**Patient Preferences and Perceived Ease of Use in Inhaler Features: Genuair® vs Other Inhalers**

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**Introduction**

- Chronic obstructive pulmonary disease (COPD) is a highly prevalent lung disease in which airway obstruction can be partially reversed with inhaled bronchodilator treatment.
- Successful inhalation therapy is dependent on both the drug efficacy and proper inhaler use. Ease of inhaler use may promote patient compliance, which in turn maximizes therapeutic benefits.
- Various types of inhalers are currently available for the treatment of COPD and dry powder inhalers are commonly used.
- The Genuair® inhaler is a novel, breath-actuated multidose, dry powder inhaler designed for the effective delivery of various types of inhaled drugs. It has been used to administer aclidinium bromide in Phase III studies and is being investigated as a device for the delivery of other respiratory drugs.
- A major feature of this inhaler includes:
  - Safety mechanism to reduce the potential for accidental double-dosing and lock-out mechanism to prevent use of an empty inhaler
  - Multisensory feedback to the patient, comprised of a controlled color window that changes from green to red and an audible click upon successful actuation of each dose
- The objectives of this study were to assess the perceived ease of use, satisfaction ratings of individual device attributes and overall patient preference among the following inhalers: Genuair®, Diskus®, HandiHaler®, and Respimat®.

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**Methods**

- Patients diagnosed with COPD, chronic bronchitis, or emphysema were enrolled in the study.
- The majority of patients recruited had between 1 and 5 years of experience with other inhalers. Both younger (<70 years) and older (>70 years) participants were included and those with and without dexterity issues were enrolled in the study.
- The study was conducted in the field at participants’ homes and long-term care facilities. Individual sessions lasted approximately 90 minutes.
- Because this study focused on the ease of use of the inhalers rather than the efficacy of any medication, the inhalers used contained no medication.
- Capsules and cartridges did not have to be loaded for the HandiHaler or Respimat inhalers.
- Although it was preferred that patients had no previous experience with any of the inhalers tested, recruitment of patients who had never used the Diskus or HandiHaler was difficult. Patients with Diskus and/or HandiHaler experience were thus, included in the study.

**Inhaler presentation**

- Participants were presented with each of the four inhalers in a linear square order of presentation to mitigate order bias.
- The instruction manual for each inhaler was provided and moderators answered any procedural questions participants had after giving them an initial opportunity to review the instructions and handle the inhalers.
- Moderators asked individual participants to examine each inhaler and answer questions about its use before continuing on to the next inhaler.

**Inhaler performance**

- Researchers noted participants’ ability to assemble and activate inhalers, task success rates, and total number of critical and non-critical errors. Critical errors were defined as procedural missteps that would result in improper delivery of medication or those that posed potential safety risks.
- Researchers asked participants to open inhaler packaging, prepare a dose, mimic inhalation, close the inhaler and clean up. As patients handled the inhalers, the researchers recorded errors on inhaler-specific checklists. Between inhaler examinations, researchers interviewed participants about their inhaler experiences.

**Inhaler satisfaction**

- Researchers collected and aggregated participants’ ratings (worst to best from 1-5) of individual and overall device attributes and qualitative ranking of perceived ease of use of the four inhalers.
- Rating and rankings metrics focused on key inhaler use steps and satisfaction criteria common and unique to each inhaler. These included:
  - **Overall Satisfaction**
    - The inhaler was easy to set up
    - I would use this inhaler from now on
  - **Manipulation Measures**
    - It was easy to open/remove the cap
    - It was easy to add the capsule (HandiHaler only)
    - It was easy to hold/ grip the inhaler
    - It was easy to press the button(s)
    - The inhaler is suitable for people with hand-related issues (e.g. grasping issues or arthritis)
  - **Interfacereport FEEDBACK Measures**
    - The inhaler clearly indicates when the dose is ready to be inhaled
    - The inhaler clearly indicates that there are doses remaining in the inhaler as a device for the delivery of other respiratory drugs.

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**Results**

**Study demographics**

- A total of 48 participants with a mean age of 63.5 years were enrolled in and completed this study. Study demographics are outlined in Table 1.

**Inhaler performance**

- Participants succeeded in opening all inhalers and had similar success in preparing the dose with all inhalers except the Respimat. Patients also generally succeeded with cleaning up for all inhalers except the HandiHaler. Task success results for each of the three tasks are shown in Figure 2.

**Inhaler satisfaction**

- The Genuair® inhaler received the highest satisfaction rating among all inhalers in all categories assessed (Figure 4).

**Quantitative overall device performance**

- The Genuair® was rated as the most preferred inhaler using the “ruler metric” system, followed by the Diskus, HandiHaler, and Respimat devices (Figure 5).

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**References**


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*Genuair is a registered trademark of Almirall SA.

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