

Copd Conference 2018- Appropriate use of inhaler devices- Marousa Kouvela, University of Athens, Greece**Marousa Kouvela***University of Athens, Greece*

Inhalation is the preferred method for medication delivery in COPD and asthma. The choice of the respiratory tract as the drug delivery route over other routes (e.g. per OS or IV) offers not only better lung deposition of the medication but also less side effects. So, by using an inhaler device we can achieve optimal drug efficacy with lower medication doses and a more rapid onset of action. Inhaler devices are the main method of delivering medications for asthma and chronic obstructive pulmonary disease (COPD), but their effectiveness may be compromised if the inhaler device is misused by the patient. The magnitude of incorrect inhalation was well documented; in several studies, less than half of the patients used their inhaler correctly, with little or no improvement in the rates of correct inhalation technique over the past 40 years. In addition, several investigators reported low adherence levels to the inhaled therapy. Errors in the inhalation procedure and inadequate adherence lead to impaired asthma and COPD management, with increased risk of hospitalization, emergency room visits and oral use of glucocorticoids. In contrast, increased patient satisfaction with their inhaler device is associated with improved therapy adherence and clinical outcomes. Inhaler systems are used to administer a variety of inhaled drugs, including beta agonists, anticholinergics, glucocorticoids, tobramycin, and insulin. There are three main types of inhaler devices: the pressure metered dose inhaler (MDI), the dry powder inhaler (DPI), and the soft mist inhaler (SMI). MDI devices consist of a pressurized canister, a metering valve and stem, and an actuator mouthpiece. The pressurized canister contains the suspended drug in a mix of propellants, surfactants, preservatives, flavoring agents and dispersal agents. The CFC free propellant hydrofluoroalkane (HFA)-134a was replaced by CFC containing devices following the implementation of the Montreal Protocol, an international agreement to prohibit chlorofluorocarbons (CFCs). MDIs may be formulated as solutions, suspensions or co-

suspensions, with solutions usually of a finer particle size than suspensions.

Most aerosol medicines delivered to the lungs are comparable between HFA and traditional CFC devices, although some of the HFAs deliver a larger dose than the comparable CFC MDI. An inhaler is a device used for administering medication to the airways and lungs. It is used primarily for treating or preventing airway diseases such as asthma, chronic obstructive pulmonary disease (COPD), or cystic fibrosis. Smaller doses of medication are required by bringing medication directly to the lungs, so it will start to function more quickly. Inhalers of measured dose are also referred to as MDIs or aerosol inhalers. The medicine is inside a plastic case, inside a small canister. A measured dose of medication comes through the mouthpiece, when the inhaler is squeezed. MDIs expect strong technique and coordination by simultaneously pushing down the inhaler and breathing in. As it can be difficult to use the inhaler correctly, it is recommended that spacer devices be used with MDIs. The spacer is attached to the MDI to facilitate the use of the inhaler and to introduce more medicine into the lungs. The Respimat device is an inhaler with soft mist. It is a handheld device in which the medication is converted into a fine mist in a liquid form, which is then inhaled. Using the soft mist inhaler needs some coordination, to slowly press down and simultaneously breathe in. Inhaled medications form an essential part in treating asthma and COPD. Because inhalers come in many different shapes and sizes, by talking to your doctor or an asthma educator you can find the one that suits you best. Not all inhalation devices are available in all medicines. You may want to try out several apps before choosing the one in which you are most comfortable. To get the most out of the medication, it's important to use the right technique when using the inhaler. This is so that you get the right amount of medicine and it reaches deep within your lungs. To teach you how to use your inhaler unit, ask your doctor, pharmacist or nurse. Needs strong technique of coordination – must push down and at the same time breathe in. Reco

recommended to use on a spacer. Has a propellant that can cause irritation of the throat at times, and affects the amount that reaches the lungs. Does not have propellant. Doesn't require breathing in and pressing down synchronized. Each dose shall be charged immediately prior to use. Requires deep inhalation (breathing in) for the capsule to take the full dose. Requires second breath to ensure the full dose from the capsule has been inhaled. Compact, and easy to carry. Does not require as much breathing and dose release coordination as an MDI. Doesn't need spacer. More medicine gets into the lung relative to an MDI. Every new inhaler must be loaded with a new medicine cartridge. Does need some strength and coordination to assemble the inhaler. Because inhalers come in many different shapes and sizes, by talking to your doctor or an asthma educator you can find the one that suits you best. Not all inhalation devices are available in all medicines. You may want to try out several apps before choosing the one in which you are most comfortable. As COPD progresses, breathing becomes difficult as inspiratory capacity is reduced. This is even more perceptible during COPD exacerbations, when patients need even more efficient and fast acting medications. Aiming at the COPD symptoms relief, all the available inhaler devices can achieve an optimal lung deposition, if they are used appropriately. The several inhaler devices that are available nowadays are divided in three main groups (metered dose inhalers, dry powder inhalers and soft mist inhalers), but even within groups there are many differences between the devices. These differences make each device unique for its use and properties. The optimal use of the inhalers is based on the understanding and the correct demonstration of their use, but also on the fitting to the patient's needs and preferences. The purpose of this presentation is the understanding of the mode of action of the available inhaler devices and the differences between them, the importance of the demonstration of their use to the patients and the matching of each inhaler to the specific needs of every patient.