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Late Breaking Abstract - Digital objective automated feedback on inhalation technique.

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Abstract

Training patients to achieve correct inhalation technique is usually performed by nurses, doctors or pharmacists who subjectively evaluate technique. Peak inspiratory flow (PIF) meters and training devices give some information on flow but lack in data on time length of inhalation and the timing during inhalation when PIF is reached. This pilot study aims to evaluate a new digital device that measures inspiratory flow over time and provides automated feedback on inhalation technique.

Schoolchildren (n=40) who already used inhalers for treatment of asthma inhaled through mouth piece connected to variable resistance (In check dial) and a spirometer (MIR Spirobank II). Data was collected to an iPad via Bluetooth and an algorithm gave immediate visual feedback if the inhalation technique was suitable to the inhaler prescribed, Fig 1. Children and respiratory nurses filled out questionnaires about the experience of objectively measuring the inhalation technique.

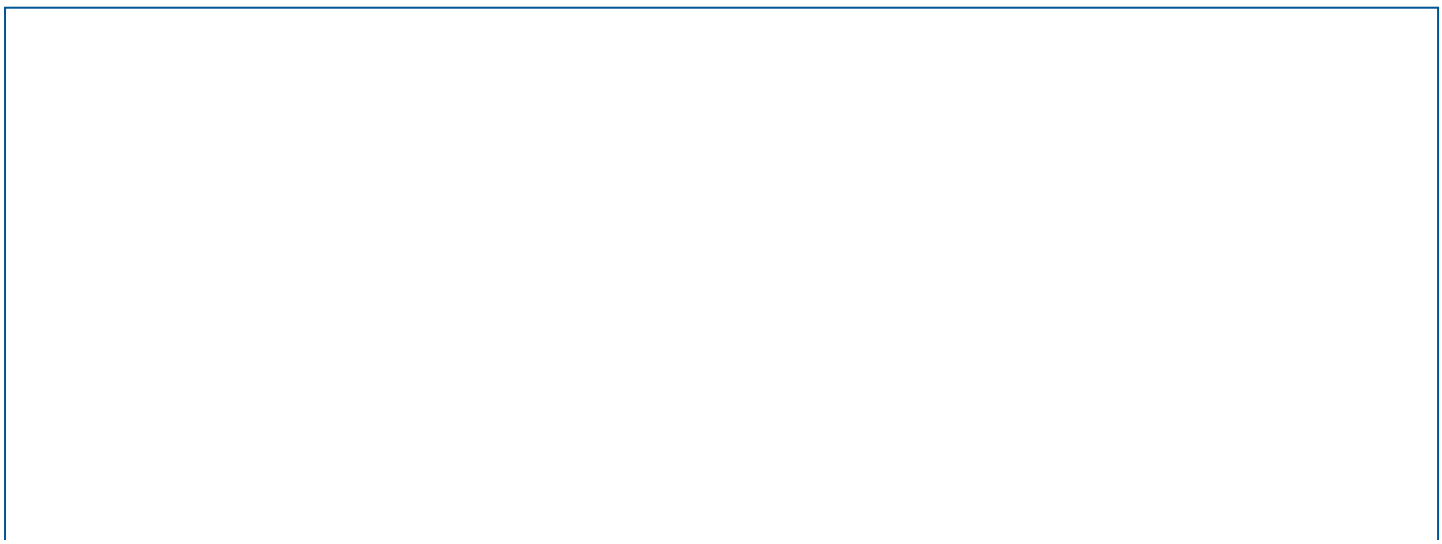

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Fig 1. iPad screen shot (flow vs time). This patient has inhaled correctly (green), matching the suggested inhaler profile (blue).

27 patients (71%) report that the feedback was useful, and they felt that they improved their inhalation technique ($p<0,05$). All of the 6 operators reported that the automated feedback was a useful tool when they assessed inhalation technique.

Findings suggest that objective feedback on inhalation time and flow can help patients to improve their inhalalation technique.

Footnotes

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Previous

Back to top

Vol 52 Issue suppl 62 Table of Contents

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Index by author

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