Abstract P111 Figure 1 Box-and-whisker plots of relative VOC abundance in culture-positive and culture-negative groups.

(n=11). Analysis of patient demographics and potential breath contaminants revealed no significant difference between groups. The targeted analysis incorporated 35 VOCs. Of these, 2 were found to be significantly more abundant (figure 1) in culture-positive than culture-negative patient samples. These compounds most likely represent limonene ($p=0.017$) and alpha-terpinene ($p=0.007$).

Conclusion This pilot study has identified differences in the exhaled VOC profile of patients with sputum culture-positive and culture-negative pulmonary aspergillosis. The finding of elevated levels of terpenoids in the breath of culture positive patients concurs with current understanding of the *Aspergillus* volatome *in vivo* and *in vitro*. A larger study using multivariate analysis should be performed to identify discriminating exhaled VOC signatures in patients with aspergillosis for future clinical use.

Abstract P112 Figure 1 *Achromobacter* spp. antibiotic sensitivities in CF (above) and non-CF Bronchiectasis (below) patients.

P112 INCIDENCE AND CLINICAL OUTCOMES OF PULMONARY INFECTION WITH ACHROMOBACTER SPP

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10.1136/thoraxjnl-2017-210983.254

Background *Achromobacter* is considered an emerging Gram-negative pathogen in cystic fibrosis (CF) although its pathogenic potential is controversial and its impact in other patients groups largely unknown.

Methods All *Achromobacter*-positive respiratory samples analysed at our institution from 2007–2016 were identified. Antibiotic susceptibility was tested using the disc-diffusion method. Clinical data were collected from medical records. The Leeds criteria were adapted to define chronicity of infection.

Results 48 patients were identified, with a diagnosis of CF in 25, bronchiectasis in 16 and miscellaneous other conditions in 7. Median (IQR) number of samples provided was 4 (1–16), 1.5 (1–2.25) and 1 (1–1.5) in the CF, bronchiectasis and other groups respectively. In the CF group, the median age at first *Achromobacter* isolate was 22.3 years (IQR 17–30) and mean BMI 21.8 kg/m² (SD 4.1). Baseline FEV₁%-predicted in the CF population was 50.4% (SD 22.6%). Among bronchiectasis patients, median age at first isolate was 61 years (IQR 58–78)

and FEV₁ 1.35 L/s (SD 0.75). During the study period, the yearly rate of detection of *Achromobacter* infection increased across all groups, with 4 cases in 2007 rising to 25 in 2016 and a mean of 9.9 cases/year. In any given year during the period 2012–2016, the mean proportion of CF patients with chronic, intermittent and cleared infection was 25%, 54% and 29% respectively, whilst in the bronchiectasis group it was 11%, 37% and 57%. Co-infection with *Staphylococcus aureus* was seen in 20% of samples from CF patients. Equivalent figures for other pathogens were: *Pseudomonas aeruginosa* 14%, *Aspergillus* 11% and non-tuberculous mycobacteria 7%. In the bronchiectasis group, co-infection was mainly seen with *Pseudomonas aeruginosa* (15%). Antibiotic resistance was significantly greater in the CF group compared to the bronchiectasis group, particularly to meropenem (57% of CF isolates vs 0% of bronchiectasis isolates), piperacillin-tazobactam (31% vs 0%) and colistin (20% vs 0%); $p<0.05$.

Conclusions Detection of *Achromobacter* spp from respiratory samples increased over the study period with CF patients more likely to develop chronic infection. *Achromobacter* spp isolates from CF patients had greater levels of antibiotic resistance than those from patients with bronchiectasis.