

# ‘You’re on mute!’ Does paediatric CF home spirometry require physiologist supervision?

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## Abstract

**Introduction:** The COVID-19 pandemic has accelerated the move towards home spirometry monitoring, including in children. Our aim was to determine whether the remote supervision of spirometry by a physiologist improves the technical quality and failure rate of the manoeuvres. **Method:** Children with cystic fibrosis who had been provided with NuvoAir home spirometers were randomly allocated to either supervised or unsupervised home spirometry following a detailed training session. Home spirometry was performed every 2 weeks for 12 weeks. Tests were assigned a quality factor (QF) using our laboratory grading system as per ATS/ERS standards, with tests marked from A to D, or Fail. In our laboratory we aim for QF A in all spirometry tests, but report results of QF B or C with a cautionary note. QF A was therefore the primary outcome, and QF A-C the secondary outcome. **Results:** 61 patients were enrolled; 166 measurements were obtained in the supervised group, and 153 in the unsupervised group. Significantly more measurements achieved QF A in the supervised compared to unsupervised group (89% vs 74%;  $p = <0.001$ ) whilst proportions reaching grade A-C were similar (99% vs 95%;  $p=0.1$ ). All significant declines in spirometry results had a clinical rather than technical reason. Family/patient feedback for both arms was very positive. **Conclusion:** These results suggest that home spirometry in children should ideally be remotely supervised by a physiologist, but acceptable results can be obtained if resources do not allow this, provided that training is delivered and results monitored according to our protocol.

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