the results of 22 patients. 65% of patients seen on day 1 had evidence of retained secretions. On discharge, only 50% of patients had an effective airway clearance technique (ACT). The benchmarking did not provide any consensus for the management of airway stent patients. Two large trusts were contacted but had no guidelines or pathways in place. The expert panel each gave recommendations for best practice which was then implemented into the pathway to guide the final draft. A respiratory physiotherapy patient pathway was developed (figure 1), alongside a patient information leaflet and the establishment of fortnightly MDT meetings.

Conclusion Airway stenting is a new and novel area of respiratory medicine with the limited evidence available. This respiratory physiotherapy pathway has been developed as an initial guide to best practice for physiotherapy care of patients post stent insertion with the aim of further research.

Abstract P105 Figure 1  Respiratory physiotherapy management of Airway Stents

in physiotherapy is to encourage Forced Expiratory Manoeuvres (FET) such as HUFF. We hypothesised that a huff worsened airway collapse and impedes airway clearance in this group.

Method Following clinical evidence of suspected dynamic airway collapse patients underwent a Flexible Bronchoscopy under light sedation to quantify any collapse. Quantification was completed through visual inspection and agreement on degree of collapse by at least two specialist clinicians. During the procedure the patient was asked to perform tidal breathing and FETs to assess if these techniques worsened the degree of collapse.

Results 16 patients underwent bronchoscopy to assess for airway collapse that included performing FETs. 87% (n=14) demonstrated worsening collapse of greater than 10% on FETs. Of the 2 patients that did not 1 patient already had 100% collapse.

Discussion There is emerging evidence to indicate the use of Forced expiratory techniques in airway clearance may be a detriment to the patient and likely lead to insufficient clearance. This has potentially large implications on physiotherapy management as a Huff technique is often the first line of treatment for airway clearance. Furthermore in breathlessness associated with the airway collapse these techniques may exacerbate the symptoms of breathlessness and promote hyperinflation through gas trapping in COPD patients. As a result of this, adapting techniques to promote secretion mobilisation with limited FETs should be a consideration for patients that present with large or dynamic airway collapse.

Future research The sample size is small in this study therefore further expanding this would help provide clarity in the area.
In the future assessments of different airway clearance techniques to optimise clearance without the use of FET is essential which should include positive expiratory pressure devices (PEP) and their potential role in airway splitting alongside airway clearance.

‘It’s not easy being green’ – Suppurative lung diseases

**P108** SHORTENING ASSESSMENT OF LUNG CLEARANCE INDEX (LCI): CAN WE AVOID NEEDING TO REPEAT THE TEST THREE TIMES?

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Background Lung Clearance Index (LCI) is one of the most sensitive lung function tests for detection and monitoring of CF lung disease, but has not been widely adopted into clinical practice. Clinical scalability is limited by long test times, exacerbated by the need to repeat the washout test three times to produce an average. Previous studies have shown little difference between two and three repeats in LCI when looking at group means. We aimed to establish the within-patient impact on final LCI of adding a third repeat, and whether there were features of the first two measurements that could indicate or obviate the need for a third measurement.

Methods This analysis used LCI measurements collected during a prospective longitudinal study of LCI in adults and children with mild-moderate CF (FEV1>50%). We only included visits with three or more technically adequate repeat measurements. Results Data from 708 visits and 110 subjects (n = 44 adults) were included. 138 of 846 visits with only two technically acceptable repeats were excluded. The impact of a third measurement on final LCI was small: mean (SD) change in LCI was -0.10 (2.37)% when the third measurement was added, and for >95% of measurements LCI from 2 repeats was within 5% of that from 3 repeats. Impact on FRC was similarly small: -0.18 (2.60)% change with addition of a third measurement. The impact on final LCI and FRC was not related to the repeatability of the first two LCI or FRC measurements, nor to a combination of both of these. In other words, if the first two measurements were very close together or up to 20% different, the impact of a third repeat on final LCI outcome was unchanged.

Conclusions If time constraints exist in routine clinical care, two measures provide a robust approximation of the measurement that would be obtained from three repeats. However, there is no degree of repeatability of the first two measures that can reliably obviate need for a third. To avoid loss of data on detailed quality-control review, the objective should continue to be to collect three measurements during LCI assessment.