

### AB044 Inhalation Technology: From the lab to the patient *Prim Care Respir* 2002 11(2) 69-70

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In most cases, the initial diagnosis and treatment of asthma and COPD takes place in the GP's surgery and also at home. Many inhalation devices and molecules are currently being applied in the treatment of these patients. Ideally, there is optimal matching between characteristics of the patient him/herself, the location of the disease process, and the specific inhalation device applied to target the disease process in that particular patient.

The workshop on Inhalation Technology covers inhalation devices, factors influencing dose delivery and drug deposition, and ways of improving the deposition of inhaled drugs in the lungs. The aim of this module is to arm participants with the ability to judge inhalation therapy literature critically and make rational choices between devices for individual patients with asthma and COPD.

This workshop is composed of four sections

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|-------------------------------------|--|
| s Device                            | n Flow and resistance as factors influencing drug dose delivery and deposition |
| n Ways of improving drug deposition | t Making an optimal choice for the individual patient                          |

**Devices:** In this section the participants are asked to describe the essential differences between pressurised metered-dose inhalers (pMDIs) and dry powder inhalers (DPIs), the principles of dose delivery in the two types of devices, and the significance of particle mass distribution in drug deposition. At the end of this section, participants will have learnt that in pMDIs delivery force is provided by propellant rather than as it is in DPIs, the patient's inspiratory flow; that there is a larger variation between dose delivery with DPIs than pMDIs; and that with pMDIs, unlike DPIs, dose delivery and particle mass distribution are independent of inspiratory flow.

**Flow and resistance as factors for dose delivery and deposition:** This section aims to discuss the relationships between the patient's inspiratory flow, resistance in the device, dose delivery, and deposition. It explains how some DPIs can have high internal resistance, such that the patient will have to exert more effort to achieve an adequate inspiratory flow. The slides present data illustrating how in DPIs but not pMDIs inspiratory flow is the most important factor in deposition as it determines dose delivery and particle size, and offer an opportunity to test participants' understanding of this relationship. The practical significance of the relationship is illustrated in an acute wheezing episode. **Ways of improving deposition:** In this section participants are invited to discuss when and how spacers can be best used to improve the deposition of drug in the lungs. It demonstrates how spacers increase the respirable fraction of a dose of drug, while having little effect on respirable mass, and reduce oropharyngeal deposition. Some recommendations for optimal use of spacers are presented with clinical data illustrating the rationale behind them. This section also discusses how breath-actuated pMDIs, like spacers, can improve drug deposition in patients with poor coordination.

**Making a choice for the individual patient:** In an interactive way, participants are invited to compose decision trees that will help them to select the most suitable inhaler for an individual patient according to the factors they have learnt to be relevant in the first three sections

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### ABI045 Guideline adherence for the treatment of asthma in general practice is associated with a higher quality of life

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**Background :** Guidelines are intended to optimise the quality of patient care. While optimal therapy focuses on the patient, traditionally assessment guidelines' effectiveness has focused on physicians. Little attention has been given to the effect of guidelines on patient outcome such as mortality, morbidity or quality of life (QOL). In this study we compare QOL in asthma patients treated according to the 1997 NI asthma guideline and those receiving non-guideline recommended treatment

**Method :** We determined the asthma severity of 146 asthmatics during a clinical research appointment using a combination of symptom lung function and medication use data. The appropriateness of each patient's medication regime was determined according to the NIH asthma guideline. QOL was assessed on a 7-point scale using the validated Asthma Quality of Life questionnaire (AQLQ)

**Result :** Patients treated according to the guideline had a higher QOL than patients with non-guideline treatment (5.7 vs. 5.3, p=0.019). After stratifying for asthma severity, a large clinically relevant difference in QOL (1.0) was observed for severity class 4 patients. Non-guideline treatment increased with asthma severity

**Discussion :** We observed an association between non-guideline treatment and a lower QOL, particularly in the patients with severe asthma. QOL in severe patients was lower and these patients were less likely to be treated according to the guidelines than patients with mild or moderate asthma. Further studies are needed, especially among severe asthmatics, to determine if guideline recommended treatment is responsible for the observed increase in asthma related QOL observed in this work. For doctors, and other health care professionals this study emphasises the role of evidence-based guidelines in daily practice