## 349* Chest physiotherapy in Cystic Fibrosis: short-term effects of Autogenic Drainage combined with wet inhalation of saline (saline–AD) versus Autogenic Drainage combined with Intrapulmonary Percussive Ventilation with saline (IPV–AD)

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**Aims:** This study compared the short-term effects of two physiotherapy regimens in CF patients: Autogenic Drainage preceded by wet inhalation of saline (saline–AD) versus Autogenic Drainage preceded by Intrapulmonary Percussive Ventilation with saline (IPV–AD).
**Methods:** Twenty clinically stable CF patients underwent either saline–AD or IPV–AD on two consecutive days with similar pulmonary function at baseline. Effectiveness of either physiotherapy regimen was evaluated by measuring oxygen saturation, heart rate, Borg dyspnea score, and mucus wet weight at baseline, after 15 min of either saline or IPV, and after a subsequent 30 min of AD.
**Results:** There were no significant changes in oxygen saturation, heart rate or Borg score at any point of either physiotherapy intervention. There was no significant difference in sputum wet weight recovered with either saline (2.2+1.8(SD) g) or IPV (1.7+1.9(SD) g) alone. Subsequent AD did produce significantly greater amounts of sputum wet weight ($p < 0.0001$ for both), yet the amount of wet weight was similar irrespective of whether AD was preceeded by saline (9.7+6.5(SD) g) or IPV (11.6+7.3(SD) g).
**Conclusions:** In terms of short-term physiotherapy effects, the crucial element with respect to mucus expectoration resides in the Autogenic Drainage. The recovered sputum is similar when the Autogenic Drainage is preceded by aerosol inhalation or by Intrapulmonary Percussive Ventilation.
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## 350 Should community physiotherapy be a standard care package with all home intravenous courses?

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**Aim:** To identify if there is significant improvement in the outcome following home intravenous antibiotic therapy (IVAT) with, versus those without, community based physio input three times a week.
**Method:** Adults with cystic fibrosis (CF) who have home IVAT and community CF nurse specialist support were asked if they would participate in this study. They were given the choice at the beginning of each course whether or not to have support of community physio. A validated CF quality of life (QoL) questionnaire, an analogue BORG score, clinical measurements including spirometry (FEV1 and FVC) and oxygen saturations were taken pre and post course.
**Results:** A study of 8 patients, primarily data so far comparing 4 with community physio against 4 without. Comparisons of the QoL questionnaire showed a 15% overall improvement in those with physio support compared to 10% in those without. BORG scores and oxygen saturations did not differ between the two groups. There was a significant increase up to 19% in FEV1 and 31% in FVC in those with community physio as opposed to 10% in FEV1 and FVC in those who declined.
**Conclusion:** The study illustrates the efficacy of home IVAT with the additional support of community physiotherapy. The physio group showed a greater improvement in lung function and QoL following IVAT than the group who declined. The study sample is small but the results demonstrate a need for further research and resource for the provision of community physiotherapy in this patient group. The availability of this service allows the patients greater choice over where their treatment is delivered with the reassurance of knowing that it is possible to achieve good outcomes from treatment in the home environment, which impacts upon quality of life.

## 351 The value of routinely using the 3-minute Step Test at Annual Review

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Exercise testing in CF on an annual basis is a recommendation in the UK Cystic Fibrosis Trust's Standards for the Clinical Care of Children and Adults with CF (2001). The 3-minute step test is one of the sub-maximal exercise tests recommended in these guidelines.
The aim of this study was to assess the value of doing the 3-minute step test on a yearly basis for the purpose of monitoring progress.
**Methods:** Data was collected over a 4 year period. Indices measured included, age, lung function, height and weight. The 3-minute step was performed as described by Balfour-Lynn (Ped Pulm 1998, 25; p. 278). Outcomes were percentage increase in pulse rate from baseline, change in oxygen saturation, and perceived breathlessness (Borg score).
**Results:** 27 children were studied (14 males). Mean age at the start of the study was 9.1 years (5.9–14.3).The mean number of annual reviews was 3 (2–5). No statistically significant changes were found over the four years (ANOVA). Mean change at years 1, 2, 3, 4 and 5 were: Pulse rate change: 44%, 35%, 38%, 46%, and 46%. Fall in oxygen saturations: 2.3%, 2.3%, 2.3%, 1.1%, and 1.7%. Borg score change: 3, 3.3, 2.3, 1.9, and 4.1. FEV1: 85%, 88%, 78%, 86% and 90% respectively.
**Conclusion:** This study does not show any significant change in the outcome measures recorded for the group as a whole over the 4-year period or between years. The value of using the 3-minute step as an exercise test to monitor progress in the paediatric population, where lung function shows mild to moderate disease, has not been identified. It may be that in advancing disease the 3-minute step has a place in monitoring progress and prescribing safe, effective exercise programmes. However, we should consider removing the recommendation of using a sub-maximal exercise test from the paediatric guidelines.

## 352 Working in partnership with families to openly monitor aerosol therapy with an in-device data logger

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As technology improves, CF teams will be faced with novel means of monitoring patient treatment. For example, an adaptive aerosol delivery (AAD) device, the I-neb, has an in-device data logger measuring date, time and duration of delivery. Traditionally, the monitoring of patient concordance with treatment is undertaken in a covert manner, often as part of a clinical trial. We discussed as a team using this facility in a more open manner in order to facilitate a change in practice in our clinic from a standard nebuliser to the AAD device. We report our experience with twenty patients (mean age, 11.2 yrs, range 2.8–17 yrs) who have been using the AAD device for an average period of 114 days (range, 18–170). A rapid download of data was possible during clinic visits. The average number of treatments undertaken was 72 (range, 16–102), with treatment times ranging from 2 to 6 minutes (median, 3 minutes). In ten patients, issues with concordance were evident and we were able to adjust management plans to support these families (i.e., giving an increased dose once a day and organising treatments at school). Compliance was excellent in ten patients, although in three long treatment times were shortened by advice on breathing technique. In total, we identified long treatment times in six patients and were able to provide advice to address these issues (in two cases with nasal clips but in most cases with alterations in breathing technique utilising visual feedback from the breathing monitor). Overall patients and families have responded positively to the open monitoring of their treatment and in a significant number this has enabled interventions that may improve treatment times and concordance.