

Reducing pMDI Risks with an Electronic Monitor

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Background

pMDIs are the most common inhalers but are prone to well-documented user errors¹.

Objective

To test if the Smart Rescue electronic pMDI monitor mitigates pMDI risks.

Methods

25 CYP with asthma were given Smart Rescue devices and 21 were successfully surveyed before use and after 3-6 months of use to evaluate usability, accessibility and utility.

Conclusions

At enrolment, children and young people with asthma and their parents were unable to accurately determine how many doses of medicine were left in their reliever pMDIs.

Patients participating in this pilot study found the Smart Rescue pMDI monitor convenient and easy to use and were able to access information about puffs taken and puffs remaining.

The usability and the benefits warrant health economic testing on a larger-scale rollout. Participants had less interest than expected in educational content and self-monitoring inhaler usage. A larger study over a longer period would be required to understand this.

Since patients rate the functionality of the system highly, integrating educational content may encourage patients to access this.

References

1. Usmani, O.S., Lavorini, F., Marshall, J. et al. Critical inhaler errors in asthma and COPD: a systematic review of impact on health outcomes. *Respir Res* 19,10 (2018)

Results

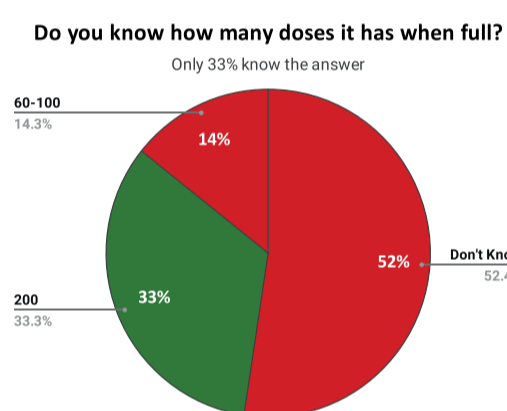
We enrolled 25 patients, 21 provided us with feedback (on graphs below).

DID PATIENTS KNOW? pMDI challenges and risks

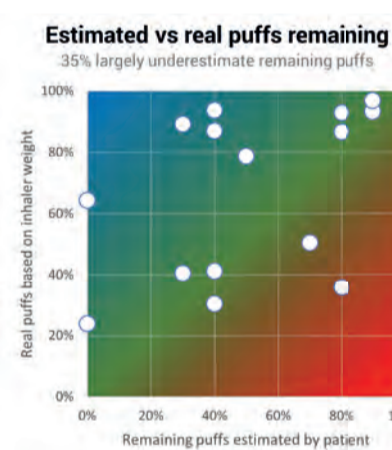
Need to shake and prime

Need to wait 30 seconds between puffs

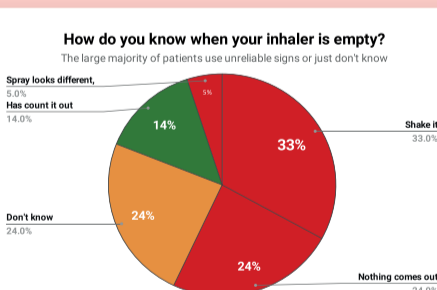
All pMDI SABA and some preventer pMDIs have no dose counter



Patients are prone to discard half-full inhalers - resulting in wastage adding to the carbon footprint



Patients may inhale pure propellant from pMDIs that have run out of drug



Patients can overuse SABA

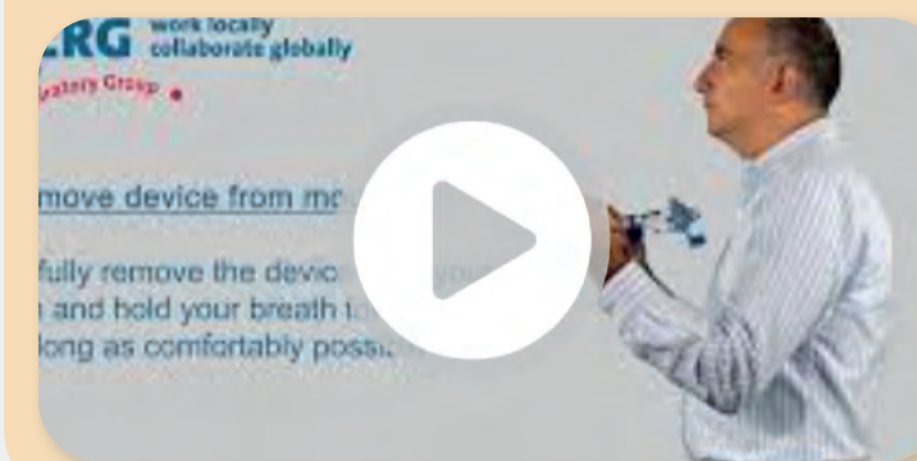
Patients and prescribers get no feedback on inhaler use

Preventer inhalers are often underused

ELECTRONIC pMDI MONITOR

Features of the Smart Rescue pMDI monitor

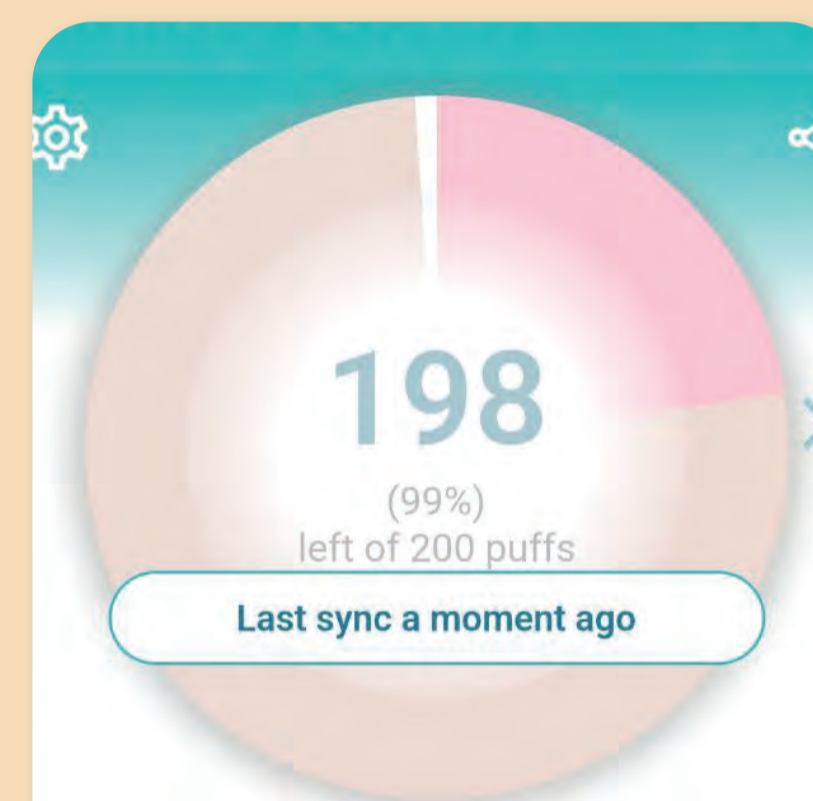
Technique video for every UK pMDI teaching shake and prime



Warning on puffs taken without a 30 seconds gap between

You have not been waiting 30-60 seconds before taking a repeat puff. A quick recap on how to take your inhaler.

Clear count of the puffs remaining in the pMDI



Just touch your Smart Rescue device to read inhaler data anytime

Warning on low remaining doses

Alarm on taking puffs beyond the manufacturer-guaranteed amount

Clear indication of daily doses taken

Took 2 puff(s) today
Last puff at 16:52

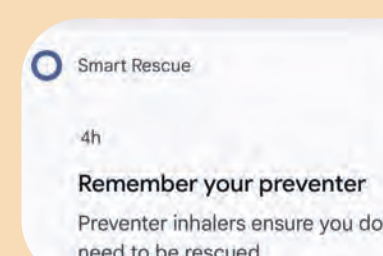
Warning on SABA overuse

You need your reliever quite often. Please contact your doctor or nurse because your asthma might be out of control.



Chart of doses taken in last 90 days

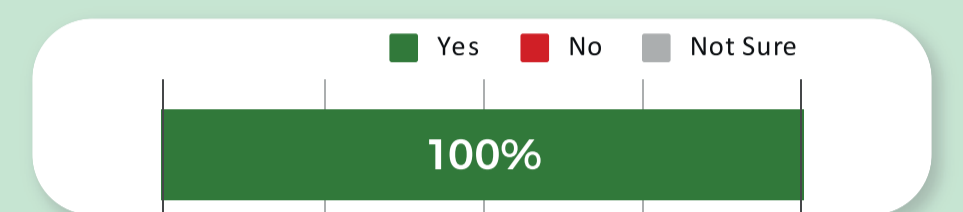
Reminders to take preventer doses



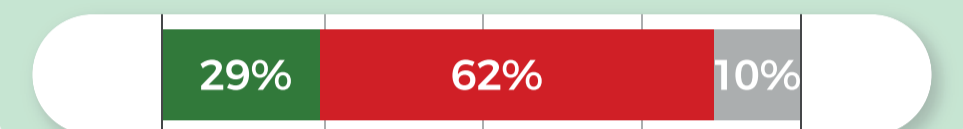
Educational video on the significance of reliever and preventer inhalers

DO PATIENTS KNOW? pMDI risk mitigation achieved by Smart Rescue

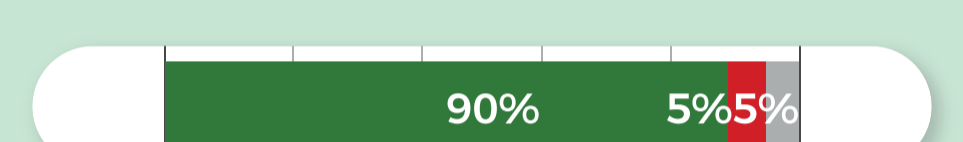
Do you remember to shake and prime your inhaler before use?



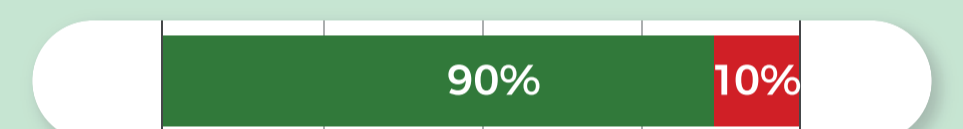
Do you watch inhaler technique videos on the app?



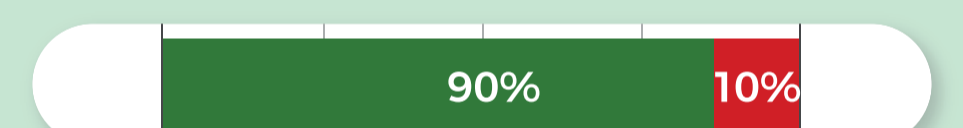
Do you wait 30 seconds between puffs?



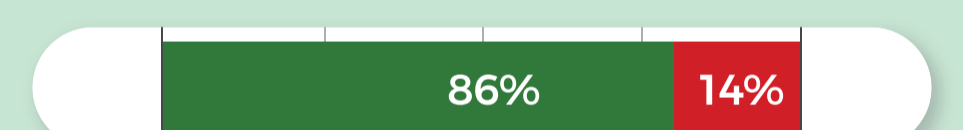
Do you feel the dose counter system is easy to use?



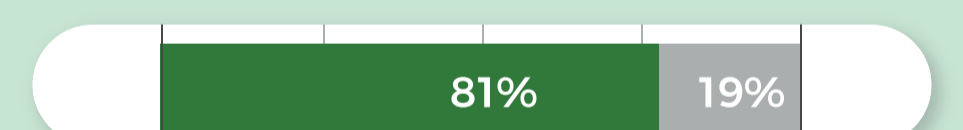
Does it give a clear indication of remaining puffs?



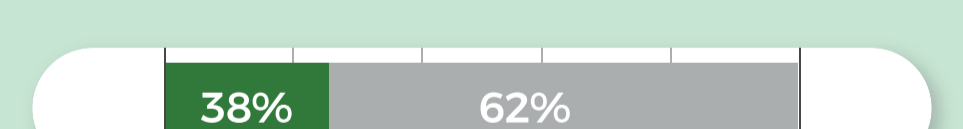
Does it help you keep track of puffs taken?



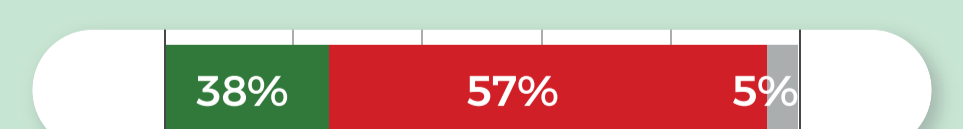
Does it help you know your inhaler is empty?



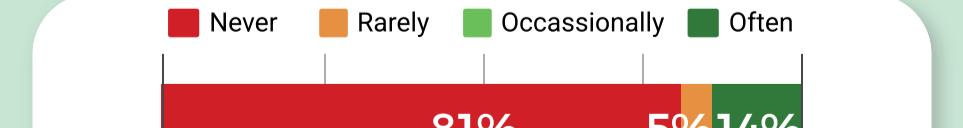
Do you find the Smart Rescue alert to an empty inhaler useful?



Have you been warned about using too many blue inhaler puffs?



Do you check how many doses you have taken in recent days and weeks?



Have you watched the video explaining about reliever and preventer inhalers?

