



Diagnosis of COPD - Consider in any patient who has dyspnoea, chronic cough or sputum production, a history of recurrent lower respiratory tract infections and/or a history of exposure to risk factors for the disease.

- Requires the presence of irreversible airways obstruction; if unable to perform effective spirometry reconsider diagnosis & refer to secondary care
- Airflow obstruction is defined as reduced FEV₁/FVC ratio (<0.70). This must persist after administration of bronchodilators. No longer necessary to have an FEV₁ <80% predicted for definition of airflow obstruction
- If FEV₁ is >80% predicted, a diagnosis of COPD should only be made in the presence of respiratory symptoms e.g. breathlessness or cough
- If the FEV₁ improves markedly over time, with treatment or spontaneously, the diagnosis of COPD must be reconsidered, provided all the FEV₁ measurements are reliable and taken in the clinically stable state (ie not during an exacerbation)
- Consider alternative diagnosis (a fifth of all people on COPD registers do not have a diagnosis of COPD). Exclude diagnosis of asthma (variable chest tightness, wheeze, cough and breathlessness; night-time waking; significant diurnal variation of symptoms and peak expiratory flow; symptoms related to work; normalisation of spirometry after inhaled beta₂ agonist or inhaled/oral corticosteroid course)
- Ensure other investigations including Chest X Ray, Full Blood Count (to identify anaemia & polycythaemia) are performed and reviewed

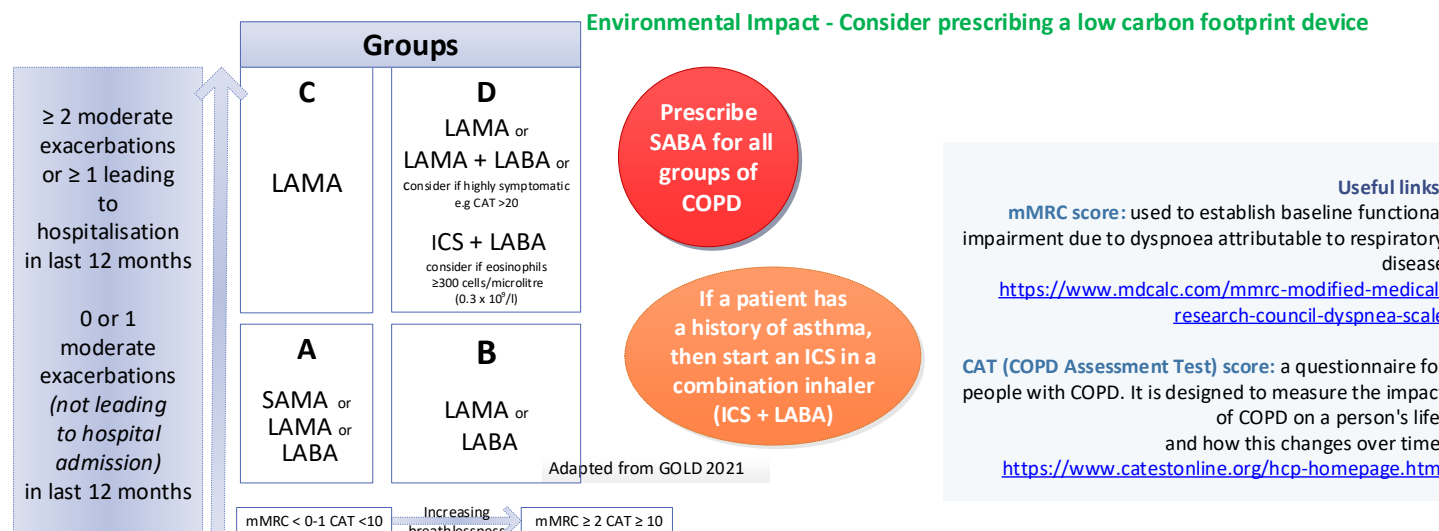
Treatments and plans should be revisited and assessed at every review

Practice Points:

Check for other co-existing conditions, for example, cardiac failure, bronchiectasis (consider HRCT chest), ischaemic heart disease, lung cancer, cor-pulmonale, anxiety and depression - manage appropriately

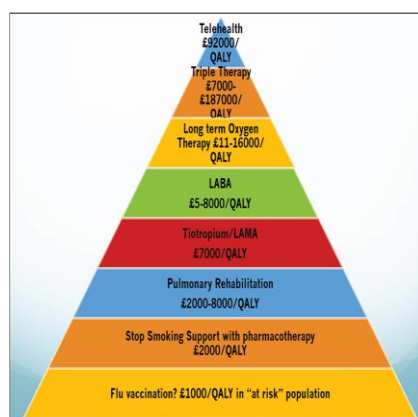
- Offer treatment and support to stop smoking
- Consider pharmacological treatment as per GOLD 2021
- Is the patient adherent to their treatments? Ask the patient and check prescription refill records
- Can the patient use their inhalers correctly? see below
- Optimise inhaled therapy (see below – GOLD 2021)
- Give general self management advice & co-develop a personalised self-management plan
- Refer for dietetic advice if Body Mass Index (BMI) <20 or >25 kg/m² or changing over time
- Offer pneumococcal vaccine, annual Influenza vaccine and pulmonary rehabilitation (PR) if indicated

COPD "ABCD" Assessment Tool: Assess the severity of airflow obstruction according to the reduction of FEV₁ - see NICE guideline NG115



Follow Up Treatment

- If response to initial treatment is appropriate – maintain it
- If **NOT**, consider the predominant treatment trait to target (dyspnoea or exacerbations) - see exacerbation pathway page 2
- Assess response, adjust and review



<https://www.networks.nhs.uk/nhs-networks/london-lungs/latest-edition-of-thorax-publication>

Aerosol inhalers (pressurised Metered Dose Inhaler (pMDI) Use a spacer with an MDI
Breath Actuated pressurised Metered Dose Inhaler (BA-pMDI) (Autohaler®, Easi-Breathe®, K-haler®), Soft Mist Inhaler (SMI) (Respimat®): **Inhale SLOW and STEADY**

Dry Powder Inhalers (Accuhaler®, Ellipta®, Pulvinal®, Forspiro®, Orbicel®, Aeroliser®, Breezhaler®, Handihaler®, Zonda®, Easyhaler®, Turbohaler®, Clickhaler®, NEXThaler®, Genuair®, Novolizer®, Spiromax®, Twisthaler®): **Inhale QUICK and DEEP**

References

- National Institute for Health and Care Excellence (NICE). Chronic Obstructive Airways Disease (COPD) in over 16s: diagnosis and management NICE Guideline [NG115]. Last updated: July 2019.
- Global Initiative for Chronic Obstructive lung disease (GOLD) Pocket Guide to COPD Diagnosis, Management and Prevention. 2021
- Drummond et al. ICS in patients with stable COPD. A systematic review and meta-analysis. JAMA 2008; 300 (20):2407-16
- Suissa s, Kezouh A, Ernst P. Inhaled corticosteroids and the risk of diabetes onset and progression. 123; 11:1001-1006.
[http://www.amjmed.com/article/S0002-9343\(10\)00648-0/fulltext](http://www.amjmed.com/article/S0002-9343(10)00648-0/fulltext)

COPD Exacerbation Pathway

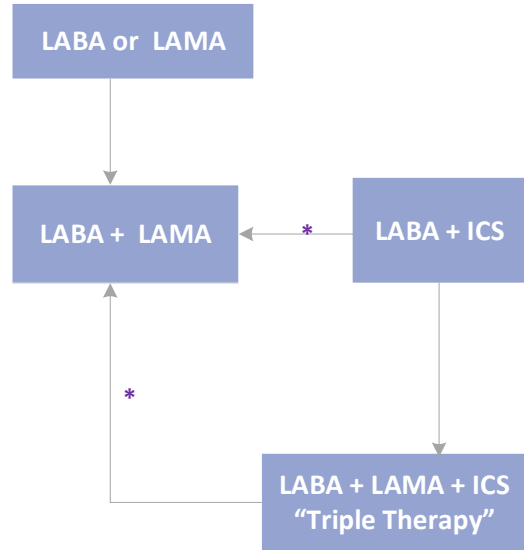
Inhalers

Prescribe similar devices i.e. All DPI or All aerosols (MDI) devices where possible

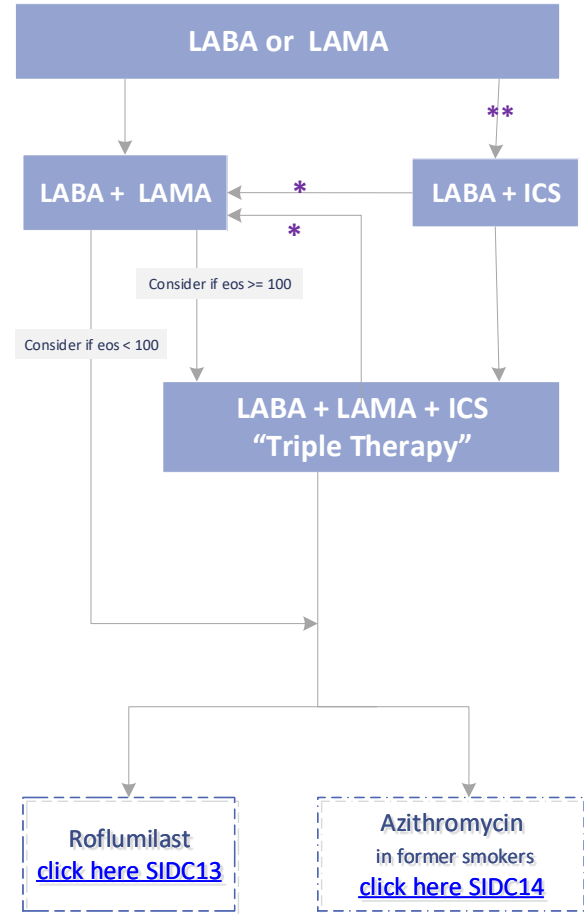
Drug Class & Drug/Device

SABA	Salbutamol 100 microgram MDI Salbutamol 100 microgram Easyhaler DPI Salamol® 100 microgram (Salbutamol Easi-breathe)
LABA	Formoterol 12 microgram Easyhaler® one puff twice daily
LAMA	Umeclidinium 55 microgram Ellipta® one puff daily Aclidinium 322 microgram Genuair® one puff twice daily (consider if eGFR < 50ml/min) Glycopyrronium 55 microgram Breezhaler® one puff daily Tiotropium 2.5 microgram Respimat® two puffs daily
LAMA + LABA	Umeclidinium + Vilanterol (Anoro® Ellipta®) one puff daily Aclidinium + Formoterol (Duaklir Genuair®) one puff twice daily Glycopyrronium + Indacaterol (Ultibro Breezhaler®) one puff daily Tiotropium + Olodaterol (Spiolto Respimat®) two puffs daily
ICS + LABA	Fluticasone + Vilanterol (Relvar Ellipta®) 92/22 one puff daily Beclometasone + Formoterol (Fostair® 100/6 NEXThaler) two puffs twice daily Beclometasone + Formoterol (Fostair® 100/6 MDI) two puffs twice daily Budesonide + Formoterol (DuoResp® Spiromax 320/9, Symbicort® 400/12 Turbohaler) one puff twice daily
LABA + LABA + ICS	Fluticasone + Umeclidinium + Vilanterol (Trelegy® Ellipta) one puff daily Beclometasone + Formoterol + Glycopyrronium (Trimbow® MDI) two puffs twice daily

History of breathlessness



History of exacerbations



- *Consider de-escalation of ICS or switch if pneumonia, inappropriate original indication or lack of response to ICS

****Consider if eosinophil ≥ 300 cells/microlitre ($0.3 \times 10^9/l$) or eosinophil ≥ 100 cells/microlitre ($0.1 \times 10^9/l$) AND ≥ 2 moderate exacerbations /1 hospitalisation**

Management of Exacerbations

Assessment:

If an acute exacerbation is suspected, assess its severity:

- Features suggestive of an acute exacerbation include: Worsening breathlessness; increased sputum volume and purulence; cough; wheeze; fever without an obvious source; upper respiratory tract infection in the past 5 days; increased respiratory rate or heart rate increase 20% over baseline
- **A severe exacerbation may be suggested by:** Marked breathlessness and tachypnoea; pursed-lip breathing and/or use of accessory muscles at rest; new-onset cyanosis or peripheral oedema; acute confusion or drowsiness; marked reduction in activities of daily living.
- Consider the need for hospital admission.
- Consider other causes of symptoms (such as myocardial infarction, worsening heart failure, pulmonary embolus and pneumonia).

Management:

- If admission is not indicated, advise the person to increase the doses or frequency of short-acting bronchodilators (not exceeding the maximum dose).
- If there are no contraindications, consider oral corticosteroids for people with a significant increase in breathlessness that interferes with daily activities:

Offer 30 mg (NICE) – 40mg (GOLD) oral prednisolone once daily for 5 days - discuss adverse effects of prolonged therapy.

- Do not send sputum samples for culture routinely.
- Antibiotic Choice: Dosage and course length – See C&W APC community antibiotic guidelines [CG005] and NICE guideline [NG114] COPD (acute exacerbation): antimicrobial prescribing. Dec 2018
- First choice oral antibiotics (empirical treatment or guided by most recent sputum culture or susceptibilities)
- Amoxicillin 500 mg three times a day for 5 days (see BNF for dosage in severe infections)
- Doxycycline 200 mg on first day, then 100 mg once a day for 4-6 days course in total
- Some patient may require longer duration of treatment up to 14 days.
- Ensure appropriate read-code on GP practice system for exacerbation
- Review treatment plan for patient – page 1 & 2 if ≥ 3 exacerbations

Self-Management:

- Consider offering the patient a short course of prednisolone and antibiotics as a rescue pack as part of their exacerbation action plan.
- Ensure the patient is confident of when and how to take these medicines & to contact the healthcare professional when they have used these treatments.
- For people who have used ≥ 3 courses of oral corticosteroids and / or oral antibiotics in the last year, investigate the reasons for this.

Oral corticosteroids

- Do not start oral corticosteroids for maintenance treatment of COPD in primary care, due to the risk of adverse effects i.e. osteoporosis, muscle wasting. Refer to specialist
- Long-term oral corticosteroid therapy in COPD is not usually recommended. However, NICE guidance states that in some people with advanced COPD long-term oral corticosteroids may be needed if these cannot be withdrawn after an exacerbation — in this situation, the dose should be kept as low as possible
- Make people aware of the optimum duration of treatment and the adverse effects of prolonged therapy.
- For guidance on stopping oral corticosteroid therapy, it is recommended that clinicians refer to the BNF.
- People on long-term oral corticosteroid therapy should be monitored for osteoporosis and appropriate prophylaxis prescribed.
- Consider giving a steroid card to support communication of the risks associated with treatment, and specific written advice to consider corticosteroid replacement during an episode of stress. See BNF for further guidance.
- Step down high dose ICS (>1000mcg total daily dose beclometasone or equivalent) to formulary choices

Nebulisers

- Think about nebuliser therapy for people with distressing or disabling breathlessness despite maximal therapy using inhalers.
- Do not prescribe nebulised therapy without an assessment of the person's and/or carer's ability to use it.
- Do not continue nebulised therapy without assessing and confirming that ≥1 of the following occurs:
 - a reduction in symptoms,
 - an increase in the ability to undertake activities of daily living,
 - an increase in exercise capacity,
 - an improvement in lung function.
- use a nebuliser system that is known to be efficient.**
- Offer people a choice between a facemask and a mouthpiece to administer their nebulised therapy, unless the drug specifically requires a mouthpiece (e.g. anticholinergic drugs).
- If nebuliser therapy is prescribed, provide the person with equipment, servicing, and ongoing advice and support.

** See MHRA alert about non-CE marked nebulisers for COPD

Drug Delivery Devices

Also see SPC and PILs at www.medicines.org.uk

Notes

Metered dose inhaler (MDI) / RespiMat®: **Inhale slow and steady**

Dry Powder: **Inhale deep and fast**

a = A2A Spacer, Able Spacer, Compact Space Chamber Plus, Fzio Chamber Vision, Flo-Tone MDI, Optichamber Diamond, Pocket Chamber, Space chamber plus and vortexb =aerochamber plus = Volumatic

	Long acting beta – 2 agonist (LABA)				Long acting muscarinic antagonist (LAMA)					LAMA+LABA Combination inhalers			
Drug name/ Licensed dose	Formoterol 12 mcg	Formoterol 12 mcg	Salmeterol 25 mcg	Salmeterol 50 mcg	Tiotropium 2.5 mcg	Tiotropium (see dose info in netformulary)	Acclidinium 322 mcg	Umeclidinium 55 mcg	Glycopyrronium 44 mcg	Umeclidinium -Vilanterol 55 mcg/22 mcg	Acclidinium- Formoterol 340 mcg/12 mcg	Indacaterol- Glycopyrronium bromide 110 mcg/50 mcg	Tiotropium- Olodaterol 2.5 mcg/2.5 mcg
Brand name		Atimos®	Serevent®, Neovent®	Serevent®	Spiriva®	Spiriva® Braltus®	Eklira®	Incruse®	Seebri®	Anoro®	Duaklir®	Ultibro®	Spolto®
Visual (not to scale)													
MDI/RespiMat device (If MDI + spacer use options a,b,c)		MDI (a)	MDI (a,b,c)		RespiMat (Re-usable with 1 or 3 cartridges)								RespiMat
Dry powder	Easyhaler			Accuhaler		Handihaler Zonda Inhaler	Genuair	Ellipta	Breezhaler	Ellipta	Genuair	Breezhaler	
Dose counter	Yes	No	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Dose check	Lactose taste	Propellant taste	Propellant taste	Visual /lactose taste	Propellant taste	Capsule vibration	Audible/visual /lactose /sweet taste	Audible/ visual	Audible/lactose taste/visual	Audible/visual	Audible/visual/ slightly sweet or bitter taste	Audible/lactose taste/visual	Propellant
Preloaded	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Red warning when close to empty (last doses)	Last 20	No	No	Last 5	Last 10	N/A	Last 10	Last 9	N/A	Last 9	Last 10	N/A	Last 10
Number of doses in inhaler	120	100	120	60	60	30	60	30	30	30	60	10 or 30	60
Optimal Inspiratory flow rate l/min (manufacturer or SPC)		<30	<30	30 - 90	N/A	20 - 30	35 - 95	42 - 128	50	42 - 128	35 - 95	50	N/A
Shelf life (months) after opening pouch	4 months	3 months	N/A	N/A	3 months	Handihaler: 12 months	90 days	6 wks after opening tray	Inhaler: 1 month	6 weeks	60 days	Inhaler: 30 days	3 months

Notes

Metered dose inhaler (MDI) / Respimat®: **Inhale slow and steady**

Dry Powder: **Inhale deep and fast**

a = A2A Spacer, Able Spacer, Compact Space Chamber Plus, Fio Chamber Vision, Flo-Tone MDI, Optichamber Diamond, Pocket Chamber, Space chamber plus and vortexb =aerochamber plusc = Volumatic

Inhaled corticosteroid (ICS) + Long acting beta ₂ agonist (LABA)								Inhaled corticosteroid (ICS) + Long acting beta ₂ agonist (LABA) + Long acting muscarinic (LAMA)	
Drug name/ Licensed dose	Beclometasone extrafine 100 mcg /formoterol 6 mcg	Beclometasone extrafine 100 mcg /formoterol 6 mcg	Budesonide/formoterol (see dose info in netformulary)	Budesonide 200 mcg /formoterol 6 mcg	Budesonide/ formoterol (see dose info in netformulary)	Fluticasone 92 mcg/ vilanterol 22 mcg	Fluticasone 500 mcg/ salmeterol 50 mcg	Beclometasone 87 mcg/ Formoterol 5 mcg/ Glycopyrronium 9 mcg	Fluticasone 92 mcg/ umeclidinium 55 mcg/ vilanterol 22 mcg (as trifenatate)
Brand name	Fostair®	Fostair®	DuoResp®	Symbicort®	Symbicort®	Relvar®	AirFluSal®	Trimbow®	Trelegy®
Visual (not to scale)									
MDI/Respimat device (If MDI + spacer use options a,b,c)	MDI (a,b)			MDI (b)				MDI (b)	
Dry powder		NEXThaler	Spiromax		Turbohaler	Ellipta	Forspiro		Ellipta
Dose counter	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dose check	Propellant taste	Audio/ visual lactose taste	Audio/ visual lactose taste	Dose counter	Lactose	Audible/visual	Visual/lactose taste /dose counter	Dose counter	Audible/visual
Preloaded	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Red warning when close to empty (last doses)	No	No	Last 20	Last 20 - yellow	Last 20	Last 9	Last 10	Last 20	Last 9 (half red)
Number of doses in inhaler	120	120	60 or 120 respectively	120	60	30	60	120	30
Optimal Inspiratory flow rate l/min (manufacturer or SPC)	<30	30 - 90	40 - 60	No data	60 - 90	42 -128	30 - 90	No data	42 - 128
Shelf life (months) after opening pouch	3 months from first opening	6 months	6 months	After opening the foil wrap: 3 months	N/A	6 weeks	N/A	At temperature up to 25°C for a maximum of 4 months	6 weeks It is packaged in a foil laminated tray with a peelable foil lid. The tray contains a desiccant sachet, to reduce moisture in the packaging