

## Abstract Preview - Step 3/4

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Topic: 8. Physiotherapy

**Title:** The complexity of defining adherence to airway clearance treatments in clinical trials

Author(s): E. Raywood<sup>1</sup>, H. Douglas<sup>1</sup>, K. Kapoor<sup>1</sup>, N. Murray<sup>2</sup>, R. O'Connor<sup>3</sup>, H. Shannon<sup>1</sup>, G. Davies<sup>1,4</sup>, E. Main<sup>1</sup>

Institute(s): <sup>1</sup>University College London, London, United Kingdom, <sup>2</sup>Royal Brompton & Harefield NHS Foundation Trust, London, United Kingdom, <sup>3</sup>Royal London Hospital, London, United Kingdom, <sup>4</sup>Great Ormond Street Hospital for Children NHS Foundation Trust, London, United Kingdom

**Text:** **Objectives:** Project Fizzyo aims, in part, to evaluate the association between adherence to airway clearance treatments (ACTs) and clinical health in CF. A prerequisite for the analysis of impact, is that 'adherence' is clearly defined, yet little is known about real-world use of ACT devices in terms of time, breathing patterns, or optimal pressures for clinical efficacy.  
**Methods:** Fizzyo utilises electronically chipped sensors, that record pressure changes when breathing through an airway clearance device. Pressure-time waveforms were captured from ACT sessions performed remotely by children and young people with CF (CYPwCF) from 3 CF centres in London. ACT device, age and mean (SD) for number of ACTs per day, ACT duration, breaths per ACT, expired breath length and airway pressure were analysed to understand more about the way that ACTs are performed  
**Results:** The first 30 ACTs from 35 CYPwCF (median age 9.0, range: 6-13yrs) were analysed (1050 sessions in total). An Acapella was used by 21 CYPwCF for ACTs, with 4, 3, 1, 1 using Aerobika, PEP mask, PEP mouthpiece or PariPEP respectively, with 5 using 2-3 devices interchangeably. CYPwCF undertook on average 1.3 (0.6) ACTs per day, with each treatment lasting on average 8.9 (4.8) mins and involving 78.1 (40.3) breaths, with an average expired breath length of 1.26 (0.6) seconds. Expired breath pressure was 29.75 (12.8) cmH<sub>2</sub>O, with 3 CYPwCF routinely achieving >50cmH<sub>2</sub>O during ACTs. There were no discernible breaks for huffing or coughing in a significant proportion of sessions. CoV for 30 ACT sessions varied dramatically for all outcomes between individuals, with some demonstrating consistent, reproducible techniques while others were far more variable.  
**Conclusions:** ACT adherence is complex to define. Wide variations in the time, types and patterns of ACTs undertaken by CYPwCF are likely to impact on the efficacy of treatments. These should be included in any evaluation of adherence using big data approaches to analysis.

Preferred Presentation Type: No Preference

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