

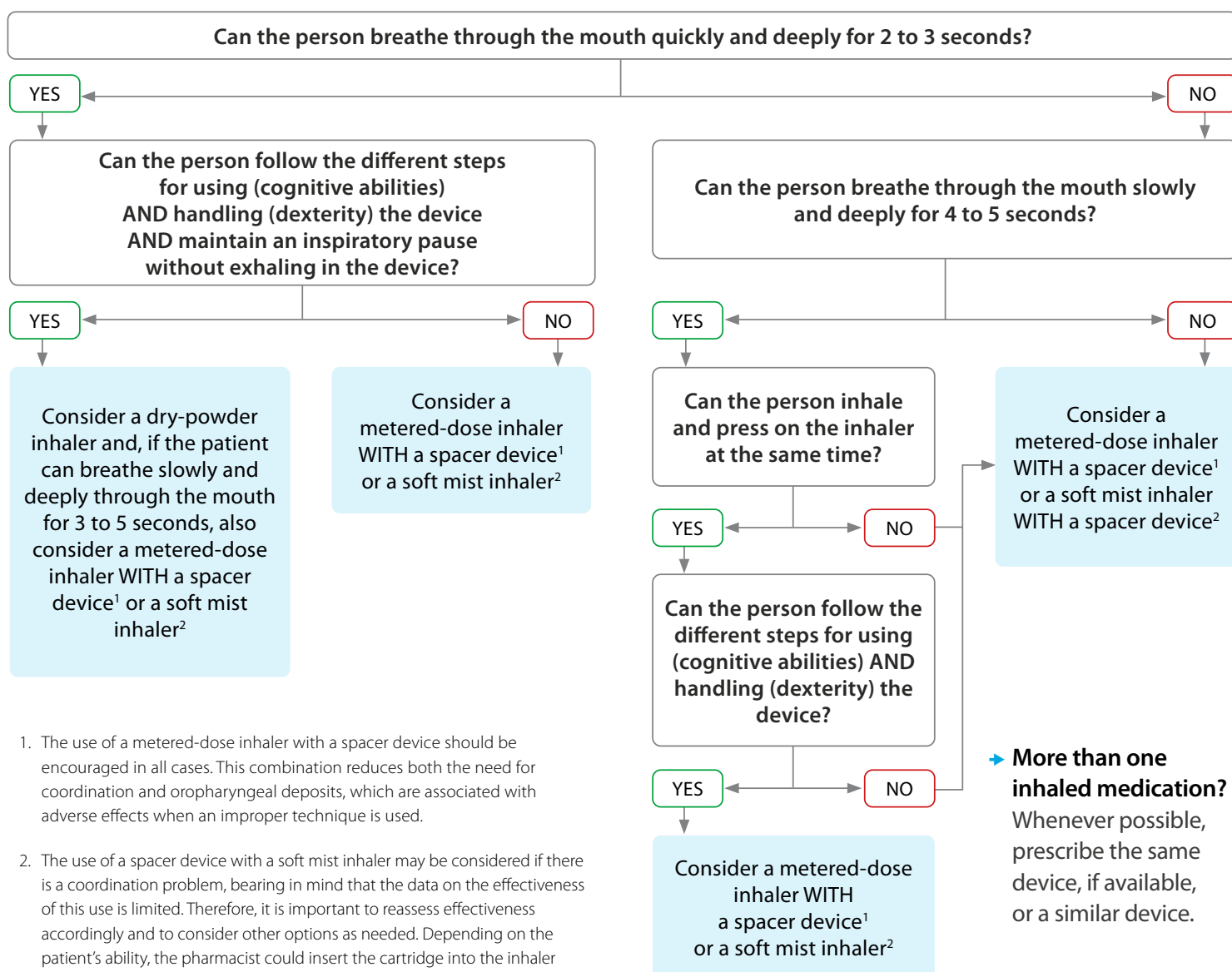
HELP IN CHOOSING AN INHALATION DEVICE FOR THE TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

This decision support tool is intended mainly for front-line clinicians. It is provided for information purposes only and should not replace the judgment of the clinician who performs activities reserved under a statute or regulation. It was developed from the scientific literature and the knowledge and experience of Québec clinicians and experts. For further details, go to inesss.qc.ca.

1. CHOOSING AN INHALATION DEVICE

➔ The choice of inhalation device should be based on the treatment indications (see the Optimal Use Guide for the treatment of COPD available [here](#)), the patient's abilities and preferences, and the devices' characteristics. This decision support tool provides guidance but does not cover all the possibilities. Certain characteristics listed on [Appendix A](#) can help guide the choice. Additionally, there are the [coverage under the prescription drug insurance plan](#).

❗ People are more likely to use their inhalers regularly and correctly if they helped choose them and have confidence in them.



1. The use of a metered-dose inhaler with a spacer device should be encouraged in all cases. This combination reduces both the need for coordination and oropharyngeal deposits, which are associated with adverse effects when an improper technique is used.

2. The use of a spacer device with a soft mist inhaler may be considered if there is a coordination problem, bearing in mind that the data on the effectiveness of this use is limited. Therefore, it is important to reassess effectiveness accordingly and to consider other options as needed. Depending on the patient's ability, the pharmacist could insert the cartridge into the inhaler before dispensing the soft mist inhaler.

➔ **More than one inhaled medication?** Whenever possible, prescribe the same device, if available, or a similar device.

2. COPD PERSON EDUCATION

- ➔ The clinician teaches the proper technique and assesses it (ideally, using the active inhalation device that has been chosen or, if not, a corresponding placebo inhalation device).

❗ The quality of the **initial instruction** is crucial to the outcome of the inhalation therapy. Verbal instructions are effective for good teaching, and they take **less than 15 minutes**.

Asking the person to demonstrate their inhalation technique ensures correct device use.

3. COPD PERSON FOLLOW-UP

- ➔ The clinician assesses the technique for using the inhalation device and the effect the treatment is having.

❗ The inhalation technique becomes less accurate over time. Consequently, the **instruction should be repeated during the follow-up visits**.

- ➔ Continuously reassess inhalation device selection within an interdisciplinary context, considering disease progression, overall health, the person's capabilities (e.g., dexterity, MNCD), and after any unplanned healthcare episode.

SOME ADDITIONAL RESOURCES (List not exhaustive)

Réseau québécois d'éducation en santé respiratoire (RQESR)

- Videos and tables with step-by-step instructions for using inhalation devices
<https://www.rqesr.ca/fra/outils-educatifs/outils-les-plus-utilises.asp>

Knowledge transfer platform Coeur-Poumons-Métabolisme (Université Laval)

- Video clips on the proper use of inhaled medication
<https://coeurpoumons.ca/actualites/des-capsules-video-pour-lutilisation-adequate-de-la-medication-inhalee>

Materials from the non-profit organization RESPIPLUS

- INHALED MEDICATION – How To Use An Inhaler? (in English and French)
<https://chroniclungdiseases.com/en/inhaled-medication/how-to-use-an-inhaler/>

FORMiNHAL therapeutic education resources (Université de Bordeaux)

- Demonstration videos of inhalation devices
<https://forminhal.formedoc.org/patient/demo.php>
- Video quizzes for improving the detection of incorrect inhaler techniques
<https://forminhal.formedoc.org/pro/quiz.php#entrainement>

REFERENCES

- The references can be found in the INESSS [report](#) associated with this tool.

APPENDIX A

Main characteristics of the inhalation devices¹ whose formulations are indicated in COPD

Characteristics	Metered-dose aerosol	Soft mist inhaler	Dry-powder inhaler (see distinguishing characteristics in the table below)
Portable	Yes (not with most SDs)	Yes (not with SD)	Yes
Loading required	No	Once, when inserting the cartridge	Some require the insertion of a capsule prior to each dose
Initial actuation (and subsequent actuation)	Yes (if prolonged disuse)	Yes (if prolonged disuse)	No, except for the Turbuhaler™ (if prolonged disuse)
Manual strength requirement	High	Moderate	Moderate to low
Hand-mouth coordination	Required if no SD	Required if no SD	Not required
Inspiratory flow requirement	Low	Low	High to moderate – the required minimum inspiratory flow rate varies according to the dry-powder inhaler ²

SD: spacer device

1. The different types of inhalation devices are presented in alphabetical order.

2. The Handihaler™ is an exception among dry-powder inhalers, as it works in individuals with low inspiratory flow and requires slow, deep inspiration.

Dry-powder inhalers: main distinguishing characteristics between the formulations indicated for COPD

Characteristics	Breezhaler ^{MC}	Diskus ^{MC1}	Ellipta ^{MC}	Genuair ^{MC}	Handihaler ^{MC2}	Inhub ^{MC}	Turbuhaler ^{MC}
Audible signal when dosing with inhaler	✓			✓			
Good manual dexterity required to handle the capsules	✓				✓		
Less sensitive to moisture		✓	✓				
Accurate dose counter		✓	✓			✓	
Capsule inserted before each dose	✓				✓		
To start the next dose, the cap must be fully closed			✓				
Impossible to use the device when empty				✓			
Powdery taste on the tongue and bitter taste that may bother some people				✓			
Window green when the inhaler is ready and red when the dose is released				✓			
Capsules opaque, so impossible to see if there is any powder left inside after inhalation					✓		
No lactose or no milk residue							✓
Can be used when empty despite there being a dose indicator							✓
Possibility of incorrect loading							✓

1. The numbers on the dose counter are small.

2. The capsule vibrates or makes a sound during inspiration.



ENVIRONMENTAL ISSUES:

- ➔ The current state of knowledge about the environmental footprint of inhalation devices is, as yet, limited. Certain studies report that dry-powder inhalers should have a smaller carbon footprint than that of other devices. However, their use is not without other environmental impacts, such as the acidification of seawater and the consumption of non-renewable resources.
- ➔ The single use of any inhalation device is a significant source of waste, in addition to generating various other environmental impacts such as soil acidification, water pollution, and the exploitation of non-renewable resources. Optimizing the management of respiratory diseases and inhalation techniques helps reduce complications, thereby preventing the overuse of rescue medications and the need for treatment intensification. By limiting the number of inhalation devices used by a person, treatment adherence is encouraged, and both waste production and environmental impact are reduced.
- ➔ Returning empty or unused inhalation devices to the pharmacy allows for proper recycling and/or disposal, which mitigates their environmental impact