

# COPD Inhaled Therapy Prescribing Guidance

For Basingstoke, Southampton and Winchester District Prescribing Committee

**This guidance applies to patients with a COPD DIAGNOSIS CONFIRMED BY POSTBRONCHODILATOR SPIROMETRY:**

Post bronchodilator FEV1/FVC of <0.7 (or below LLN) with symptoms consistent with COPD (exertional dyspnoea +/- cough productive of sputum) and risk factors (usually >20 pack years smoking history).

First and most cost effective steps in treatment include

- Annual flu and one off pneumococcal vaccination
- Smoking Cessation: best results with a combination of pharmacological therapy and psychological support
- Pulmonary Rehabilitation: best evidence for those scoring grade 3 and above on MRC score

## Contents

Key Principles and Definitions.....	p2
Step 1: Determine Inhaler Class Indicated.....	p3
Step 2: Determine Device Suitability via Inhaler Technique Assessment.....	p4
Step 3: Combine Device Assessment and Inhaler Class.....	p5
Appendix 1: Dry Powder Inhalers.....	p6
Appendix 2: MDIs and soft mist inhalers.....	p7
Appendix 3: Spacers.....	p8

## Key Principles and Definitions

### Key Principles

- **Recognition of EXACERBATION RISK requiring inhaled steroids by:**
  - **Documentation of Exacerbation History** - both hospitalisation and home treated exacerbations relevant
  - **% predicted FEV1** (risk increases with decreasing FEV1: GOLD Stage 3 and 4 ie FEV1<50% are at significantly increased risk)
  - **Recognition of Asthma/COPD overlap and eosinophilic patients** who require inhaled steroids as part of their treatment due to exacerbation risk
- **Do not prescribe an inhaler without assessing INHALER TECHNIQUE and demonstrating use of the inhaler** - Demonstration of device may be delegated to allied health care professionals including pharmacists
- **Aim for device CONSISTENCY and use COMBINATIONS where possible to keep number of inhalers to a minimum**

GRADE OF OBSTRUCTION		
Post bronchodilator %FEV1 (FEV1/FVC <70%)		
1	Mild	>80%
2	Moderate	50-80%
3	Severe	30-49%
4	V severe	<30%

MRC Breathlessness Scale	
1	Not troubled by breathlessness except on strenuous exercise
2	Short of breath when hurrying on the level or walking up a slight hill
3	Walks slower than most people on the level, stops after a mile or so, or stops after 15 minutes walking at own pace
4	Stops for breath after walking about 100 yards or after a few minutes on level ground
5	Too breathless to leave the house, or breathless when undressing

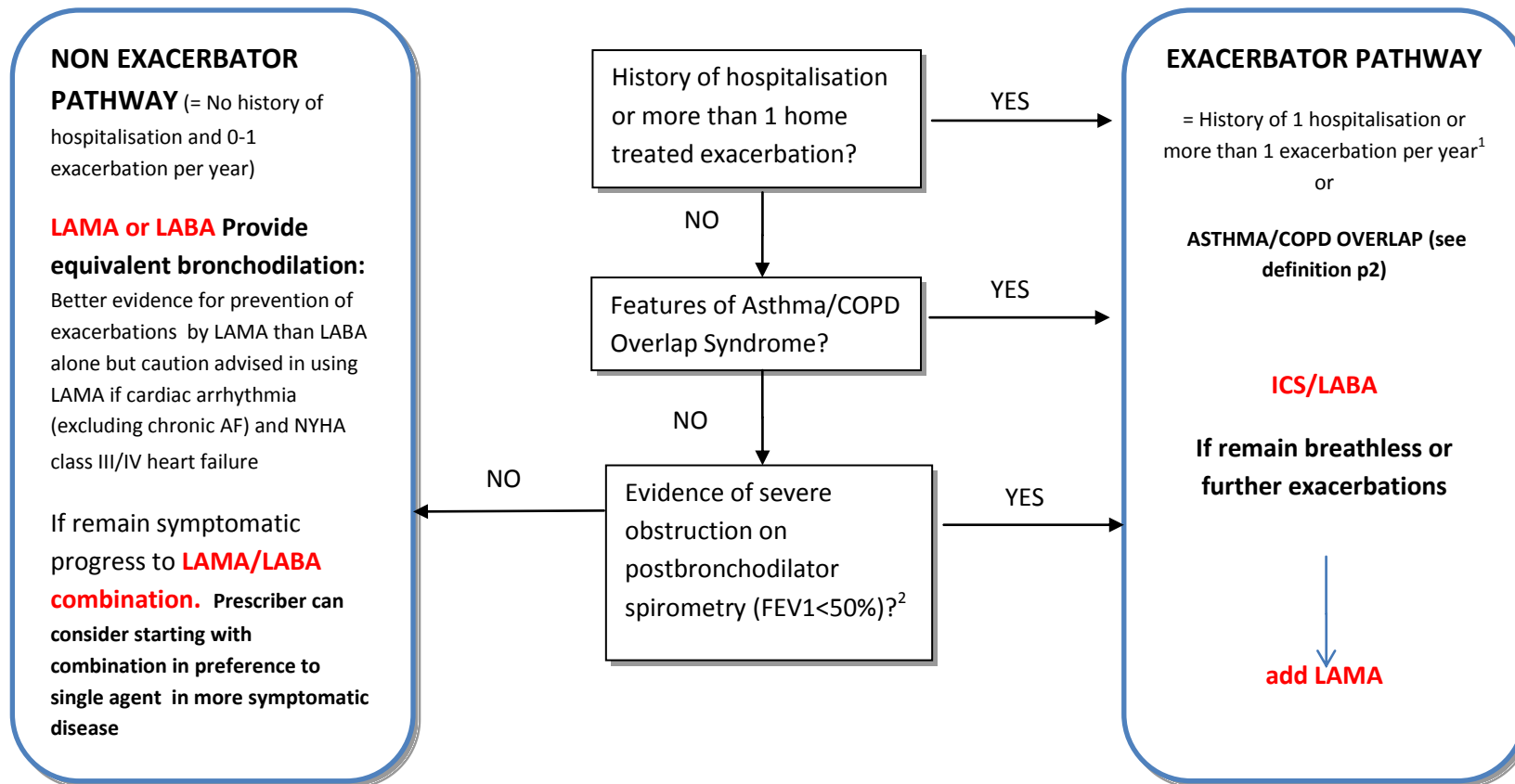
**ASTHMA-COPD OVERLAP (ACOS)** – characterised by persistent airflow limitation with several features usually associated with asthma and with COPD

Best discriminating features listed below. 3 or more features below suggest disease; similar numbers in both asthma and COPD suggest presence of ACOS.

**ASTHMA:** onset <20yrs, symptom variability day to day, diurnal variation, recognised triggers, record of variable airflow obstruction (spirometry or PEF), normal lung function between symptoms, previous doctor diagnosis of asthma, family history of asthma or atopy, seasonal variation not progressive, spontaneous recovery or immediate/early response to BD or ICS, normal CXR.

**COPD:** onset >40yrs, symptoms persistent despite treatment, good/bad day variation only, chronic cough and sputum, record of persistent obstruction post bronchodilator, abnormal lung function, previous doctor diagnosis COPD/CB/emphysema, heavy exposure to risk factor (>20 pack yrs), slowly progressive, limited relief from rapid acting bronchodilators, severe hyperinflation

## Step 1: Determine Inhaler Drug Class Indicated



All patients also require a **short acting beta2 agonist (SABA)** as a reliever.

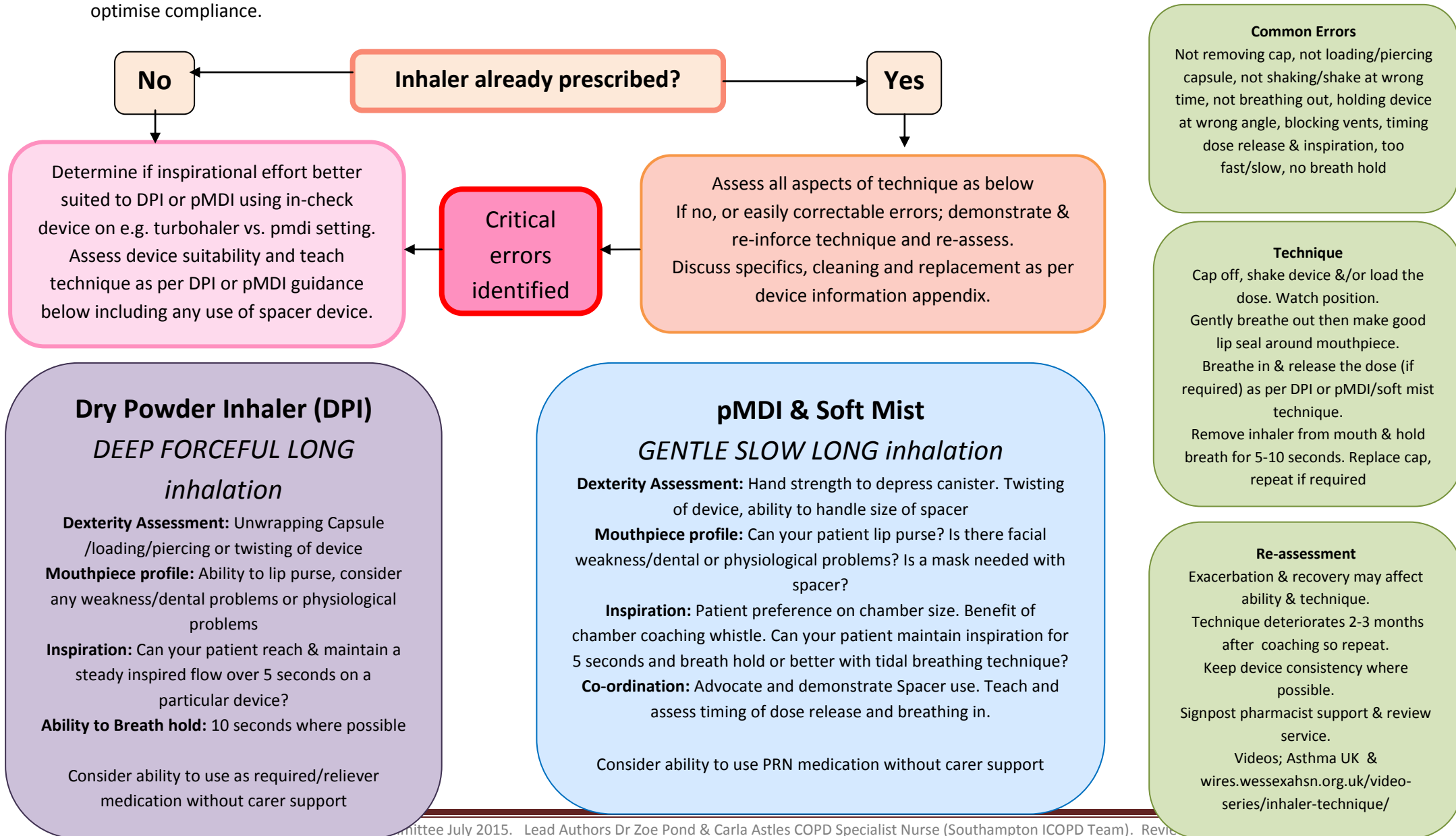
Reassessment following new medication required. If no improvement, review technique and consider alternative device, review diagnosis including secondary care referral if necessary and proceed to combination therapy for maximal clinical benefit.

<sup>1</sup> 'Exacerbator' as per GOLD 2014 guideline review. If the patient is no longer exacerbating we do not currently recommend weaning steroids but this will be reviewed in future guidance as more evidence becomes available.

<sup>2</sup> Current guidelines recommend giving patients with severe obstruction FEV1 <50% inhaled corticosteroids for additional bronchodilatation and exacerbation reduction. Note increased risk of non-fatal pneumonia with ICS (see note 2 p5) so consider individual risk/benefit ratio.

## Step 2: Assess Inhaler Technique to determine if requires Dry Powder Inhaler (DPI) or Metered Dose Inhaler (pMDI)

Patient's ability to use the device is essential - this will be determined by the **inspiratory flow** that they can achieve (which varies according to resistance of the device), **manual dexterity, coordination** and **oral** compatibility with mouthpiece. **Patient preference** around **dosing schedule** and **device type** will optimise compliance.



### Step 3: Combine Device Assessment and Inhaler Class and Educate Patient with chosen device

Identify the preferred inhaler by class and device (DPI/MDI). Where there is a choice of DPI available in drug class identify most suitable device (dexterity/oral compatibility). Prices are quoted to inform cost effective prescribing when a choice remains.

DEVICE (**BOLD**); Trade name (*italics*), devices colour coded

	DPI – hard and fast and deep	Cost Per 30 days <sup>4</sup>	pMDI – slow and gentle and long pMDI ALWAYS through AEROCHAMBER; respimat directly in mouth	Cost Per 30 days
SABA <sup>1</sup>	SALBUTAMOL <b>EASYHALER</b> 100mcg 2 puffs prn	£3.31	SALBUTAMOL <i>VENTOLIN EVOHALER</i> pmdi 100mcg 2 puffs prn	£1.50
	TERBUTALINE <i>BRICANYL TURBOHALER</i> 0.5mg 1 puff prn	£6.92		
LAMA	ACLIDINIUM BROMIDE <i>ELKIRA</i> <b>GENUAIR</b> 322mg bd (use if eGFR<30)	£28.60	TIOTROPIUM <i>SPIRIVA</i> <b>RESPIMAT (SOFT MIST)</b> 2.5mcg 2 puffs od	£33.50
	GLYCOPYRRONIUM <i>SEEBRI</i> <b>BREEZHALER</b> 55mcg od	£27.50		
	UMECLIDINIUM <i>INCRUSE</i> <b>ELLIPTA</b> 55mcg od	£27.50		
	TIOTROPIUM <i>SPIRIVA</i> <b>HANDIHALER</b> 18mcg od	£33.50		
LABA	FORMOTEROL <i>OXIS</i> <b>TURBOHALER</b> 12mcg bd	£24.80	FORMOTEROL <i>ATIMOS MODULITE</i> <b>pMDI</b> 12mcg bd	£30.06
	FORMOTEROL <b>EASYHALER</b> 12mcg bd	£23.75	OLODATEROL <i>STRIVERDI</i> <b>RESPIMAT (SOFT MIST)</b> 2.5mcg 2 puffs od	£26.35
	INDACATEROL <i>ONBREZ</i> <b>BREEZHALER</b> 150-300mcg od	£29.26		
LAMA/LABA	ACLIDINIUM/FORMOTEROL <i>DUAKLIR</i> <b>GENUAIR</b> 322/12 bd	£32.50	TIOTROPIUM/OLODATEROL <i>SPIOLTO</i> <b>RESPIMAT (SOFT MIST)</b> 2.5/2.5mcg 2 puffs od	£32.50
	UMECLIDINIUM/VILANTEROL <i>ANORO</i> <b>ELLIPTA</b> 55/22 od	£32.50		
	GLYCOPYRRONIUM/INDACATEROL <i>ULTIBRO</i> <b>BREEZHALER</b> 55/150 od	£32.50		
ICS/LABA <sup>2</sup>	FLUTICASONE FUROATE/VILANTEROL <i>RELVAR</i> <b>ELLIPTA</b> 92/22 od	£27.80	BECLOMETHASONE/FORMOTEROL <i>FOSTAIR</i> <b>pMDI</b> 100/6 2 puffs bd	£29.32
	BUDESONIDE/FORMOTEROL <sup>3</sup> <i>DUORESP</i> <b>SPIROMAX</b> 320/9 bd	£29.97		
	BUDESONIDE/FORMOTEROL <sup>3</sup> <i>SYMBICORT</i> <b>TURBOHALER</b> 400/12 bd	£38.00		

<sup>1</sup> All patients require SABA in addition to long acting therapy. Preferred SABA is pMDI through aerochamber due to cost and the ability to take multiple single actuations through aerochamber and tidal breath in exacerbation. However if patients are non compliant with an aerochamber then a DPI SABA should be considered as it may be more cost effective

<sup>2</sup> Patients should be warned of the increased risk of non-fatal pneumonia with use of any ICS. This risk appears to be dose related and related to type of steroid with fluticasone posing a greater risk than budesonide or beclomethasone.








<sup>3</sup> All inhalers should be prescribed by brand name and device to avoid confusion. Prescribers **must** state Budesonide/Formoterol formulations by brand name and device or wrong inhaler may be dispensed.

<sup>4</sup> Prices correct at time of finalisation.

## Appendix 1: Dry Powder Inhaler Devices

All DPI's require a **DEEP, FORCEFUL AND LONG** inhalation




Consider dexterity, mouthpiece, dose delivery indication and carer support. Assess inspiratory effort on in-check, whistle or placebo

Inhaler Device	Dexterity Required	Confirmation of Actuation	Loading required	Considerations for device use	Assessment tool
BREEZHALER 	Required	Capsule cleared. Capsule vibration. Lactose taste.	Foil protected capsule	Pierce capsule firmly but once only. Take 2 inhalations from 1 capsule. Do not wash device LAMA, LABA, LAMA/LABA	Placebo
EASYHALER 	Minimal	Lactose taste.	No	Requires shaking. Dose counter decreases in 5's triggered on depressing top section of device. ICS, SABA, LABA	Empty device placebo/mouthpieces
ELLIPTA 	Minimal	Possibly no taste	No	Large dose counter decreases each time lid is opened. 6-week shelf life on opening foil cover. Do not block vents ICS/LABA, LAMA, LAMA/LABA	Whistle and placebo
GENUAIR 	Minimal	Colour indicator/Audible click/Lactose taste	No	Dose counter (in 10's) plus separate lock out mechanism when empty. Keep breathing in after click heard to receive full dose. Indicator changes on successful actuation only LAMA, LAMA/LABA	Placebo/disposable mouthpieces
HANDIHALER 	Required	Capsule vibration during inhalation	Foil protected capsule	Pierce capsule firmly, once only. Take 2 inhalations from 1 capsule. Device should be washed monthly and left to air-dry for 24 hours LAMA	Placebo
TURBOHALER 	Minimal. Base gripper from AZ	Lactose taste	No	Dose counter decreases on turning base. SABA, LABA, ICS/LABA	Whistle/placebo/in-check
SPIROMAX 	Minimal	Lactose taste	No	Dose counter decreases when lid is opened. Drops in "2's". 6-month shelf life on opening foil cover. Do not block vents ICS/LABA	Placebo

## Appendix 2: MDI and Soft Mist Devices

All Metered Dose and soft mist inhalers require a **SLOW, GENTLE and LONG** inhalation

Consider spacer, dexterity, mouthpiece and carer support. Assess inspiratory effort using an assessment tool (in-check, flo-tone or placebo)

Device	Hand strength	Co-ordination required	Confirmation of Actuation	Spacer	Considerations for device use	Assessment tool
pMDI 	Required. Haleraid available OTC	Required	Taste, Dose counters often on device	Yes	Device re-priming maybe needed as early as after 3 days of no use. SABA, SAMA, LABA, ICS, ICS/LABA	In-check, flo-tone and trainer, placebo
Ba-pMDI 	Minimal	Reduced	Taste, audible click	No	Device re-priming required after 5 days of no use. Close lid/lower lever to prime for 2 <sup>nd</sup> dose when required.	In-check, Easi-breathe disposable mouthpieces from TEVA, placebo
RESPIMAT 	Required	Required	Click from spring on dose release. Dose counter on side	Off license but can be considered where absolutely necessary	Soft mist released over <2 seconds. Keep inhalation going for at least 4 seconds. Needs priming after 7 days of no activity. Do not cover air vent	Placebo

### Appendix 3: Spacer Devices

Spacer choice should be driven by device compatibility and patient preference.

Spacers with whistles maybe a useful adjunct to inhaler technique

Face Masks maybe appropriate for some adults

- The spacer should be compatible with the pMDI being used.
- The drug is administered by repeated single actuations of the metered-dose inhaler into the spacer, with each actuation followed by inhalation
- There should be minimal delay between pMDI actuation and inhalation.
- Tidal breathing is as effective as single breaths.
- Spacers should be cleaned monthly rather than weekly as per manufacturer's recommendations or performance is adversely affected. They should be washed in detergent and allowed to dry in air. The mouthpiece should be wiped clean of detergent before use
- Drug delivery via a spacer may vary significantly due to static charge. Metal and other antistatic spacers are not affected in this way
- Plastic spacers should be replaced at least every 12 months but some may need changing at six months.

