- Abnormal chest x-ray

Asthma

If co-existent asthma refer to asthma guidelines. When asthma and COPD co-exist it is important to identify the predominant disease.

Seek specialist advice if response to treatment is not satisfactory.

Local Referral Details (Southampton City)

- **Smoking Cessation via PCN or local pharmacy scheme**
  www.southampton.gov.uk/health-social-care/health/stopping-smoking
- **Pulmonary Rehabilitation to Southampton Integrated COPD Team**
  Solentwest.ICOPD@nhs.net
  0300 1233794
- **Home Oxygen Service, UHS**
  UHS.HomeOxygenCentre@nhs.net
  023 8120 8119/4325

Placebo

Use a placebo to observe:

- Preparation and handling of the device including dexterity issues
- Compatibility with mouthpiece interface (ability to lip purse, facial weakness, dyspraxia)
- Acceleration, length and consistency of respiratory effort
- Confirmation by feedback mechanism
- Patient experience/preference

Incheck® device

Measures peak respiratory flow against a variety of resistances to help inform device suitability.

Clement clarke In-Check DIAL G16 Manuals | ManualsLib

Strategies to lower carbon footprint and optimise prescribing include:

- Identify and reduce SABA overuse
- Change to combination inhalers where clinically appropriate
- Discuss change to lower carbon footprint inhaler (ie dry powder or soft mist during reviews)
- Do not switch without device assessment

Reduce environmental impact of inhaler waste:

- Encourage return of used or unwanted inhalers to pharmacy for recycling where available or environmentally safe disposal
- Encourage to take care of inhalers and not to order more than required
- Explain how to recognise inhaler is empty using dose counter where possible
- Increase use of reusable inhalers

Step 4: Prescribe

- All should have SABA for PRN use
- Long-acting inhaled therapy to reduce breathlessness and reduce exacerbations guided by stable state eosinophil count and exacerbation history

Device assessment

There are two main types of device requiring different inhalation techniques:

DPI (dry powder inhaler)
Forceful and deep

pMDI (pressurised metered dose inhaler) or Soft Mist
Gentle and deep

MDI should be used with spacer device to improve deposition and reduce need for co-ordination.

Placebo devices and Incheck® device

These can be used to help identify the most appropriate device

Drug assessment

Average stable state eosinophil count (when not in exacerbation or on oral steroid)

≤0.1 — without treated exacerbation — 0.2 — with treated exacerbation(s) — ≥0.3

LABA/LAMA

Soft Mist

Spiolto Respimat
2.5/2.5 : 2 puffs OD

MDI

Bevespi
5/7.2 : 2 puffs BD

DPI

Duaklir Genuair
12/340 : 1 puff BD

Ultibro Breezhaler
85/43 : 1 puff OD

Anoro Ellipta
22/55 : 1 puff OD

★ Low carbon footprint
▲ High carbon footprint

If ongoing exacerbations with eosinophils ≤0.1 despite LABA/LAMA, send sputum, check if still smoking, refer for pulmonary rehab and refer early for specialist assessment.

ICS/LABA/LAMA

MDI

Trixeo
5/7.2/160 : 2 puffs BD

Trimbow
87/5/9 : 2 puffs BD

DPI

Trimbow NEXThaler
88/5/9 : 2 puffs BD

Trelegy
92/55/22 : 1 puff OD

If eosinophils are ≥0.3 but no history of exacerbations, may wish to consider trying LABA/LAMA first.

Initial treatment with ICS/LABA/LAMA is an unlicensed use.

Step 5: Review +/- Refer

REVIEW 6-12 weeks after change in inhaled therapy

- If no response to treatment consider alternative diagnosis (e.g. heart failure) or additional diagnosis (e.g. cor pulmonale)

REFER early for specialist review

- Ongoing exacerbations for consideration of azithromycin or roflumilast
- Severe breathlessness for consideration of nebulisers or theophylline and once stopped smoking for assessment of suitability for lung volume reduction or transplantation
- High sputum burden for mucolytics and airway clearance physiotherapy

PRN SABA

If patient is best suited to MDI device use Salamol CFC free MDI in preference to Ventolin Evohaler to reduce carbon footprint.

MDI

Salamol
100mcg MDI via spacer 2 puffs PRN

DPI

Salbutamol Easyhaler
100mcg 2 puffs PRN

Ventolin Accuhaler
200mcg 1 puff PRN

Risk of Adrenal Insufficiency

An NHS steroid emergency card should be carried by patients at risk of adrenal crisis.
www.endocrinology.org/media/3873/steroid-card.pdf

As per national guidance these include patients using:

- ICS/LABA/LAMA and nasal or topical steroid
- ICS/LABA/LAMA and use of rescue pack corticosteroids
- 3 or more rescue pack corticosteroids per year
- High dose ICS for asthma/COPD overlap

www.endocrinology.org/media/4091/spssfe_supporting_sec_-final_10032021-1.pdf

Pneumonia Risk

Increased risk of pneumonia with use of ICS requires risk-benefit consideration in context of individual pneumonia risk. Risk increased if aged over 65 years, low BMI, previous pneumonia, severe airflow obstruction and in smokers. Potential benefits outweigh risks in patients with higher stable state eosinophil count and history of exacerbation.

Also consider differential risk of which steroid used and with increased dose
www.atsjournals.org/doi/full/10.1513/AnnalsATS.201409-413OC

In 100 patients treated with ICS for one year, one severe exacerbation is prevented with two excess non-severe pneumonias. However, if eosinophil count is ≥0.3 then five severe exacerbations are prevented.

Information on Additional Therapies

Theophylline

Can consider after trial of dual bronchodilators if remain symptomatically breathless or if unable to tolerate inhaled therapies. Check plasma levels after 7-10 days (6 hours post dose) to ensure not too high to reduce risk of toxicity. Review clinical effectiveness after 4 weeks. Can consider increasing dose if initial dose not effective **AND** level low and then recheck levels. Discontinue if not effective. Use lowest effective dose and do not need to titrate up to get into range.

Be cautious of use in the elderly and avoid with co-existing cardiac disease or epilepsy.

Warn patients of possible side effects and to stop if develop signs of toxicity.

Beware interactions including macrolide or flurorquinolone antibiotics requiring reduction in dose.

Reduce dose if patient gives up smoking or dramatically reduces nicotine intake to prevent toxicity due to interaction.

Mucolytics

Consider if chronic cough productive of sputum which is difficult to expectorate. Caution if previous peptic ulceration as disrupts gastric mucosal barrier and consider PPI prophylaxis. Start acetylcysteine (NACSYS) (dispersible) 600mg od or carbocisteine 750mg tds for 2/52 and reduce to 750mg bd if has desired effect. Discontinue if ineffective.

Oral corticosteroids

Long term oral prednisolone is not recommended in COPD due to no evidence of benefit and a significant side effect profile and should only be initiated by respiratory specialist following review as a last resort at the lowest possible dose.

Prolonged or weaning courses of prednisolone for acute exacerbation will increase overall steroid exposure and should generally be avoided.

Consider need for gastric protection if prescribing repeated courses of prednisolone in close succession for acute exacerbations.

Refer to glucocorticoid induced osteoporosis guidelines. If frequent short courses result in a cumulative dose of >1.5g prednisolone per year oral bisphosphonate therapy is indicated in addition to Vit D/calcium supplementation. This equates to ≥ 7 per year x 7 day course of 30mg prednisolone od.

Additional Therapies to be commenced in secondary care only

Azithromycin prophylaxis

For consideration by respiratory specialist only in frequent exacerbators ≥4 exacerbations with purulent sputum per year who have been fully optimised with non-pharmacological, inhaled therapies (ICS/LABA/LAMA) and vaccinations. Evidence suggests may be less effective in smokers.

Pre commencement checks/procedures required include:

- Sputum culture including MCS and AFB (TB) to identify resistant pathogens, pseudomonas aeruginosa or opportunistic mycobacteria.
- Training in airway clearance
- CT scan to look for bronchiectasis and other causes of recurrent exacerbations
- Baseline liver function tests
- 12 lead ECG to check for prolonged QT interval (normal QTc <440ms in men; <450ms in women)

Patients should be warned of small risk of hearing loss (which could be irreversible) and advised to stop immediately if notice change in hearing or onset of tinnitus and to seek review.

Efficacy should be reviewed at 3/12 and then at 6/12 intervals.

Often used for winter cover for 6 months with summer treatment holiday dependent on phenotype.

LFTS should be checked after 1 month and then 6 monthly.

Roflumilast

For exacerbation reduction in patients with 2 or more exacerbations per year despite ICS/LABA/LAMA. Patients must have FEV1< 50% predicted with chronic bronchitis and BMI>21.

Nebulisers

In most cases bronchodilator therapy is best administered using a hand-held inhaler device (including a spacer device if appropriate). Patients with distressing or disabling breathlessness despite maximal therapy should be considered for nebuliser therapy. Secondary care assessment is advised before consideration of nebulised therapy. Patient information link on nebuliser care and maintenance **www.blf.org.uk/support-for-you/nebulisers/at-home**

Guidance on referrals

Frequent Exacerbation

If continuing to exacerbate despite smoking cessation, pulmonary rehabilitation and triple therapy referral is indicated to exclude bronchiectasis and other respiratory conditions and consider addition of azithromycin or roflumilast. Persistent culture of pseudomonas should lead to referral for eradication therapy.

Chest Pain and Haemoptysis

Chest Pain and haemoptysis are not common symptoms in COPD. Patients with COPD have a significantly increased risk of lung cancer due previous smoking and referral through usual non-COPD routes should occur.

Consideration of Long Term Oxygen Therapy

Referral for assessment for Long Term Oxygen Therapy should be made if saturations are <92% in stable state. Oxygen therapy is given for >16 hours per day to improve life expectancy.

Assessment for Non-Invasive Ventilation

Refer people who are adequately treated but have chronic hypercapnic respiratory failure and have needed assisted ventilation (whether invasive or non-invasive) during an exacerbation, or who are hypercapnic or acidotic on long-term oxygen therapy, to a specialist centre for consideration of long-term non-invasive ventilation.

Assessment for Lung Volume Reduction

If remain significantly breathless following pulmonary rehabilitation and stopping smoking and have an FEV1 <50% and a 6MWT of >120m refer to a respiratory specialist for assessment to determine degree of hyperinflation and distribution of emphysema with CT scan. Potential candidates will then be referred by a respiratory specialist to a tertiary centre for MDT review. Lung volume reduction can be surgical or with insertion of valves into the lungs via an endobronchial route under general anaesthetic.

Assessment for Lung Transplantation

Refer to a respiratory specialist to work up for referral to a transplantation service at Papworth or Harefield. Must be ex-smokers and have undergone pulmonary rehabilitation and have a normal BMI with minimal co-morbidities. Lung transplantation is restricted to those under 60-65 years of age due to poorer outcomes and increased complications in older age groups.

Rapid decline in FEV1

FEV1 is expected to decline with time and in general will decline more rapidly in a continuing smoker than in an ex-smoker. However, in some patients FEV1 will decline more rapidly and this is an indication for referral as a marker of poor prognosis.

Alpha-1-Antitrypsin Deficiency

Patients with A1ATD should be referred to a specialist service. This is available at University Hospitals Southampton. Replacement therapy is not currently recommended outside of clinical trials but clinics ensure multisystem assessment and opportunity to participate in clinical trials.

Other Indications

Other recommendations by NICE for referral include diagnostic uncertainty, symptoms disproportionate to lung function, dysfunctional breathing, onset of cor pulmonale, assessment for nebulised therapy, bullous lung disease and 2nd opinion requested by patient.