

Laboratory Assessment of Drug Delivery of Beclomethasone/Formoterol Metered Dose Inhaler (MDI) with a New Valved Holding Chamber (VHC) Designed Specifically for *On-The-Go* Use

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Background

- Many patients do not use VHCs for their MDI medication when 'on the go' due to portability and appearance.
- This laboratory study evaluated the medication delivery performance when using a LABA (Formoterol) containing combination MDI with and without a new portable VHC (**AeroChamber2go***, A2Go).

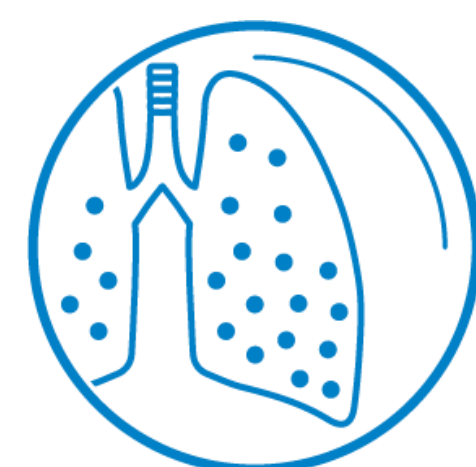
Methodology

- The emitted dose was sampled at 28.3 L/min from an abbreviated Andersen cascade impactor.
- Five actuations of beclomethasone dipropionate/formoterol fumarate (BD/FF 100/6µg /actuation; Foster[†]) were delivered at 30s intervals.
- Inhalation 0s after MDI actuation simulated perfect, but unlikely, coordination with the MDI alone.
- A more realistic 2s delay was investigated for the MDI/VHC system.
- BD/FF was subsequently recovered and assayed by HPLC-UV spectrophotometry.

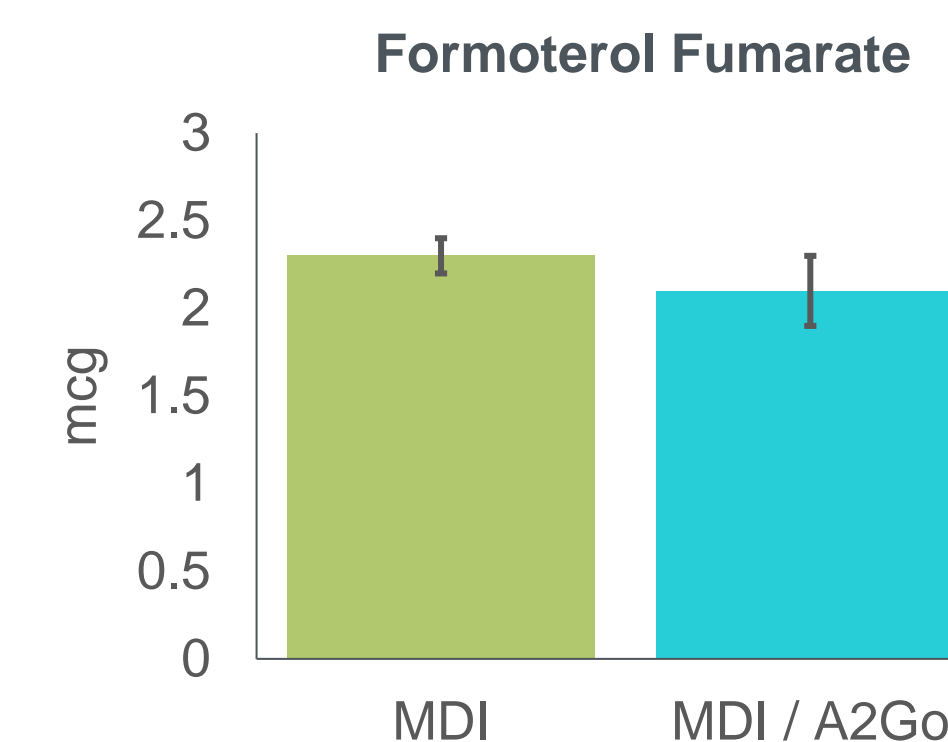
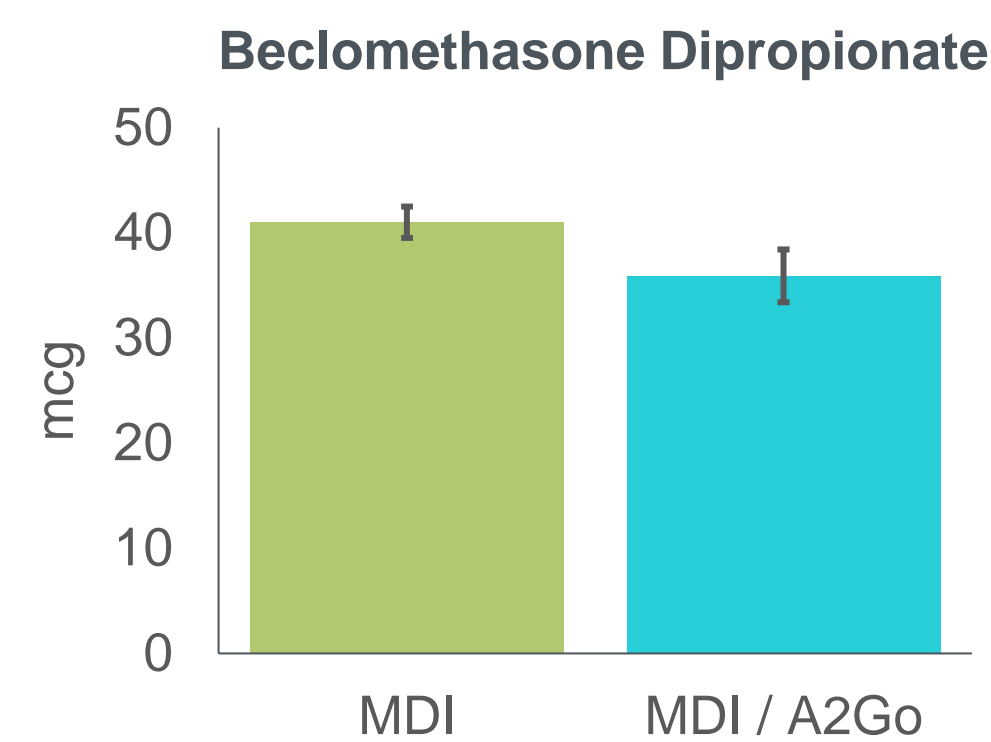
Results

- The fine particle mass < 4.7µm (FPM) and large particle mass > 4.7µm (LPM) per actuation results (mean mcg +/- SD) for MDI alone and MDI/VHC are summarized in the table.

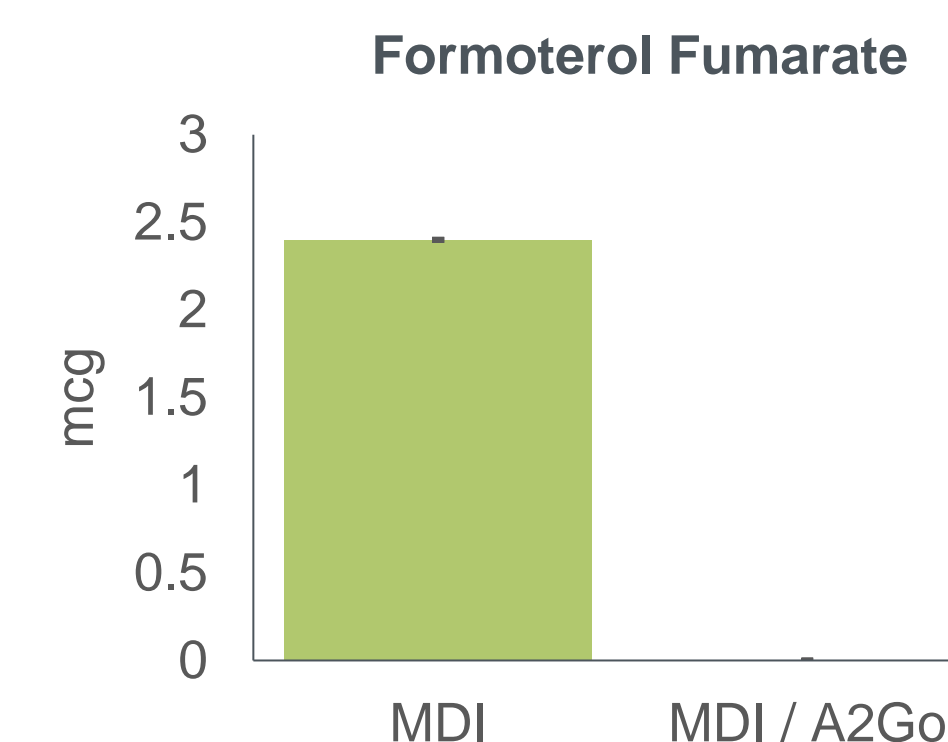
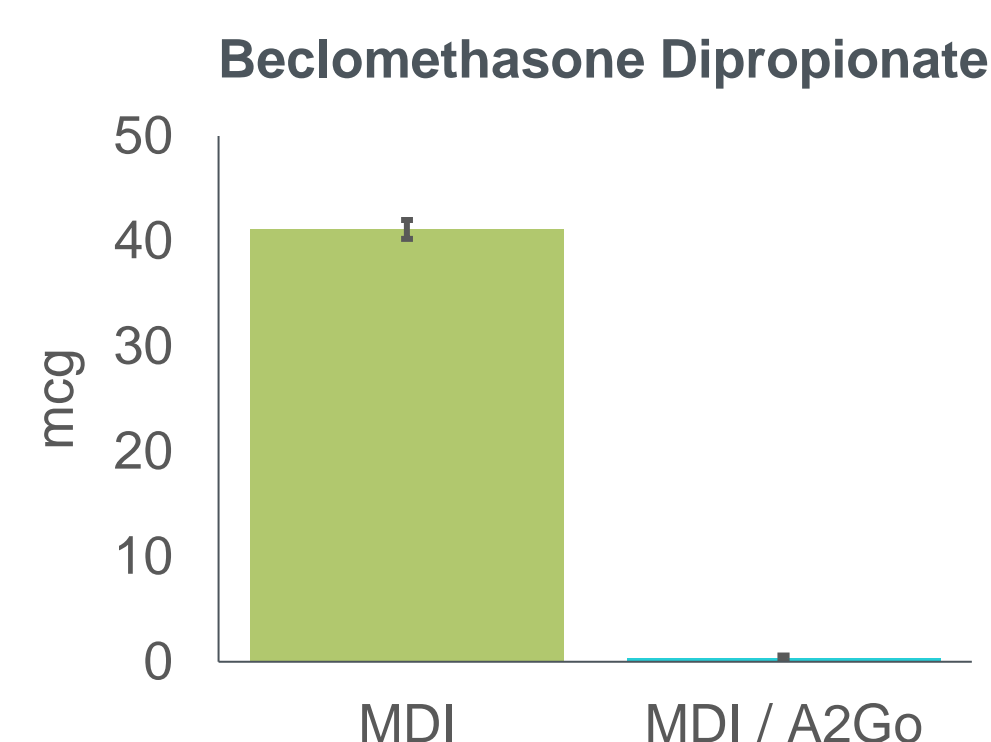
		MDI	MDI / A2Go
Delay (s)		0	2
BD	FPM	41.0 ± 1.5	35.9 ± 2.5
	LPM	41.1 ± 0.9	0.3 ± 0.3
FF	FPM	2.3 ± 0.1	2.1 ± 0.2
	LPM	2.4 ± 0.0	0.0 ± 0.0



FPM



LPM



Conclusion

- The **new portable VHC** with a simulated 2s delay delivered **similar amounts of fine particle medication (sized to be delivered to the lungs)** as the MDI alone, when the MDI was tested using simulated 'perfect' coordination.
- The **large particles that could be deposited in the oropharynx** were **reduced more than ten-fold when using the A2Go** compared to the MDI alone.
- **The A2Go VHC** would appear to provide a patient friendly and adherence favouring option for **assured MDI drug delivery 'on the go'**.

