BNF 3. Chronic Obstructive Pulmonary Disease Formulary

RECOMMENDATIONS FOR THE PRESCRIBING OF RESPIRATORY DRUGS

Formulary prepared and based on BNF, Summary of Product Characteristics and information provided below unless otherwise stated.

See **Norfolk & Waveney Primary Care COPD Guidance** on diagnosis and management - based on NICE NG115 and GOLD 2019

Norfolk & Waveney COPD Rescue Packs: Quick Reference Guide

NICE [NG115] July 2019 Chronic obstructive pulmonary disease in over 16s: diagnosis and management

This guideline covers diagnosing and managing chronic obstructive pulmonary disease or COPD (which includes emphysema and chronic bronchitis) in people aged 16 and older. It aims to help people with COPD to receive a diagnosis earlier so that they can benefit from treatments to reduce symptoms, improve quality of life and keep them healthy for longer.

NICE: NG115

GOLD - The Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2019

The Global Initiative for Chronic Obstructive Lung Disease (GOLD) works with health care professionals and public health officials around the world to raise awareness of chronic obstructive pulmonary disease (COPD) and to improve prevention and treatment of this lung disease

GOLD uses an ABCD assessment tool, which places more emphasis on a patient's symptom burden when evaluating disease severity and determining appropraite inhaled treatment.

GOLD 2019 Guidelines

SMOKING CESSATION

For smoking cessation guidance and resources, see Knowledge Anglia:

Central & West CCGs Great Yarmouth & Waveney

PULMONARY REHABILITATION

Norfolk (Norfolk Community Health & Care NHS Trust North, Norwich & South) West Norfolk (BOC)

Great Yarmouth & Waveney (James Paget University Hospitals NHS Foundation)

Formulary Key

1st line formulary choice	Encouraged
Alternative formulary choice	On Formulary
2nd line formulary choice	2nd Line
Shared Care (TAG Amber)	Shared Care Agreement

▼ This medicinal product is subject to additional monitoring by regulatory authorities in the European Union (EU) - Healthcare professionals are asked to report any suspected adverse reactions via the Yellow Card Scheme.

INHALER DEVICES

NICE NG115: Base the choice of drugs and inhalers on: how much they improve symptoms, the person's preferences and ability to use the inhalers, the drugs' potential to reduce exacerbations, their side effects, their cost.
Minimise the number of inhalers and the number of different types of inhaler used by each person as far as possible

When prescribing long-acting drugs, ensure people receive inhalers they have been trained to use (for example, by specifying the brand and inhaler in prescriptions)

Only prescribe inhalers after people have been trained to use them and can demonstrate satisfactory technique

People with COPD should have their ability to use an inhaler regularly assessed and corrected if necessary by a healthcare professional competent to do so.

Ideally use a spacer for ALL patients prescribed an inhaled corticosteroid (ICS) **via an MDI** but especially for those on high dose ICS (e.g. Fluticasone propionate > 600mcg per day) and rinse mouth to reduce oral side-effects. *NB no MDIs containing high dose ICS are currently licensed for COPD*

Bulletin 18: Inhaler Spacer Devices

Inhaler types and devices - COPD

Table to show how long inhalers should last

BNF Chapter: 3 Respiratory System

Bronchodilators

Selective Beta$_2$-adrenoceptor Agonists

Short-acting Bronchodilators (SABAs) - oral not recommended

Drug		Formulations	Dose	Notes
First Line				
SALBUTAMOL		**MDI CFC Free** 100 micrograms / metered inhalation	**Adult -** 1-2 puffs as required - four times daily	ideally, plus spacer
		**Dry powder Easyhaler ®** 100micrograms / inhalation	**Adult -** 1-2 puffs as required - four times daily	in use shelf life 6 months after opening pouch

Long – acting Bronchodilators (LABAs)

First Line				
FORMOTEROL		**Dry powder Easyhaler ®** 12 micrograms / inhalation	1 puff twice daily	in use shelf life 4 months after opening pouch
		**MDI Atimos Modulite ®** 12 micrograms / metered inhalation	1 puff twice daily	Ideally, plus spacer
Second Line				
INDACATEROL		**Dry powder Onbrez Breezhaler ®** 150 micrograms or 300micorgrams / inhalation capsule	150 micrograms once daily. If indicated may be increased to 300 micrograms once daily.	
OLODATEROL		**MDI Striverdi Respimat ®** 2.5micrograms / metered inhalation	2 puffs once daily	In-use shelf life cartridge: 3 months In-use shelf-life inhaler: 1 year Recommended use: 6 cartridges per inhaler

Antimuscarinic bronchodilators

Short-acting Antimuscarinic Bronchodilators (SAMAs)

IPRATROPIUM		**Aerosol:** 20 micrograms / inhalation	**Adult** 1-2 puffs three - four times daily	ideally, plus spacer Should not be taken by patients with known hypersensitivity to atropine

Long –acting Antimuscarinic Bronchodilators (LAMAs)

NOT TO BE PRESCRIBED IN COMBINATION WITH IPRATROPIUM

First Line				
First line listed as LAMA alphabetically - not as preference of choice.				
ACLIDINIUM BROMIDE ▼		**DPI Eklira Genuair ®** 322 micrograms Aclidinium inhalation powder (equivalent to 375 micrograms of aclidinium bromide)	322 micrograms - One inhaled dose twice daily	To be used within 90 days of opening the pouch.
GLYCOPYRRONIUM BROMIDE ▼		**DPI Seebri Breezehaler ®** 44 microgram inhalation capsule (equivalent to 55 micrograms of glycopyrronium bromide)	44 micrograms - One inhaled dose daily	Each inhaler should be disposed of after 30 days of use - capsules only to be removed from the blister immediately before use.
TIOTROPIUM (prescribe by brand)		**DPI Braltus Zonda ®**10 microgram inhalation capsule (equivalent to 18micrograns of tiotropium bromide)	10 micrograms - One inhaled dose daily	shelf life after first opening: 30 days (15 capsule bottle) or 60 days (30 capsule bottle) Advise patient: To avoid the risk of choking, NEVER place a capsule directly into the mouthpiece
		**MDI Spiriva Respimat ®**2.5micrograms / metered inhalation	2 puffs once daily	In-use shelf life cartridge: 3 months In-use shelf-life inhaler: 1 year Recommended use: 6 cartridges per inhaler
UMECLIDINIUM BROMIDE ▼		**DPI Incruse Ellipta ®** 55 micrograms inhalation powder (equivalent to 65 micrograms umeclidinium bromide)	55 micrograms - One inhaled dose daily	Incruse should be administered once daily at the same time of the day each day to maintain bronchodilation Inhaler should be discarded 6 weeks after the date of opening.

LABA / LAMA Combination Preparations

NICE NG 115: *Although the combination therapies recommended in this guideline are the most effective options, some people are currently using different therapies, such as LAMA or LABA monotherapy, and may have their symptoms under control with these people did not need to switch treatments until their clinical needs changed .*

Listed alphabetically as LAMA - not as preference of choice. The evidence does not show any meaningful difference between drugs in this class

ACLIDINIUM / FORMOTEROL ▼		**DPI Duaklir Genuair ®** 340 micrograms aclidinium / 12 micrograms formoterol inhalation powder	One inhaled dose twice daily	Indicated as a maintenance bronchodilator treatment to relieve symptoms in adult patients with COPD. Not for acute use To be used within 60 days of opening the pouch
GLYCOPYRRONIUM / INDACATEROL ▼		**DPI Ultibro Breezehaler ® DPI** 85 micrograms indacaterol / 43 micrograms glycopyrronium inhalation capsule	One inhaled dose daily	Indicated as a maintenance bronchodilator treatment to relieve symptoms in adult patients with COPD. Not for acute use To be used within 60 days of opening the pouch
OLODATEROL / TIOTROPIUM ▼		**MDI Spiolto Respimat ®**2.5 microgram/2.5 microgram / inhalation	2 puffs once daily	In-use shelf life cartridge: 3 months In-use shelf-life inhaler: 1 year Recommended use: 6 cartridges per inhaler
UMECLIDINIUM / VILANTEROL ▼		**DPI Anoro Ellipta ®** 55 micrograms umeclidinium / 22 micrograms vilanterol inhalation powder	One inhaled dose daily	Indicated as a maintenance bronchodilator treatment to relieve symptoms in adult patients with COPD. Not for acute use In-use shelf-life: 6 weeks

Theophylline

For advice on prescribing Theophylline - **see Appendix 2**

THEOPHYLLINE		**Uniphyllin Continus ®** T: 200mg, 300mg, 400mg	**Adult:** 200mg every 12 hours, increased according to response to 400mg every 12 hours.	Prescribed by brand name as the rate of absorption from modified release preparations an vary between brands. Patients currently prescribed other brands should continue as before. For further information please refer to **Appendix 2** Theophylline Prescribing, drug interactions and smoking guidelines. **Caution – Therapeutic Drug Monitoring is required.** See BNF for drug interactions

3.1.5 Peak flow meters, inhaler devices and nebulisers

Peak flow meter **NB readings from new meters are often lower than old Wright-scale meters – the correct chart should be used.**		Standard range		60-800 litres/minute
		Low range		30-400 litres/minute
		Replacement mouth piece		Specify brand and adult or child as they are not interchangeable

Nebulisers

Inappropriate use can be dangerous. Use on specialist advice only.

Spacers

Anyone prescribed a pMDI should be encouraged to use a spacer and replace it every 6-12 months.

NICE NG 115

Provide a spacer that is compatible with the person's metered-dose inhaler.
Advise people to use a spacer with a metered-dose inhaler in the following way:
- administer the drug by single actuations of the metered-dose inhaler into the spacer, inhaling after each actuation
- there should be minimal delay between inhaler actuation and inhalation
- normal tidal breathing can be used as it is as effective as single breaths
- repeat if a second dose is required

Advise people on spacer cleaning. Tell them:
- not to clean the spacer more than monthly, because more frequent cleaning affects their performance (because of a build-up of static)
- to hand wash using warm water and washing-up liquid, and allow the spacer to air dry.

See Key Message Bulletin 18 Inhaler Spacer Devices for information about the different features of each device and compatibility with inhalers

A2A SPACER ®		**Medium volume** device when opened - 210ml		Also available with mask: small , medium, large
AEROCHAMBER - plus ®		**small volume** device - 149ml		**Standard device**: also available with mask: infant, child, adult **Flow -vu Antistatic:** without mask - 5 + years and adult option with mask - 0-18months, 1-5 years, adult:small and large
SPACE CHAMBER PLUS ®		Available as **standard medium volume** device - 230ml & **small volume** compact device 160ml		**Standard or compact:** also available with mask: small, medium, large **Antistatic standard and compact:** also available with mask:small, medium, large
VOLUMATIC ®		**Large volume** device - 750ml		Also available with paediatric mask

Drug Delivery Devices - Inhalation Aid

These devices are **available to purchase only** to assist patients with impaired strength to operate their pMDI inhalers. They are available for 120 or 200 dose inhalers and are compatible with GSK MDIs and Sereflo® only- *none of which are licensed for COPD* .

Inhaled Corticosteroids (ICS)

An ICS with a LABA is more effective than the individual components in improving lung function and health status and reducing exacerbations in patients with exacerbations and moderate to very severe COPD. Regular treatment with ICS may increase the risk of pneumonia especially in those with severe disease GOLD (2019)
LABA + ICS should be considered for patients with diagnosed COPD and asthmatic features or features suggesting steroid responsiveness NG 115

Please issue a steroid card to all patients who require prolonged treatment with high-dose inhaled steroids – as recommended in May 06 Current Problems in Pharmacovigilance and more recently by the London Respiratory Network (2010 - 2013)

London Respiratory Network (2010-2013) Inhaled Steroid Safety Information for Adults and Steroid Card Information

For advice on bisphosphonate prophylaxis with corticosteroid prescribing please refer to **Appendix 3**

ICS / LABA Combination Preparations

Prescribe by Brand ***(If patients are using as part of Triple Therapy Regimen - change to Triple Therapy Device)***
For ALL patients document in clinical records the reason for continuing ICS treatment.

Beclometasone / Formoterol				
FOSTAIR ®		**pMDI** 6 microgram formoterol + 100 microgram *extra-fine* Beclometasone dipropionate	**Adult** 2 puffs twice a day	Contains micronised beclometasone so when switching from non-micronised beclometasone (eg Clenil) steroid dose should be halved. Patients on 250mcg cfc free non-micronised beclometasone can be switched to 100/6 of Fostair (see BNF) After dispensing: Do not store above 25°C (for a maximum of 5 months).
FOSTAIR NEXThaler®		**DPI** 6 microgram formoterol + 100 microgram *extra-fine* Beclometasone dipropionate	2 inhalations twice daily	In use shelf – life: 6 months after opening the pouch.
Budesonide / Formoterol				
DUORESP SPIROMAX ®		**DPI: 160/4.5** 160micrograms budesonide and 4.5 micrograms formoterol	**Adult:** 2 inhalations twice daily	Dose quoted 160/4.5 is the dose leaving the mouthpiece. It is equivalent to 200 micrograms budesonide and 6 micrograms formoterol in each metered dose. In use shelf – life: 6 months after opening the pouch.
		DPI: 320/9 320 micrograms budesonide and 9 micrograms formoterol	**Adult:** 1 inhalation twice daily	Dose quoted 320/9 is the dose leaving the mouthpiece. It is equivalent to 400 micrograms budesonide and 12 micrograms formoterol in each metered dose.
FOBUMIX EASYHALER ®		**DPI: 320/9** 320 micrograms budesonide and 9 micrograms formoterol	**Adult:** 1 inhalation twice daily	Dose quoted 320/9 is the dose leaving the mouthpiece. It is equivalent to 400 micrograms budesonide and 12 micrograms formoterol in each metered dose. In use shelf – life: 4 months after opening the pouch.
SYMBICORT turbohaler ®		**DPI: 400/12** 200 micrograms budesonide and 6 micrograms formoterol	**Adult:** 1 inhalation twice daily	
SYMBICORT MDI ®		**MDI: 200/6** 200 micrograms budesonide and 6 micrograms formoterol	**Adult:** 2 puffs twice daily	Inhaler should be discarded 6 weeks after the date of opening. Ideally, use with a spacer

Fluticasone propionate / Salmeterol				
AIRFLUSAL FORSPIRO 50/500 ®		**DPI:** 50 micrograms salmeterol and 500 micrograms fluticasone propionate	**Adult (over 18 years):** One inhalation twice daily	**High dose ICS**
FUSACOMB EASYHALER ®		**DPI:** 50 micrograms salmeterol and 500 micrograms fluticasone propionate	**Adult (over 18 years):** One inhalation twice daily	After opening the foil wrap: expiry 2 months. **High dose ICS**
STALPEX INHALER ® 50/500		**DPI:** 50 micrograms salmeterol and 500 micrograms fluticasone propionate	**Adult (over 18 years):** One inhalation twice daily	**High dose ICS**
Fluticasone Furoate / Vilanterol				
RELVAR ELLIPTA ®		**DPI: 22/92** 22 microgram vilanterol and 92 microgram fluticasone furoate	**Adult:** 1 inhalation daily	Inhaler should be discarded 6 weeks after the date of opening.
LAMA / LABA / ICS Combination Preparations - Triple Therapy **Prescribe by Brand as Triple Therapy Device**				
Check inhaler technique & compliance. Re-check diagnosis. Consider smoking status and co-morbidities. **Is the patient suitable for pulmonary rehabilitation or oxygen? Consider referral to a specialist.**				
NG115 July 2019: For ALL patients document in clinical records the reason for continuing ICS treatment. **Be aware of an increased risk of side effects (including pneumonia) in people who take ICS.** ***Offer*** **to patients with Asthmatic features or features suggesting steroid responsiveness** already using a LABA+ ICS but with continued day-to-day symptoms that adversely impact quality of life, or have 1 severe or 2 moderate exacerbations within a year ***Consider*** **for patients with no asthmatic features or features suggesting steroid responsiveness** already using LABA + LAMA but have 1 severe or 2 moderate exacerbations within a year. ***Consider a 3 month trial*** **for patients with no asthmatic features or features suggesting steroid responsiveness** already using LABA + LAMA but continue has day-to-day symptoms that adversely impact quality of life. **If no improvement, revert to LABA + LAMA**				
TRIMBOW ®		**MDI**:(Dose leaving the mouthpiece) 87 micrograms of **beclometasone** dipropionate, 5 micrograms of **formoterol** fumarate dihydrate and 9 micrograms of **glycopyrronium.**	**Adults:** Two inhalations of twice daily.	After dispensing, the medicinal product may be stored for a maximum of 4 months at a temperature up to 25°C.
TRELEGY ELLIPTA ® ▼		**DPI:(Dose leaving the mouthpiece)** 92 micrograms **fluticasone** furoate, 55 micrograms **umeclidinium** and 22 micrograms **vilanterol.**	**Adults:** One inhalation once daily	Shelf-life after opening the tray: 6 weeks
Mucolytics				
CARBOCISTEINE		Capsules: 375mg	**Adult: Initially** 2.25g daily in divided doses **then** 1.5g daily in divided doses as condition improves.	Consider where the COPD patient has a FEV1 < 50% and has a chronic productive cough
		Liquid sachets: 750mg/10ml	**Adult: Initially** 1x10ml sachet three times a day (total 2.25g daily), **then** 1x10ml sachet twice a day (total 1.5g daily).	**Contraindicated in active peptic ulceration** Mucolytic therapy should be stopped if there is no benefit after a 4 week trial.

Oral Corticorticosteroids				
NICE NG 115 July 2019: Long-term use of oral corticosteroid therapy in COPD is not normally recommended. Some people with advanced COPD may need long-term oral corticosteroids when these cannot be withdrawn following an exacerbation. In these cases, the dose of oral corticosteroids should be kept as low as possible. Monitor people who are having long-term oral corticosteroid therapy for osteoporosis, and give them appropriate prophylaxis. **Acute exacerbation of COPD:** Treatment is recommended for 5 days because the evidence showed no benefit from taking corticosteroids for more than 7 days **For advice on prescribing oral corticosteroids in respiratory patients see - Appendix 2**				
PREDNISOLONE		Tablets: 5mg	Acute exacerbation: **30mg** in the morning for **5 days** (NICE NG115 July 19)	To be taken as s single daily dose taken in the morning. Bone protection should be considered for all long-term oral corticosteroid patients For advice on bisphosphonate prophylaxis please refer to **Appendix 2 and:** KM Bulletin 33(3)-prevention of osteoporotic fragility fractures

For information on antibiotics and other advice for acute exacerabtions see:

Norfolk & Waveney Antimicrobial Prescribing Guidance

Norfolk & Waveney COPD rescue packs: Quick Ref. Guide

Appendix 2 – Oral Corticosteroids in COPD

Dose of Oral Corticosteroids for exacerbations:

Prednisolone 30mg OM for 5 days then stop NICE NG115 July 2019

Corticosteroid-induced Osteoporosis – See KM Bulletin 33 (3)

- The administration of oral glucocorticoids is strongly associated with development of osteoporosis and fragility fractures in both men and women. Bone loss and increased fracture risk occur rapidly after initiation of glucocorticoid therapy and increase with dose and duration of therapy.
- Evidence suggests that glucocorticoids might affect bone quality and other risk factors for fragility fractures as well as reducing bone density.
- Patients who are likely to take an oral corticosteroid for more than 3 months at a dose of prednisolone 5mg daily or equivalent should have their fracture risk assessed. Bone protective treatment should be started at the onset of glucocorticoid treatment in individuals at high risk of fracture, taking ≥7.5mg prednisolone / day or equivalent and those over the age of 70 years.
- Long-term use of high-dose inhaled corticosteroids may also contribute to corticosteroid-induced osteoporosis however data on increased risk of fractures is inconsistent. Potency of inhaled corticosteroids should not be underestimated; Fluticasone Propionate 1000 mcg/day (i.e. Seretide 250 Evohaler 2 puffs BD) is approximately equivalent to 10mg oral prednisolone.

Treatment should be continued until corticosteroids are stopped. Osteoporotic fracture risk should then be reassessed to determine the need for continuing treatment with bisphosphonates.

- Treatment and prophylaxis are the same – bisphosphonate plus calcium and vitamin D – e.g. alendronic acid 70mg each week plus **Adcal® D3 chewable** one tablet twice a day or **TheiCal-D3®** 1000mg/880 IU chewable tablets one tablet daily. See Bone Formulary
- Medicines Management points with bisphosphonates
    - Take on an empty stomach at least 30 minutes before the first food, other medicinal product, or drink (other than water) of the day. Swallow whole with at least 200 mL of plain water due to potential for oropharyngeal ulceration. Tablets must not be sucked or chewed. Take in an upright position; must not lie down for at least 30minutes after taking.
    - Should be taken on the same day each week

Avoid the calcium on the day the bisphosphonate is taken, due to potential drug interaction

How should I withdraw or stop oral corticosteroids NICE CKS Oral Corticosteroids
As a general principle:

- **Short courses** of oral corticosteroids (less than 3 weeks) can be stopped abruptly.
- **Gradual withdrawal** should be considered for people whose disease is unlikely to relapse and who have:
    - Received more than 3 weeks of corticosteroid treatment.
    - Recently received repeated courses of corticosteroids (especially if they have been taken for longer than 3 weeks), for example prescribed for the treatment of acute exacerbations of asthma.
    - A history of previous long-term therapy (months or years).
    - Other possible causes of adrenal suppression, such as excessive alcohol consumption or stress (for example due to infection, trauma, or surgery).
    - Received more than 40 mg prednisolone daily or equivalent for more than 1 week.
    - Been taking repeated evening doses of corticosteroids, which increases the risks of developing adrenal insufficiency.
- If stress, for example caused by infection, trauma, or surgery occurs up to 1 week after stopping the corticosteroid, additional corticosteroid cover should be prescribed to compensate for any potential adrenal suppression.
- During withdrawal, the dose of oral corticosteroids may be reduced rapidly down to physiological doses (about 7.5 mg of prednisolone or equivalent) and reduced more slowly thereafter. For a suggested withdrawal regime of oral prednisolone, see Table 3 via the above link to CKS.

Oral / inhaled Corticosteroids – General Messages

- Please refer to BNF-prednisolone for general advice on prescribing oral corticosteroids, e.g. availability of steroid cards, give as single daily dose OM to minimise suppressive action on cortisol secretion, etc.
- Always consider 'total steroid load' (oral, inhaled and nasal) when assessing patients.