Refills

Your dose of drug information in between sessions

Should dry powder inhalers (DPIs) be avoided in people with severe chronic obstructive pulmonary disease (COPD)?

Conclusion: People with severe or very severe COPD are not precluded from being offered a DPI because modern DPIs allow for adequate drug delivery even with reduced inspiratory effort.

The BC Provincial Academic Detailing (PAD) service's topic COPD: Triple therapy and device choice examines the evidence around ICS + LAMA + LABA (triple therapy) inhalers for managing COPD symptoms and preventing acute exacerbations.[1] Visit www.bcpad.ca to book a session with an academic detailing pharmacist in your area.

a) **Inhaler basics:**[1,2] A DPI is a handheld, breath-activated device designed to deliver medication directly to the lungs in the form of a dry powder. Available DPIs include the Breezhaler, Diskus, Ellipta, Genuair, HandiHaler, Inhub, and Turbuhaler. In contrast, metered dose inhalers (MDIs) use pressurized propellants to aerosolize medications, while soft mist inhalers (SMIs) employ a spring mechanism to generate a fine mist.

b) **Patient-specific factors:**[1,2] DPIs rely on the patient's inspiratory effort (breath actuation) to aerosolize dry powder and deliver medication to the lungs. To use a DPI, the patient must have sufficient dexterity and the ability to perform a deliberate inhalation. This may not be feasible for individuals with fine motor skill challenges, those with neurocognitive impairment or neuromuscular disease. Physical and cognitive limitations that hinder proper inhaler handling can be addressed through caregiver support and/or alternative devices (e.g., an MDI or SMI compatible with a spacer ± mask).

c) **Inhalers used in recent COPD clinical trials:**[3-5] COPD guidelines classify airflow obstruction into four stages according to FEV_1 percent predicted, which represents the amount of air a person can forcefully exhale in one second compared to the predicted value based on their age, height, and gender (Table). Two recent, pivotal clinical trials examined the effect of inhaled triple therapy on patient-important outcomes such as exacerbations, dyspnea, and health-related quality of life (IMPACT 2018, ETHOS 2020). One of the trials delivered the medications via a DPI (Ellipta), the other via an MDI (Aerosphere). Both trials included people with moderate, severe and very severe COPD, thereby demonstrating that FEV_1 alone does not preclude the use of a DPI. BC PAD's 2024 COPD triple therapy and device choice handout includes images of devices, additional considerations pertaining to device choice (DPIs, SMIs, MDIs) and reports on the effect of inhaled triple therapy from these two trials.

Table: GOLD grades and severity of airflow obstruction in COPD
based on post-bronchodilator FEV_1 in patients with $FEV_1/FVC < 0.7$

GOLD 1	Mild	$FEV_1 \geq 80\%$ predicted
GOLD 2	Moderate	$50\% \leq FEV_1 < 80\%$ predicted
GOLD 3	Severe	$30\% \leq FEV_1 < 50\%$ predicted
GOLD 4	Very severe	$FEV_1 < 30\%$ predicted
FEV_1: forced expiratory volume in 1 second; FVC: forced vital capacity		

[1]BC PAD Service COPD: Triple therapy and device choice (October 2024); [2]CATALDO Adv Ther 2022 (PMID:35080761); [3]GOLD 2025 Report (PMID:39647487); [4]IMPACT N Engl J Med 2018 (PMID:29668352); [5]ETHOS N Engl J Med 2020 (PMID:32579807)

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