11.01 A pilot study evaluating the clinical applicability of a novel hardware & software platform (aflo™) in patients with airway disease

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Background: Effectiveness of inhalers depends on drug delivery to lungs. Correct inhaler technique is essential. Reviews of inhaler technique have shown asthma and COPD users make critical errors [1]. These reduce lung deposition leading to lower symptom control, poorer health outcomes and higher healthcare utilisation costs.
Methods: Patients with airway diseases, on maintenance preventer, identified as having adherence/ symptom control issues, were invited to participate. Aflo™ platform (electronic inhalation device, App and cloud data analytics tool) was used to monitor inhaler technique and adherence to medications. Real time feedback corrected technique errors and issued reminders to users [2]. After onboarding, data collected for four weeks. Information collected on prior health utilisation & user satisfaction.
Results: 21 participants (20 asthmatic), 12 male, age 11-60y were recruited. Five had hospital admission in last 5y. 13 had attended the emergency department. 13 claimed to understand their medication. 17 self-reported uncontrolled symptoms. Four had attended GP clinic in previous year. Asthma control test 17 before & 18 after the study. See table 1 for user feedback. Some did not answer all questions. Some technical & user challenges were identified.
Conclusion: Use of aflo™ platform is feasible. Technical challenges can discourage users. Complete data assimilation requires closer work with participants.
Keywords: asthma management, inhaler technique, healthcare app

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Conflict of Interest: Susan Kelly, Liam Mc Daid & Jim Harkin are founders & are on the board of Respiratory Analytics Ltd.
Martin Kelly acts as medical advisor to Respiratory Analytics Ltd & sits on the board.
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References:
1. Sulku J et al. *npj Primary Care Respiratory Medicine* 2021; 31:5. https://doi.org/10.1038/s41533-021-00218-y
2. https://afloanalytics.com/

Table 1: User feedback

Feedback criterion	Agree/totally agree	No answer

Reassured seeing data	14	6
Understood light indicators	15	6
Could follow the app	15	6
Felt took preventer more regularly	11	6
Would recommend aflo™	13	6
Would ask for it to be prescribed	13	6
Felt helped self-management	14	6
Happy with data sharing	14	7