repeated measures; total pulmonary exacerbations (PEx) and healthcare resource utilisation (HCRU) post- vs pre-IVA were assessed using a negative binomial model.
Results 65 of 73 (89%) completed the study; mean IVA exposure was 49.5 months (range, 2–64). Mean baseline age was 26.9 years (standard deviation [SD], 13.5). Mean baseline $ppFEV_1$ (64.83 [SD, 23.61]) increased by a least-squares (LS) mean of 10.77 (standard error [SE], 1.28) within 6 months that was sustained up to 48 months (10.27 [SE, 1.45]). Mean baseline BMI (pwCF ≥20 years, n=49; 22.95 kg/m^2 [SD, 3.81]) increased by an LS mean of 0.79 (SE, 0.14) within 6 months and 1.30 (SE, 0.24) at 48 months. Mean baseline BMI *z* score (pwCF <20 years, n=24; −0.41 [SD, 0.89]) increased by an LS mean of 0.54 (SE, 0.11) within 6 months and 0.41 (SE, 0.14) at 48 months. Estimated annualised rates of PEx, PEx requiring hospitalisation, all-cause hospitalisation and PEx requiring acute antibiotics decreased by >50% in the first 12 months post- vs 12 months pre-IVA, and changes were sustained during treatment. No new safety concerns were identified.
Conclusions IVA showed sustained effectiveness in clinical outcomes and decreased HCRU.

Please refer to page A189 for declarations of interest related to this abstract.

S61 RESPIRATORY MICROBIOLOGY OUTCOMES FROM AN OBSERVATIONAL STUDY OF IVACAFTOR IN PEOPLE WITH CYSTIC FIBROSIS AND NON-G551D GATING MUTATIONS (VOCAL)

[1]C Castellani, [2]NJ Simmonds, [3]C Colombo, [4]N Kinnman, [4]C DeSouza, [4]T Thorat, [4]M Chew, [4]K Chandarana, [5]K van der Ent. *[1]Cystic Fibrosis Centre, IRCCS Istituto Giannina Gaslini, Genoa, Italy; [2]Adult Cystic Fibrosis Centre, Royal Brompton Hospital and Imperial College London, London, UK; [3]Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, University of Milan, Milan, Italy; [4]Vertex Pharmaceuticals Incorporated, Boston, USA; [5]Department of Pediatric Respiratory Diseases, University Medical Center Utrecht, Utrecht, The Netherlands*

10.1136/thorax-2021-BTSabstracts.67

Introduction and Objectives Certain respiratory pathogens are associated with reduced lung function and disease progression in people with cystic fibrosis (pwCF). We report respiratory microbiology results from a Phase 4 observational study (NCT02445053) assessing real-world effectiveness of ivacaftor (IVA) in pwCF with non-*G551D* gating mutations (*G178R*, *S549N*, *S549R*, *G551S*, *G1244E*, *S1251N*, *S1255P* or *G1349D*).
Methods PwCF aged ≥6 years in Italy, the Netherlands and the UK who were IVA-naïve or on IVA for ≤18 months at enrolment were eligible. Data were recorded for 12 months pre-IVA and up to 48 months after enrolment. Microbiology cultures were taken via sputum, throat or oropharyngeal swabs.
Results 65 of 73 (89%) completed the study; mean IVA exposure was 49.5 months (range, 2–64). Mean (standard deviation) baseline age and percent predicted forced expiratory volume in 1 second were 26.9 (13.5) years and 64.83 (23.61), respectively. In the 12 months pre-IVA, 279 cultures were obtained from 69 pwCF and 182 cultures in 64 pwCF at year 4 following IVA treatment. Prevalence of *P. aeruginosa*, *A. fumigatus* and *S. maltophilia* was 55.1%, 30.4% and 11.6%, respectively, in the 12 months pre-IVA and was reduced to 52.9%, 18.6% and 7.1% in year 1 and 41.5%, 16.9% and 4.6% in year 2 on IVA. Sustained or further reductions were observed through 48 months of treatment. Prevalence of other pathogens was variable or too low to evaluate. 70% of pwCF were on chronic oral and/or inhaled antibiotics pre-IVA vs 68% at 48 months. Use of other chronic inhaled therapies was stable throughout the study.
Conclusions Lower prevalence of *P. aeruginosa*, *A. fumigatus* and *S. maltophilia* was observed with prolonged IVA treatment for up to 48 months in real-world settings. Chronic medication use remained stable.

Please refer to page A189 for declarations of interest related to this abstract.

S62 THE MICROBIOLOGY OF BRONCHIECTASIS EXACERBATIONS IN THE UK EMBARC REGISTRY AND IMPLICATIONS FOR PRESCRIBING IN PRIMARY CARE: A COHORT STUDY

[1]F Mosgrove, [2]C Haworth, [2]M Loebinger, [3]M Crichton, [4]P Goeminne, [3]A Shoemark, [5]E Polverino, [6]S Aliberti, [7]A DeSoyza, [3]JD Chalmers. *[1]University of Aberdeen, Aberdeen, UK; [2]The Royal Papworth Hospital, Cambridge, UK; [3]University of Dundee, Dundee, UK; [4]University of Leuven, Leuven, Belgium; [5]Hospital Universitari Vall d, Barcelona, Spain; [6]University of Milan, Milan, Italy; [7]Newcastle University, Newcastle, UK*

10.1136/thorax-2021-BTSabstracts.68

Introduction The British Thoracic Society (BTS) guidelines for the management of Bronchiectasis advise that sputum samples are sent for microbiology at baseline and at exacerbation. Guidelines recommend that antibiotic treatment at exacerbations should be guided by previous sputum microbiology. Amoxicillin and Doxycycline are guideline recommended empirical choices in primary care where no prior microbiology is available.
Methods We aimed to examine the UK cohort of the European Multicentre Bronchiectasis Registry (EMBARC) to determine whether management of these patients was in line with BTS guideline recommendations and examine antibiotic sensitivities at exacerbation. The organisms grown were identified and their sensitivity to amoxicillin and doxycycline, using sputum culture sensitivity data, was defined.
Results 7931 UK patients were analysed. 53.3% of patients had sputum sent at baseline and of those with exacerbations 42.3% had a sputum sample sent at exacerbation within 1 year of baseline. 21.7% of exacerbating patients had a prior stable sputum result available to guide exacerbation prescribing with only 34.8% of these showing concordance, with baseline sputum microbiology predictive of exacerbation sputum microbiology. Haemophilus influenzae (25.7%) and Pseudomonas aeruginosa (19.8%) are the most common organisms grown at exacerbation. Examination of all organisms grown at first exacerbation shows that 36.2% of these are susceptible to amoxicillin and 55.6% are susceptible to doxycycline. The difference in susceptibility between amoxicillin and doxycycline was largely accounted for by beta-lactamase producing H.influenzae, Moraxella catarrhalis and Staphylococcus aureus. Excluding P. aeruginosa gives 47.2% coverage of remaining organisms by amoxicillin and 73% coverage with doxycycline.
Conclusion Concordance with BTS guidelines on management of Bronchiectasis is low with sputum samples sent infrequently in stable state and at exacerbation. Microbiology concordance between stable and exacerbation samples is poor. There are high levels of innate and acquired resistance to amoxicillin making doxycycline potentially a more effective first choice antibiotic where no sputum culture results are available to guide prescribing.