








COPD: INHALATION DEVICES CHART- Adapted from Rxfiles COPD: INHALATION DEVICES CHART

There is no evidence to suggest one device works better than another. Poor inhaler technique: ↓efficacy. Pt device dissatisfaction: ↓adherence.

DEVICE	RespiMat	MDI	HandiHaler, Breezhaler	Turbuhaler	Diskus	Genuair	Ellipta
salbutamol/ipratropium COMBIVENT tiotropium SPIRIVA tiotropium/olodaterol INSPIOLTO 	ipratropium ATROVENT salbutamol VENTOLIN 	HandiHaler: tiotropium SPIRIVA Breezhaler: glycopyrronium SEEBRI glycopyrronium/indacaterol ULTIBRO indacaterol ONBREZ 	formoterol OXEZE formoterol/budesonide SYMBICORT 	salbutamol VENTOLIN 	aclidinium TUDORZA aclidinium/formoterol DUAKLIR 	umeclidinium INCRUSE vilanterol/fluticasone BREO vilanterol/umeclidinium ANORO 	
Description	Uses a mechanical energy to deliver a "soft mist" of medication over ~1.5 seconds.	Delivers aerosolized stream of medication over ~0.2 seconds.	Capsules containing medication are pierced, then powder inside is inhaled	Dry powder inhaler containing a reservoir of medication.	Dry powder inhaler containing single dose blisters of medication.		
	Low inspiratory flow ≈ 20L/min required		Breath-actuated: reduces need for hand-breath coordination				
PROS	<ul style="list-style-type: none"> Slower actuation may improve technique vs MDI DOSE COUNTER: numbered by interval (frequency of interval varies by medication); loading base locks to signal empty COMBIVENT RespiMat has cost advantage over COMBIVENT nebulas. Note: Pharmacies should pre-load the RespiMat canister before dispensing RESPIMAT inhaler may facilitate medication delivery for residents with cognitive impairment or difficulty synchronizing breathing to actuation. 	<ul style="list-style-type: none"> Suitable for all ages. Note: spacer strongly recommended regardless of age (see comments below). Spacer with a mask available for cognitive impairment, frail, < 5 years old, etc. Can be used with mechanical ventilation (e.g. in critical care units) 	<ul style="list-style-type: none"> Rattling or whirring heard if capsule's contents inhaled correctly. Can look to view empty capsules (and Breezhaler has clear capsules). Low inspiratory effort needed DOSE COUNTER: each capsule equals 1 dose; thus no dose 	<ul style="list-style-type: none"> Few steps, easy to use (compared to HandiHaler or Breezhaler). Dose is not lost even if base is twisted multiple times; however dose counter will no longer be accurate DOSE COUNTER: every 20th dose numbered to give approximation of doses remaining 	<ul style="list-style-type: none"> DOSE COUNTER: displays exact number of remaining doses 	<ul style="list-style-type: none"> Simple to use & less errors during dose preparation vs HandiHaler Provides visual (window changes green → red) & audible ("click") feedback when dose taken correctly In one study, majority of patients (80%) preferred Genuair over HandiHaler. DOSE COUNTER: every 10th dose numbered; loading button locks to signal empty 	<ul style="list-style-type: none"> Simple to use; one step to open & load dose. Sub-analysis of RCT data: 95% of asthmatics able to use correctly after only one demonstration In one study, majority of patients (>60%) preferred Ellipta over MDI, Diskus, or HandiHaler. DOSE COUNTER: displays exact number of remaining doses with large numbers
CONS	<ul style="list-style-type: none"> Requires reasonable strength to spring-load dose Incorrect rate of inhalation results in cough Not approved for patients under 18 years of age or for use with a spacer New device to the market - limited real-world experience (available and in use outside of Canada for several years) Requires priming (until mist is visible, then 3 more sprays) if first time use OR if not used for ≥ 21 days. Requires priming (x 1 spray) if not used for ≥ 3 (COMBIVENT) or ≥ 7 days (SPIRIVA/INSPIOLTO). 	<ul style="list-style-type: none"> DOSE COUNTER most devices lack dose counter Spacer may be cumbersome; however, if using only at home in the morning/evening, additional burden is low. Susceptible to freezing Requires priming (x 4 sprays) if not used for ≥ 5 days Inhaler actuation should be synchronised with inspiration to ensure optimum delivery of drug to the lungs. In patients who find coordination of a pressurised metered dose inhaler difficult, a spacer may be used with VENTOLIN® HFA 	<ul style="list-style-type: none"> Multi-step process: may be difficult to use for patients with poor manual dexterity (eg: arthritic hands, Parkinson's disease) or cognitive impairment Capsules are packaged in foil blisters; may be difficult to remove (for some) and are light and moisture sensitive Patients have been known to swallow capsules instead of inhaling them. Pieces of capsule may be inhaled if pierced more than once. 	<ul style="list-style-type: none"> Tipping device before inhalation (e.g. upside down) can expel the dose When empty, remaining desiccant can still be heard - patients may think there are doses left DOSE COUNTER: displays a "zero", but it can be difficult to tell when the indicator reaches this mark Humidity/moisture (e.g. exhaling into device, storing in bathroom) can clump drug in reservoir 	<ul style="list-style-type: none"> Medications for Diskus inhalers tend to be among the most expensive in their class 	<ul style="list-style-type: none"> Some patients may experience a bitter taste with aclidinium 	<ul style="list-style-type: none"> No way to identify if proper inspiratory effort is being achieved Short expiry date (6 weeks) after removal from protective packaging
	<ul style="list-style-type: none"> New device to the market - limited real-world experience. 						
	Requires sharp, forceful inhalation of breath to get full dose - some patients (e.g. < 5 years old, some COPD patients with severe symptoms) will be unable to achieve adequate flow rate.						