Introduction Evidenced self–management to guide patients in preserving their quality of life (QoL) and moderate healthcare demands, is lacking in bronchiectasis though advocated in the guidelines.[1] An expert patient plan has shown promise.[2]
Aim To measure the impact on self-efficacy (confidence in dealing with disease), of the Bronchiectasis Empowerment Tool (BET) as part of a quality of life and economic evaluation.
Method 220 people from 6 UK hospitals were randomised (computerised) to standard treatment (including BTS physiotherapy leaflet and British Lung Foundation leaflet about bronchiectasis) alone or with the addition of BET. Participants had radiological diagnosis and at least one exacerbation within 12 months of enrolment. Individuals with cystic fibrosis, traction bronchiectasis and severe uncontrolled co-morbid disease were excluded. BET, (48 pages) comprising an action-plan based on the 2010 BTS Guidelines (1) and four educational sections: sputum, health changes, medications and health interactions (with notepads), was introduced using four brief telephone calls (totalling 24 min per person). All outcomes were self-reported: The primary outcome using the Self-Efficacy Measure for Chronic Disease (SEMCD) questionnaire at 12 months. QoL measures included St George's Respiratory Questionnaire, Lung Information Needs Questionnaire (LINQ) and non-validated questionnaires. Euroqol 5 Dimension (EQ5D) and healthcare utilisation questionnaires were used for economic evaluation. Participants received questionnaires quarterly for one year. Focus groups assessed acceptability.
Results 127 participants responded at 12 months. BET did not influence SEMCD (mean difference (0.14 (95% confidence interval (95% CI −0.37 TO 0.64), p=0.59). NHS cost weren't significantly different between groups (mean difference £335.94, 95% CI £−444.97 to £1156.85) nor were Quality adjusted life years derived from EQ5D data (mean difference 0.006, 95% CI −0.042 to 0.053) or QoL. Focus group participants, diverse in severity, symptoms and isolation deemed the telephone element of BET acceptable.
Conclusion BET did not improve self-efficacy, QoL or diminish healthcare costs. Supporting literacy needs with increased contact (perhaps telephone) or novel methods of evaluation may reduce attrition in future self-management research using self-reported outcomes.

S45 VALIDATION OF THE INCREMENTAL SHUTTLE WALK TEST AS A CLINICAL ENDPOINT IN BRONCHIECTASIS

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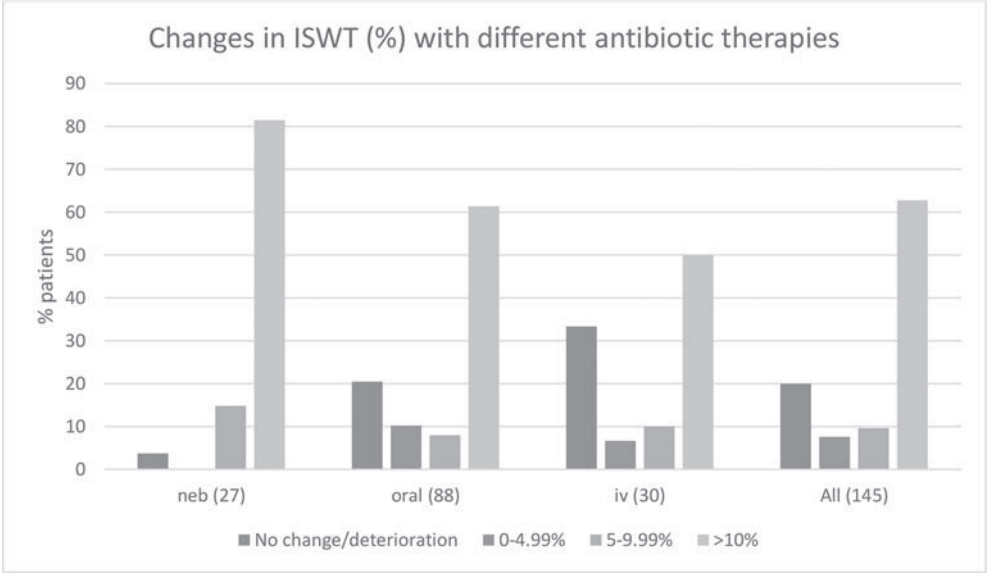
Introduction There is a need for objective clinical endpoints in bronchiectasis to evaluate response to new and existing therapies. Current clinical endpoints in use present their own challenges; 24 hour sputum volume is unreliable, microbial clearance is often only assessed qualitatively and there remains controversy over changes in microbial load. Quality of life questionnaires (St George's Respiratory Questionnaire (SGRQ), Leicester Cough Questionnaire, Bronchiectasis Health Questionnaire and Quality of Life-bronchiectasis are subjective outcome measures. The mean exacerbations and time to first exacerbation have been used in phase 3 trials but there remains debate regarding the definition of an exacerbation. The incremental shuttle walk test (ISWT) is a measure of functional exercise capacity and more objective than the 6 min walk test; an endpoint associated with survival in COPD.
Aim To evaluate the ISWT as an objective clinical endpoint in bronchiectasis by assessing its reliability, validity and responsiveness.
Methods To assess reliability 30 patients were invited 6 months apart whilst clinically well to perform the ISWT. To assess validity the ISWT scores were correlated with total SGRQ and activity scores in 94 patients (stable and exacerbation). To assess responsiveness 30 patients performed the ISWT pre-and post 14 days of intravenous antibiotic therapy for an exacerbation, 94 patients performed pre and post 14 days of oral antibiotics for exacerbation and sub-analysis from a previous study evaluated ISWT in 30 patients pre and post 12 months of nebulised gentamicin therapy.
Results There was no significant difference in median (IQR) distance walked at baseline (390 m (225 m – 462.5 m)) and after 6 months (400 m (260 m – 480 m)). There was a negative correlation between ISWT and total SGRQ (r=−0.60) and the activity component (r=−0.64) p<0.0001. There was a median increase of 18.5% in distance walked with nebulised gentamicin, 16.3% with oral antibiotic therapy and 11.9%



Abstract S45 Figure 1 Graph to show the changes (%) in ISWT distance walked from baseline with different antibiotic therapies.

with intravenous antibiotic therapy. 81% of patients had a more than 10% increase in distance walked with nebulised gentamicin, 61% with oral therapy and 50% with intravenous therapy (figure 1).

Conclusions The ISWT is an objective, quick and inexpensive clinical endpoint that is reliable, valid and responsive for use in assessing patients with bronchiectasis.

S46 IS PSEUDOMONAS INFECTION A NECESSARY PRECURSOR TO NTM INFECTION IN NON-CF BRONCHIECTASIS?

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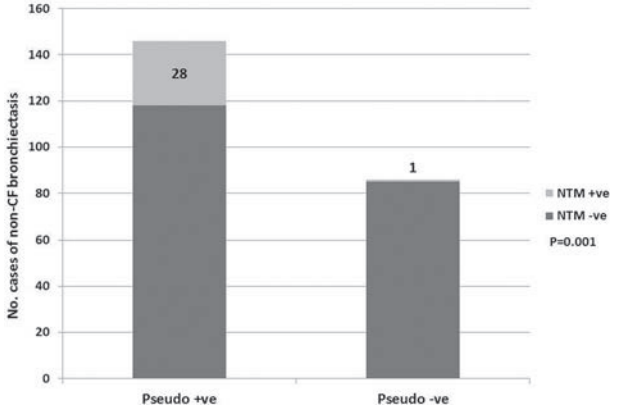
Background Non-tuberculous mycobacterial (NTM) infection is more prevalent in those with bronchiectasis than the general population. In addition, *Pseudomonas* is frequently isolated in more severe bronchiectatic disease. We interrogated our non-CF bronchiectasis database to identify association.

Method A retrospective analysis of 232 patients with non-CF bronchiectasis distinguished those both with and without NTM infection. Analysis included demographic, clinical, microbiologic, lung function and radiological data over a 10 year period.

Results NTM were cultured in 29 patients (12.5%), *M gordonae* being the most frequent (n=11, 37.9%) followed by *M avium-intracellulare* (n=9, 31.0%). *Pseudomonas* infection, current or previous, was identified in 146 (62.9%). Of those with NTM infection, a history of *Pseudomonas* infection was very strongly associated (96.6%) with only a single case of NTM isolated without *Pseudomonas* (3.4%; p=0.001) (figure 1). Also, concurrent proton pump inhibitor use in the NTM group showed a strong association (55.2% vs. 29.06%; p=0.03).

Conclusion A 10 year analysis of our non-CF bronchiectasis cohort indicates a very strong association between prior *Pseudomonas* infection and subsequent NTM isolation, with an NTM negative predictive value 98.8% in the absence of *Pseudomonas*. Whilst association is not causation, we postulate that *Pseudomonas* may lead to specific mucosal microbiome and structural changes. Moreover, this may be a necessary antecedent prior to observing the very high NTM prevalence rates found in this condition.



Abstract S46 Figure 1

S47 HYPERTONIC SALINE INHALED THERAPY – RESULTS OF DRUG REACTION ASSESSMENTS

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Introduction Hypertonic saline (HTS) is commonly nebulised used to aid airway clearance in patients with chronic suppurative lung disease. In view of the risk of bronchoconstriction, prior to starting HTS, patients undergo a drug reaction assessment (DRA), as suggested by guidelines.[1]Patients that experience a>15% reduction in FEV1 post inhalation,+/-lack of tolerability, are deemed to have failed the DRA and would not usually be prescribed it for continued usage. We aimed to identify patient characteristics predicting a successful DRA and the likelihood of continuing HTS at 1 year post DRA.

Methods A retrospective analysis of all HTS DRAs between April 2011 and March 2016 at the Royal Brompton Hospital was undertaken. Spirometry, age, gender and underlying disease were recorded and the variables associated with DRA success and continued use at 1 year were assessed with logistic regression.

Results 523 patients underwent an HTS DRA with overall 89.5% passing the test. There were 504 tests with 7% HTS (90.2% passed) and 18 tests with 3.5% HTS (73.7% passed). A higher FEV1% Predicted Pre-Trial (PPT) was significantly associated with passing the DRA with an Odds Ratio (OR) of 0.97 (95%CI: 0.95–0.98, p-value<0.001); patients with an FEV% PPT >61% had a 0.05% chance of failing the DRA. Patients diagnosed with ABPA or COPD were significantly more likely to fail the DRA for HTS with ORs of 3.07 (95% CI:1.15–8.1, p-value=0.025) and 3.38 (95%CI:1.06–10.76, p-value-0.039), respectively. Amongst the 468 patients who passed the DRA, those with a higher FEV1% PPT were also more likely to remain on the HTS after 12 months, whilst, non-CF Bronchiectasis (OR: 0.44, p-value=0.020) and patients with "Other" lung diseases, including carcinoma and sarcoidosis, (OR:0.33, p-value=0.008) patients were significantly less likely to remain on it.

Conclusions The vast majority of patients passed the HTS DRA test and the failure rate in those with FEV1 PPT >61% was extremely low. We propose that clinical phenotypes could be used to risk assess patients who need HTS DRA tests before starting HTS.

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Diagnosing and treating pulmonary vascular disease

S48 SEPTAL ANGLE ON MRI PREDICTS COMBINED PRE AND POST CAPILLARY PULMONARY HYPERTENSION

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