Patient centered development of a new valved holding chamber (VHC) designed specifically for *on-the-go* use.

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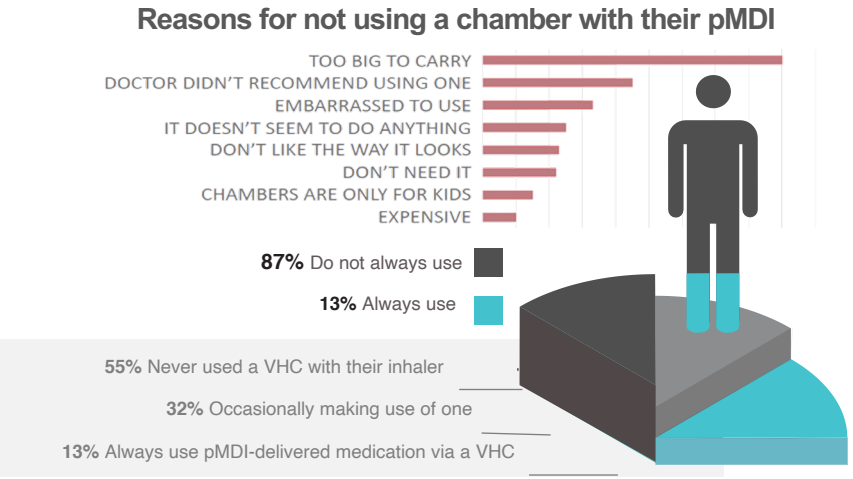
RATIONALE

- Although chambers have been shown to minimize problems of poor inhalation technique and target pMDI delivery to the lungs, they are often left at home due to their size and appearance.
- As part of a new development project for a chamber intended primarily for use 'on the go', patients were actively involved in all steps of the process.
- These included:
  - a) understanding the patient needs and therefore problems to solve
  - b) interactive involvement in concept development
  - c) feedback on functionality and appearance
  - d) handling / usability.

METHODS

- A survey of 715 asthma and COPD patients (14-77 years) indicated that only 13% always used a VHC with their pMDI.
- Collaborative exercises and generative design sessions were conducted with inhaler users.



RESULTS

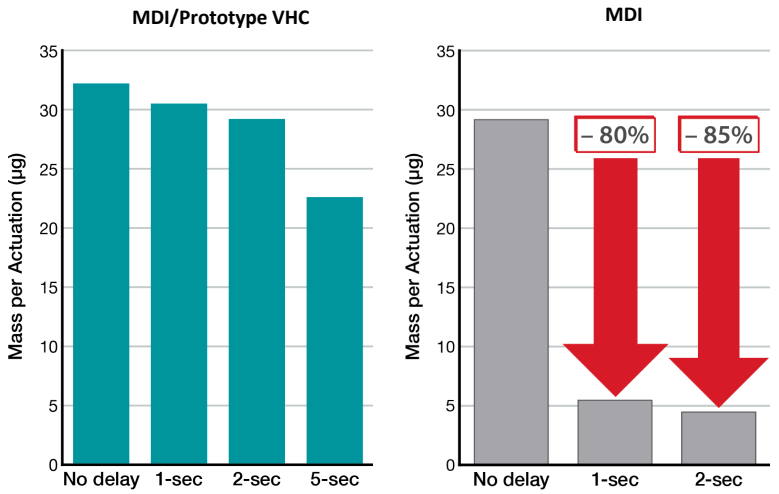
- Prototypes were developed and handling studies performed to evaluate multiple device form factors.

Patient Feedback Insights:

- Portability, lack of clinician recommended use, and embarrassment highlighted as major factors for not using a spacer (VHC)
- Patient feedback validated the initial problem statement
- Debris was sometimes inhaled since many people misplaced pMDI caps
- Patients also preferred pocket size spacers that were discrete and did not look like medical devices
- Preference for a 2 in 1 spacer and protective case for pMDI to smaller or collapsible spacers carried separate to the pMDI

- The final prototype was confirmed by patients as being highly desirable and very likely to use while on-the-go.

- Medication delivery performance of the prototype was evaluated throughout the process using the adult Aerosol Delivery to Anatomical Model (ADAM) adult oropharynx.



CONCLUSION

- The continuous involvement of patients resulted in a number of key insights that helped guide the design process, resulting in the development of a chamber that patients are much more likely to use while on-the-go.

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