



Learning Modules

Objectives of COPD Education

To provide care teams knowledge to assess (identify) and manage residents living with COPD. The ultimate goals are to improve resident quality of life and reduce Emergency Room transfers through the reduction of exacerbations and other related complications

Adapted from the program

Living Well **COPD**[™]
with

Chronic Obstructive Pulmonary Disease

A plan of action for life

Livingwellwithcopd.com

Modules Overview

Module 1: What is COPD? *Symptoms, diagnosis and prevention*

Module 2: COPD Medications and Treatments

Module 3: Medication Techniques and Devices

Module 4: Oxygen Therapy for COPD

Module 5: Caregiver COPD Action Plan -The resident is feeling well

Module 6: Caregiver COPD Action Plan -The resident is feeling unwell

Module 7: Caregiver COPD Action Plan -The resident is feeling worse

Module 8: End of life care for COPD

Module 3

Topic

Medication Techniques and Devices



At the end of this module we will ask you :

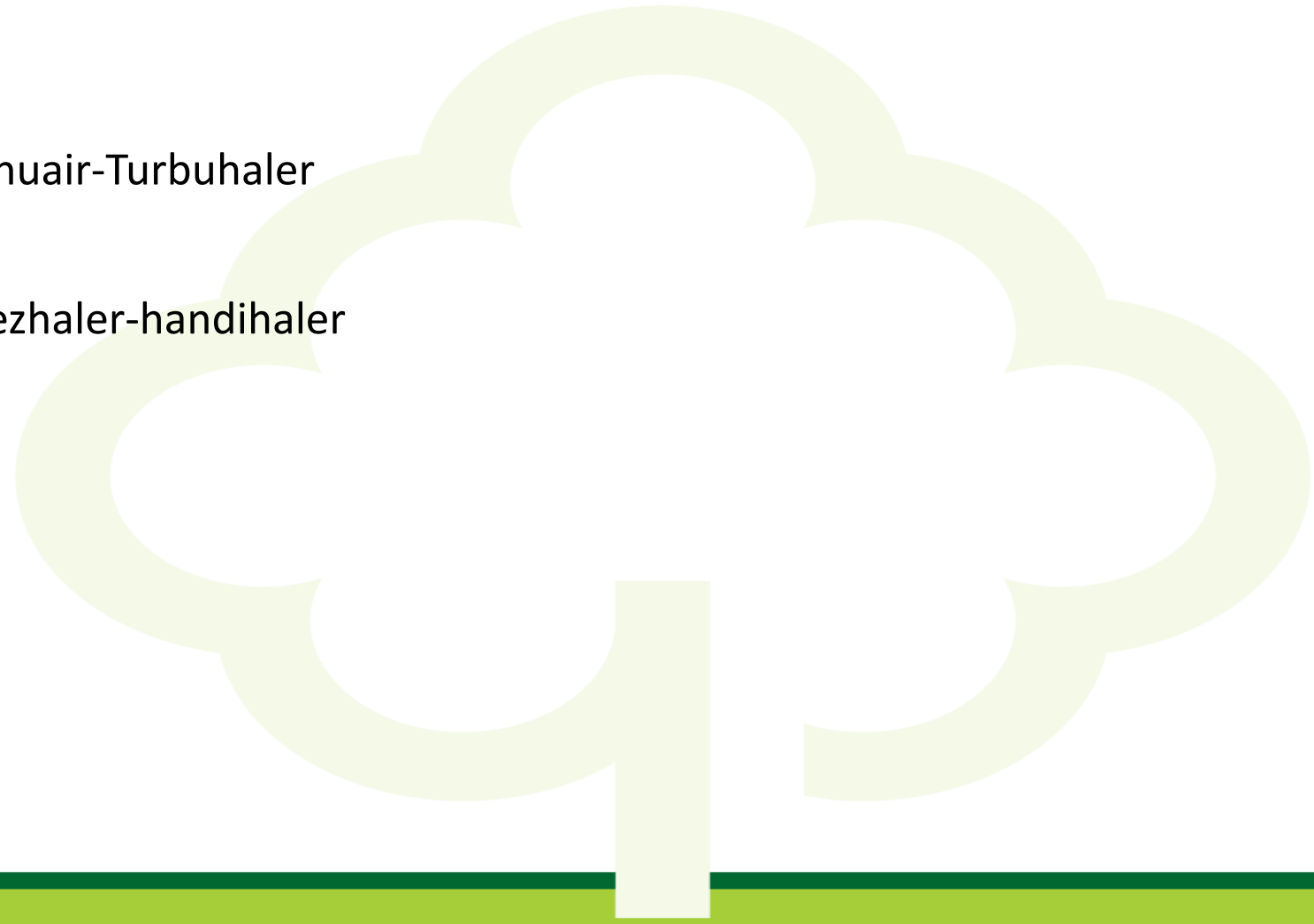
1. In your words, what does “Device first” mean?
2. How many types of devices did we describe?
3. Will using a spacer device increase the amount of drug deposited in the lungs? Yes or No
4. Which type of devices are best suited for COPD with severe symptoms or for those cognitively impaired?
5. Should a spacer be dried with a towel after washing? Yes or No

Proper Inhalation Technique

- Taking respiratory medication **is very important** in controlling the symptoms and improving the quality of life of a resident who lives with COPD
- In order to work, COPD medication **must be combined with your breathing** to reach the lungs
- **Device first:** it is important to choose a medication delivery system (device) that the resident or the caregiver is **confident handling** and **have no doubt that the medication will go into the lungs**

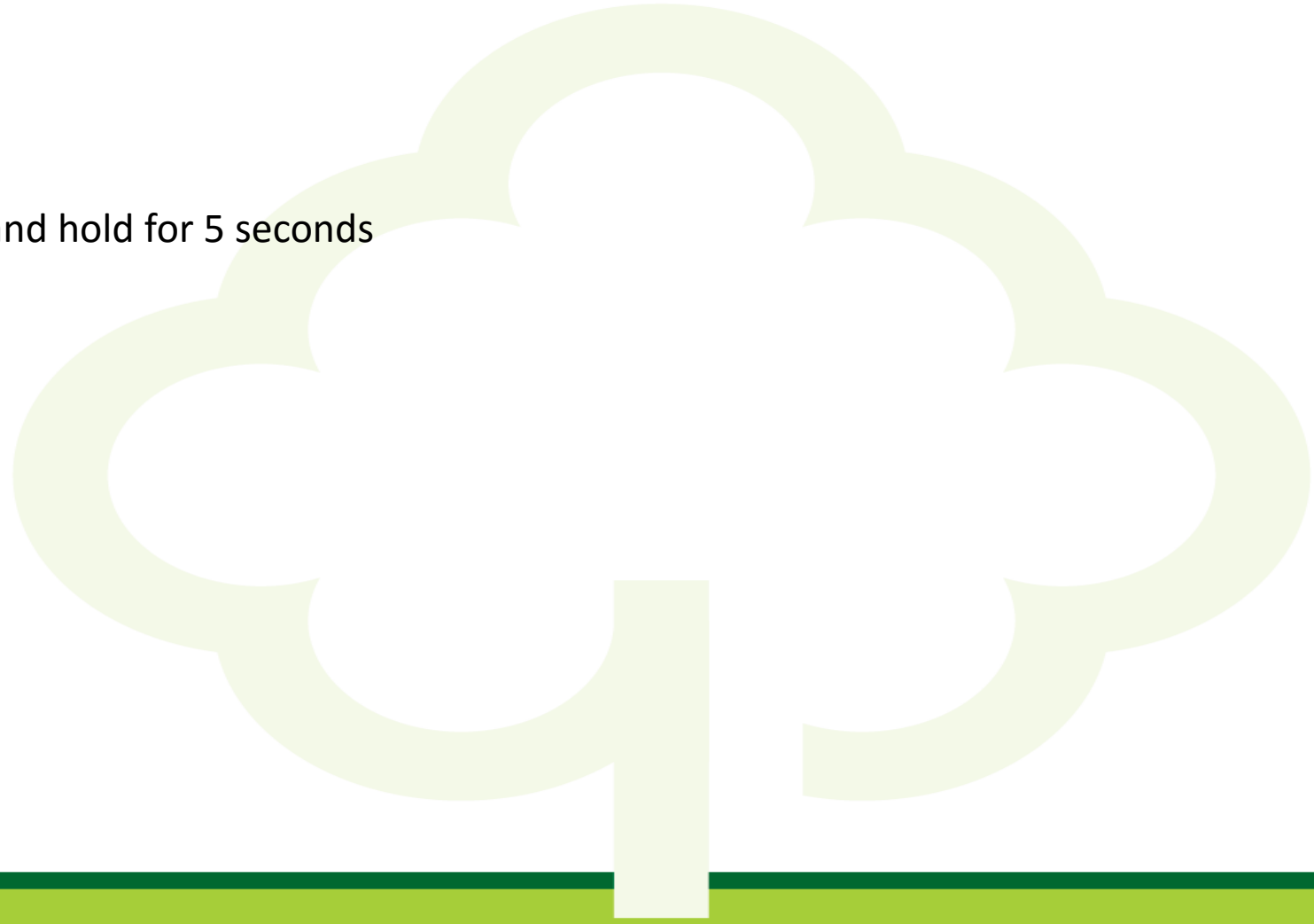
Types of Devices

1. MDI (Metered Dose Inhaler): puffers or inhalers + Spacer (chamber)
2. Soft Mist: Respimat
3. Dry powder inhaler: Diskus-Ellipta-Genuair-Turbuhaler
4. Dry powder inhaler with capsule: Breezhaler-handihaler



Soft Mist: Respimat

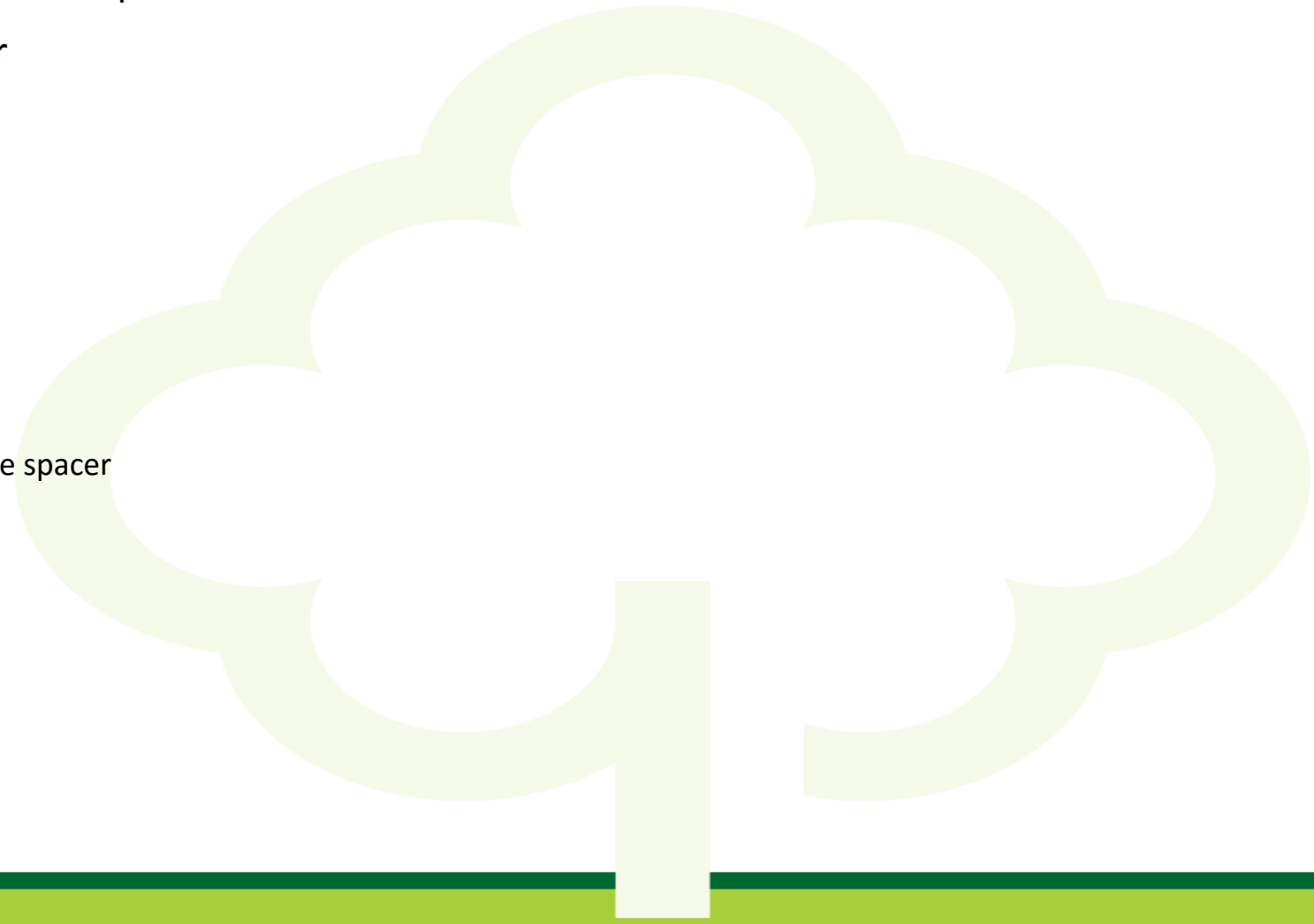
1. Load the dose by turning the clear base of the device
2. Open the cap
3. Breathe out away from device
4. Position the mouth with teeth on the device
5. Breathe in as you push the coloured button and hold for 5 seconds
6. Close the cap



MDI Metered Dose Inhaler: puffers + spacer

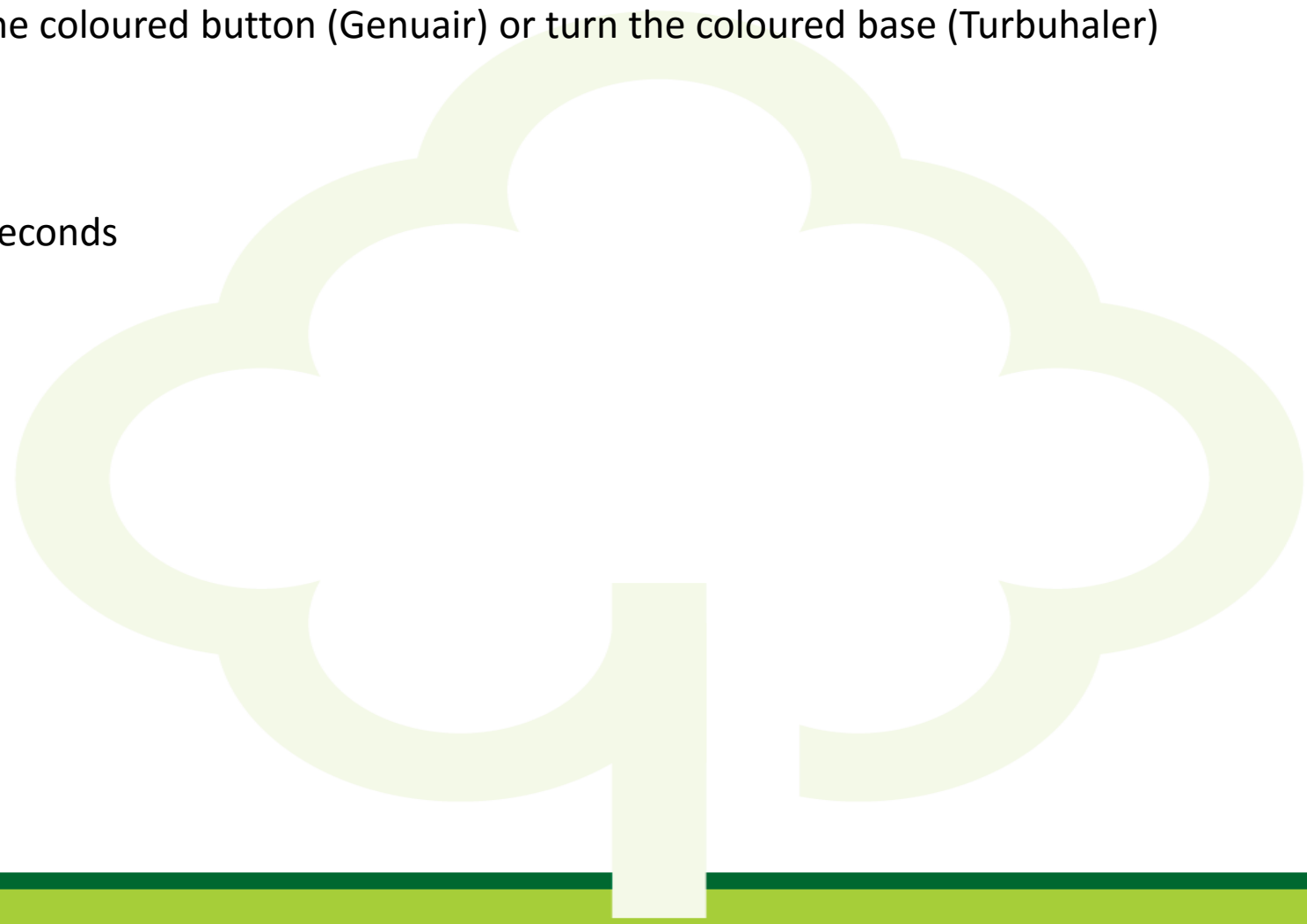
1. Load the dose: remove the cap, shake the puffer 3 or 4 times
2. Prepare the device: Assemble the puffer with the spacer
3. Position the mouth with teeth on the spacer
4. Breathe out, preferably into the device
5. Press the canister down once
6. Breathe in deeply and hold for 5 seconds
7. Close the device, put the cap back

Note: if the resident is unable to take a deep breath or hold it, advise that they take 3 to 6 normal consecutive breaths from the spacer



Dry powder inhaler: Diskus-Ellipta-Genuair-Turbuhaler

1. Open or prepare the device (a dose is loaded when you open the Ellipta)
2. Load the dose: slide the lever (diskus), push the coloured button (Genuair) or turn the coloured base (Turbuhaler)
3. Breathe out away from device
4. Position the mouth with teeth on the device
5. Breathe in quickly and deeply and hold for 5 seconds
6. Close the device



Dry powder inhaler with capsule: Breezhaler-handihaler

1. Open the device cap
2. Load the dose: open dose chamber, put a capsule in, close dose chamber. Pierce capsule by pushing on the coloured buttons
3. Breathe out away from the device
4. Position the mouth with teeth on the device
5. Breathe in deeply and hold for 5 seconds
6. Repeat inhaling to make sure all the powder is used up
7. Open the dose chamber again to remove and dispose of the empty capsule
8. Close the dose chamber and close the device

Cleaning

- Always follow the manufacturer instructions
- No device should be submerged in water
- All devices should be cleaned once a week. When there is a lung infection, try to clean the device every day
- Wipe the mouth piece after every use
- Only the spacer can be opened up and washed. Follow the manufacturer instructions. Let it air dry. Do not dry with a towel to avoid inhaling fabric residue left in the spacer

Empty?

- All pre-dosed inhalers, except some MDI (puffers), are equipped with a dose counter. It is empty when the number shows zero
- A mechanism stops the device from working when empty
- You can ask your pharmacy to add a dose counter on your MDI (puffers) - usually without charges
- Consult your inhalation device chart (plasticized). It lists some pros and cons for each device

Recommendation for the elderly population - 1








- **All devices have pros and cons.** (consult the inhalation device chart)
- If the resident is using more than one inhaler medication, consider using the same device for all medication
- Compared to other devices **Respimat** may facilitate the medication delivery for the resident with cognitive impairment or with difficulty synchronizing breathing to dosage delivery
- The use of a **MDI (puffer) with a spacer** may increase the amount of medication that reaches the lungs in the elderly and cognitively impaired resident or those with difficulty synchronizing breathing to dosage delivery. 3 to 6 smaller breaths can be taken if the user cannot take a deep breath out and in. A spacer may reduce the incidence of thrush when used for a corticosteroid MDI. A spacer requires extra steps for cleaning

Recommendation for the elderly population - 2

- **A dry powder inhaler** device containing a reservoir of medication or a single dose blister of medication requires from the user a sharp forceful inhalation of breath to get the full dose inside their lungs. COPD residents with severe symptoms will be unable to achieve an adequate flow rate. *Turbuhaler, Diskus, Genuair, Elipta*
- **A dry powder inhaler** device **using a capsule** can be difficult to use for a resident with poor manual dexterity or cognitive impairment. Some users are known to swallow the capsule or inhale pieces of capsule if pierced more than once while in the device. *Handihaler, Breezhaler*

COPD: INHALATION DEVICES CHART-Adapted from

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/alacaterol INSPIOLTO 	ipratropium ATROVENT salbutamol VENTOLIN 	HandiHaler: tiotropium SPIRIVA Breezhaler: glycopyrronium SEEBRI glycopyrronium/indacaterol ULTIBRO indacaterol ONBREVZ 	formoterol QXEZE formoterol/budesonide SYMBICORT 	salbutamol VENTOLIN 	acclidinium TUDORZA acclidinium/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.		
PROS	Low inspiratory flow ≈ 20L/min required		Breath-actuated: reduces need for hand-breath coordination				
	<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 acclidinium New device to the market - limited real-world experience. 	<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
	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.						

Now we ask you :

1. In your words, what does “Device first” mean? *It means that it is very important to have the appropriate medication delivery system (device) to ensure the medication goes to the lungs especially for the frail, the cognitively impaired, and those with difficulty synchronizing breathing to dosage delivery.*
2. How many types of devices did we describe? *4 types.*
3. Will using a spacer device increase the amount of drug deposited in the lungs? *Yes.*
4. Which type of devices are best suited for COPD with severe symptoms or for those cognitively impaired? *Respimat or MDI+spacer.*
5. Should a spacer be dried with a towel after washing? *No.*

Thank you for taking the time to learn more
about residents who live with COPD

The next module – Oxygen Therapy for COPD

Acknowledgements



It takes a community to fix COPD