NICE guidelines on COPD NICE 2010, CG101

DIAGNOSIS

Consider the diagnosis of COPD in those who are:

Over 35y AND smokers/ex-smokers AND have any of:

- Exertional breathlessness
- Wheeze
- Chronic cough
- Regular sputum production
- Frequent winter 'bronchitis'

AND DO NOT have clinical features of asthma, that is:

- Chronic unproductive cough
- Significant diurnal or day-to-day variability of symptoms
- Night-time waking with breathlessness/wheeze

If COPD suspected, ask about the following (suggest other diseases may be cause/may co-exist):

- Weight loss
- Fatigue
- Waking at night
- Ankle swelling
- Effort intolerance
- Chest pain
- Haemoptysis
- Occupational hazards.

INVESTIGATIONS

- **Post-bronchodilator spirometry**
- CXR to exclude other diagnoses
- FBC for anaemia/polycythaemia
- BMI (for obesity or cachexia)

Note that NICE say reversibility testing is not usually necessary

In hospital, **prognosis** can be assessed using the BODE index (**BMI**, airflow **O**bstruction, **D**yspnoea, **E**xercise capacity) (requires 6 min timed walking test, so rarely done in primary care)

INTERPRETING SPIROMETRY AND CLASSIFYING SEVERITY

Diagnosis confirmed if post-bronchodilator FEV_1/FVC is <0.7. Consider alternative diagnoses in:

- Older people with a diagnostic ratio (FEV_1/FVC <0.7) but who do not have typical symptoms.
- Younger people with typical symptoms but whose FEV_1/FVC is >0.7 (i.e. non-diagnostic).

Assess severity using objective and subjective means (if significant mis-match, carbon monoxide lung transfer factor (TLCO) can be measured in hospital):

Objective severity: FEV_1 (% predicted for age/sex/height)	
≥80% AND symptomatic	Mild
50–79%	Moderate
30–49%	Severe
<30% *or* <50% with respiratory failure	Very severe

Subjective severity: MRC dyspnoea scale (annual QOF requirement!)	
Grade 1	Not troubled by shortness of breath except on strenuous exercise
Grade 2	Short of breath when hurrying or walking up a slight hill
Grade 3	Can't keep up with peers on level ground
Grade 4	Stops for breath after walking 100m/few minutes on level ground
Grade 5	Too breathless to leave the house or breathless when dressing

The CAT (COPD Assessment Test) score assesses impact of COPD on patients' lives (www.catestonline.org). NICE do not mention it, but many find it useful because it gives a broader impression of impact on daily life. It has 8 questions which patients rank from 0 to 5 (such as: I cough all the time, my chest does not feel tight, I sleep soundly, I am not limited in my abilities at home).

REFERRAL

- Diagnostic uncertainty
- Age <40y at onset
- Dysfunctional breathing/disproportionate symptoms
- Frequent infections
- Haemoptysis
- Severe disease/rapid decline in FEV_1
- Considering LTOT, long-term oral steroids or nebulisers
- Cor pulmonale*
- Family history of alpha-1 antitrypsin deficiency
- Assessment for surgery (see below)

** Cor pulmonale: consider if peripheral oedema (after excluding other causes), raised JVP, systolic parasternal heave, loud pulmonary second heart sound. Confirm diagnosis with pulse oximetry, ECG and echo. If diagnosed assess need for LTOT, treat oedema with diuretics, use digoxin if atrial fibrillation. ACE inhibitors, calcium channel blockers or alpha-blockers are NOT recommended.*

FOLLOW-UP and REVIEW

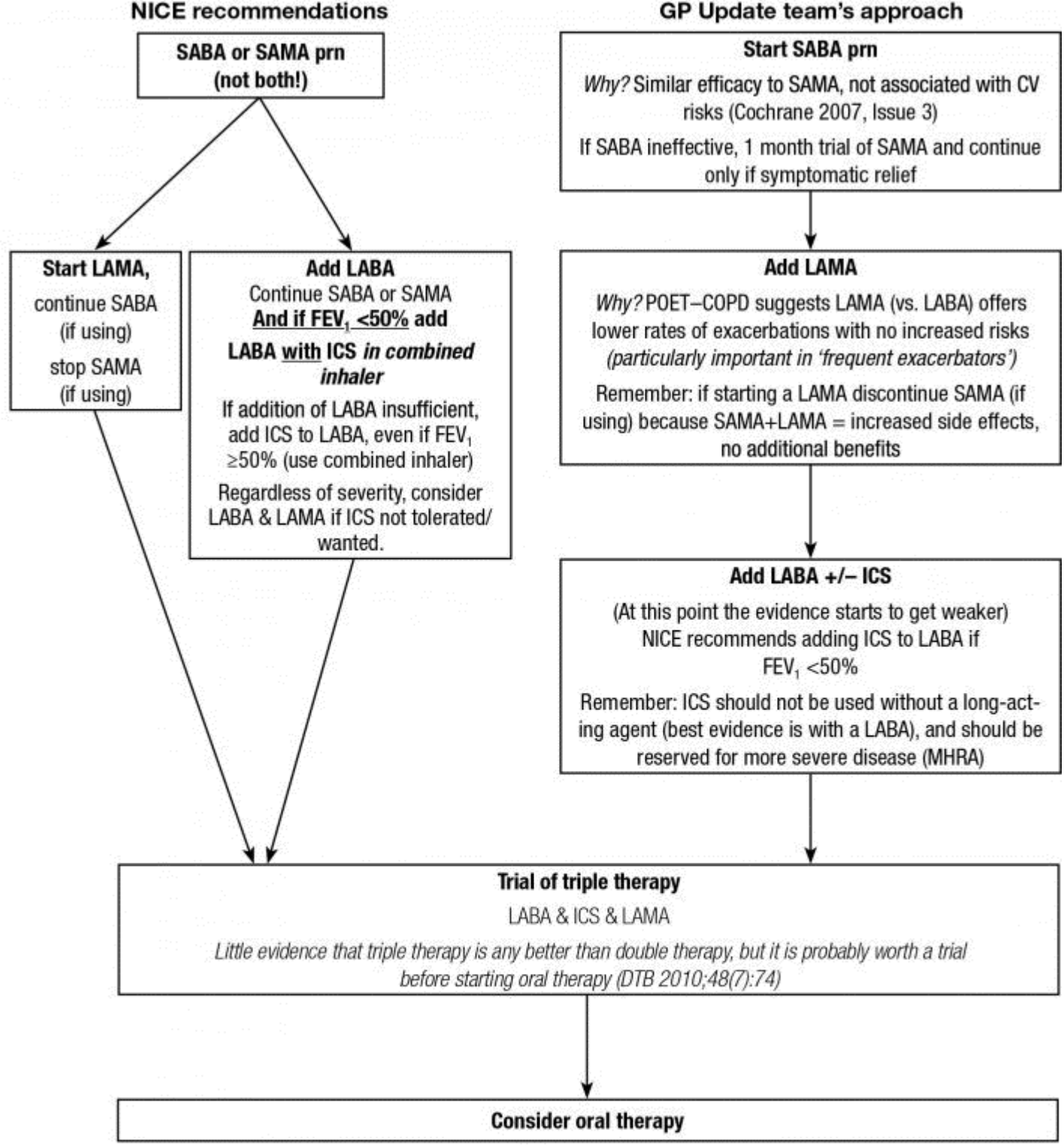
At least annually if mild/moderate/severe disease. If very severe disease review at least twice yearly.

For all with COPD the review should include:

- Smoking status and cessation advice
- Symptom control (breathlessness, exercise tolerance, frequency of exacerbations, MRC dyspnoea scale (if MRC dyspnoea ≥3, QOF requires O_2 sats)
- Effects of drug therapy and inhaler technique (later critically important!)
- FEV_1 and FVC
- BMI
- Presence of complications (esp. cor pulmonale in very severe disease)
- Need for referral/physio/OT/social services or for pulmonary rehab

If very severe disease (FEV_1 <30%) also review:

- Need for LTOT
- Nutritional status (obesity or cachexia)
- Screen for anxiety/depression
- Oxygen saturation



Key

SABA	Short-acting beta-agonist	e.g. salbutamol
LABA	Long-acting beta-agonist	e.g. salmeterol, formoterol
SAMA	Short-acting muscarinic antagonist	e.g. ipratropium
LAMA	Long-acting muscarinic antagonist	e.g. tiotropium (once daily, aiding compliance)
ICS	Inhaled corticosteroids	e.g. beclometasone, fluticasone, budesonide

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MANAGING STABLE DISEASE

Once diagnosed, start treatment and remember to assess response to treatment through: improvements in symptoms, ability to do activities of daily living, exercise capacity, and (for short-acting drugs only) speed of relief of symptoms.

Smoking	Smoking cessation support at every opportunity! Remember to record smoking status and pack years smoked.
Pulmonary rehab if:	• Functional disability from COPD (usually MRC dyspnoea scale ≥3) • Recent hospitalisation for an exacerbation
Immunisations	Offer pneumococcal and influenza immunisations.
Mood	Screen for anxiety and depression if hypoxic, severely breathless or recent exacerbation requiring admission.
Drug therapy	• **Inhaled therapies are first line.** See section below on which inhalers when and risks/benefits. Use nebulisers only if distressing breathlessness despite maximum inhaled therapy. • **Theophylline:** offer only if inhaled therapy ineffective/can't be used. Take extra care in those who are older, have co-morbidities or are on other medications. Remember to reduce theophylline dose if using macrolides (e.g. erythromycin) or fluroquinolones (e.g. ciprofloxacin) to treat an exacerbation. • **Maintenance oral steroids:** NOT recommended. In severe COPD may be necessary, but aim for as low a dose as possible, monitor for osteoporosis and ensure bone protection. • **Mucolytics:** trial of treatment if chronic cough, but stop if no improvement. (Cochrane review suggests small reduction in exacerbations but no impact on lung function (2007, no.3).) • **Do NOT use prophylactic antibiotics.** Some evidence of benefit BUT impact on resistance rates is not yet clear. In a trial of over 1000 people, prophylactic azithromycin (vs. placebo) had an NNT of 3 to prevent one exacerbation BUT with an increase in macrolide resistant organisms (NEJM 2011;365:753). • Do NOT use antitussives or antioxidants (alpha-tocopherol or beta-carotene supplements). • Do NOT use oral steroid trials to identify patients who might benefit from inhaled corticosteroids.
Oxygen	**Assess need for long term oxygen therapy (LTOT) if any of the following:** • FEV_1 <30% predicted (= very severe) (consider assessing if FEV_1 30–49% = severe) • O_2 sats <92% on air or cyanosis • Peripheral oedema or raised JVP • Polycythaemia. Assessment involves measuring arterial blood gases on 2 occasions at least 3w apart. Offer LTOT if: • PaO_2 <7.3kPa OR PaO_2 7.3–8kPa AND EITHER secondary polycythaemia OR nocturnal hypoxaemia OR peripheral oedema OR pulmonary hypertension. **Long-term oxygen therapy (LTOT)** should be used for at least 15h a day (via home concentrator). **Ambulatory oxygen therapy:** useful if desaturate with exercise AND oxygen improves breathlessness AND motivated to keep exercising. **Short burst oxygen therapy:** consider only if severe episodes of breathlessness not relieved by any other means. Continue only if oxygen relieves this breathlessness.
Flying	Assess fitness to fly if on LTOT or FEV_1 <50% (use BTS recommendations, see Useful websites).
Surgery	**Bullectomy:** if single large bullae on CT and FEV_1 <50%. **Lung volume reduction therapy:** mainly for upper lobe disease. Specific criteria around FEV_1, $PaCO_2$ and TLCO. **Lung transplantation:** occasionally if severe disease throughout lungs and marked limitations of activities.
Palliative care	Multidisciplinary palliative care approach and utilise hospice services. Use opioids for breathlessness in end-stage COPD. Benzodiazepines, tricyclic antidepressants, major tranquilisers and oxygen may also be needed.

EXACERBATIONS

NICE are surprisingly brief on the matter of exacerbations, despite their critical role in COPD mortality

To reduce number of exacerbations requiring admission encourage self-management: patient has antibiotics and oral steroids at home to start if they feel an exacerbation commencing.

- **Start oral steroids if breathlessness interferes with activities of daily living** (30mg prednisolone daily for 7–14d). *And think: do they need bone protection? >1g prednisolone over a year (that's 1 month of 30mg/d) usually warrants bone protection!*
- **Start antibiotics if sputum purulent** (amoxicillin/macrolide/tetracycline). Sputum culture not usually recommended.

The evidence on self-management is mixed. A Cochrane trial of self-management with extensive education showed a significant benefit (NNT 6–35/y for those at high risk of admission, NNT 19–80/y for those at low risk of admission, but another Cochrane review of self-management WITHOUT extensive education showed no benefit (Cochrane 2009;CD002990, 2010;CD005074). Other trials have also given mixed messages. None of the trials have looked at the impact of self-management on 'frequent exacerbators', who may be the most important group. Will these trials stop me doing self-management in COPD? No, but I will focus my input on the frequent exacerbators and ensure appropriate safety-netting is in place.

Our practice COPD self-management leaflet is available online. You are welcome to photocopy this and use it in your own practice or amend it to suit your own needs.