A conditional logistic regression was applied to estimate the association between LABA use and CVD. LABA use was classified into current (<30 days), recent (31–90 days), old (91–180 days) and remote (181–365 days) use. Current users were further categorised into 'incident' users (no prescription preceding the 30 days) and 'prevalent' users (prescriptions including and prior to the preceding -30 days).

Results 357,300 asthma patients were identified of which 13,868 cases and 55,472 controls were eligible for the study. The mean age was 63.9 years, 55% were female. Incident LABA use was associated with 1.62-fold (95% CI, 1.17–2.24, $P<0.05$) increased odds of CVD, whereas prevalent LABA use had an absent risk, after adjusting for BMI, smoking status, asthma severity, and a history of atopy, COPD, pneumonia, pulmonary embolism, asthma exacerbations, depression, anxiety, GERD, stroke, IHD, heart failure, cardiac arrhythmias, hypertension and cardiac medications.

Conclusion Incident, but not prevalent, LABA use was associated with an increased risk of CVD in asthma patients irrespective of prior CVD status or asthma severity.

Cystic fibrosis and bronchiectasis: updates and controversies

P237 HEALTHCARE UTILISATION OF REMOTE CAPILLARY BLOOD TESTING IN A TERTIARY RESPIRATORY OUTPATIENT SETTING

[1]K McLaren, [2]J Donovan, [1,3]M Loebinger, [1,3]A Shah. [1]Department of Respiratory Medicine, Royal Brompton and Harefield NHS Foundation Trust, London, UK; [2]Department of Pathology, Royal Brompton and Harefield NHS Foundation Trust, London, UK; [3]National Heart and Lung Institute, Imperial College London, London, UK

Background In a tertiary respiratory centre, large cohorts of patients are managed in the outpatient setting and require monitoring of inflammatory or disease activity markers and organ toxicity from medications. This either requires utilisation of primary care services for phlebotomy and subsequent physician review of results or frequent visits to tertiary centres. Although remote monitoring, such as telemedicine and wearable technology (e.g. remote spirometry), is being increasingly utilised in the outpatient setting, there is little data analysing the possibility of remote blood test monitoring.

Purpose To identify the potential healthcare utilisation of remote capillary blood testing in a tertiary level chronic lung disease cohort.

Methods A retrospective analysis of blood testing in outpatient cystic fibrosis clinics, assessing frequency, indication and delayed impact upon clinical plans. This was followed by a prospective single centre validation study of finger prick capillary blood testing using a novel capillary blood collection system compared to local standard venesection. Results were analysed using paired T test and Bland-Altman statistical analysis.

Results 18 outpatient clinics with 181 patients were retrospectively analysed. 63 patients underwent blood testing, of which 41 (65%) patients' blood tests were predictable prior to the clinic visit. 16% of patients who underwent blood tests were consequently contacted after the clinic due to actions required from results.

A number of tests (including CPR, IgE, ALT and HbA1c) showed no significant differences (paired T test p≤0.05) between the capillary sample and control (standard venesection), and good method comparison through Bland Altman analysis, suggesting accuracy of remote finger prick monitoring. (see Figure 1) Other tests, including FBC and renal function, showed significant statistical differences between the capillary and venous samples.
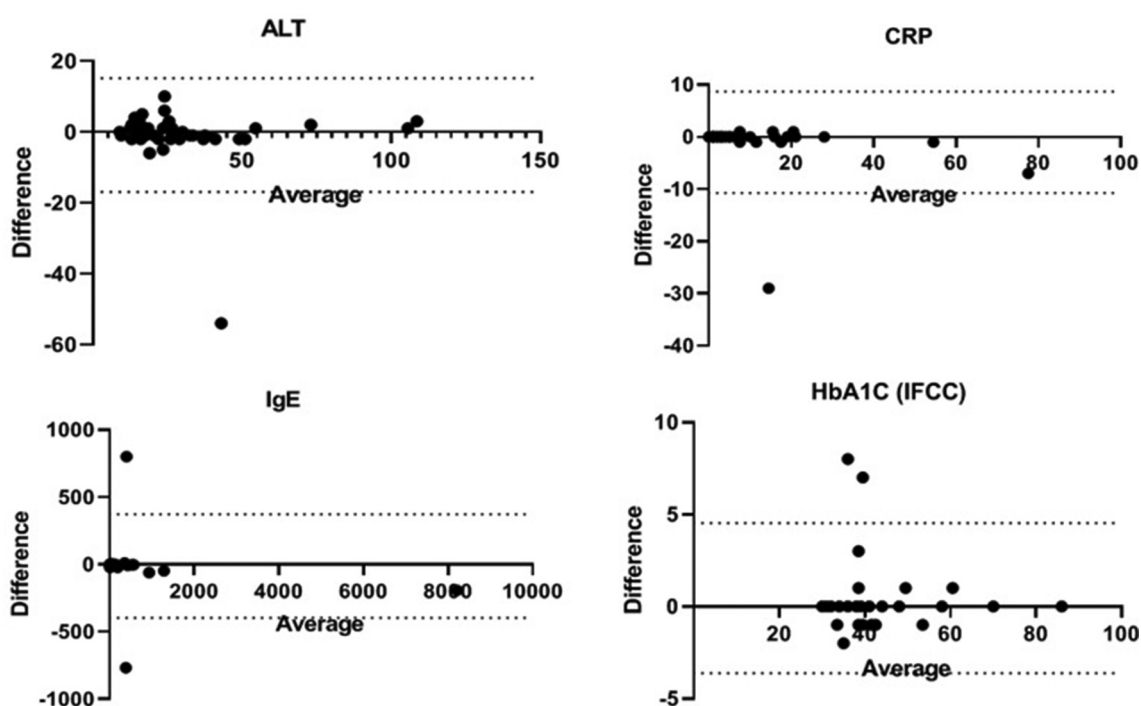
Abstract P237 Figure 1 Bland-Altman analysis of venous and capillary blood test results

Following validation it was evident that 23 patients (56%) who underwent venesection for predictable reasons could have provided accurate blood samples by exclusively using remote finger prick monitoring rather than standard venesection.

Conclusions Remote capillary blood testing could potentially be utilised in over half of patients requiring blood monitoring in the outpatient setting to either prevent a hospital visit or be provided in advance of clinic visits to provide contemporaneous clinical data to aid shared management planning.

P238 | SUPERIOR YIELD OF POSITIVE BACTERIAL CULTURES FROM SPUTUM INDUCTION VS COUGH SWAB IN CHILDREN, AND ITS UTILITY IN ASSESSING SUCCESS OF PSEUDOMONAS AERUGINOSA ERADICATION THERAPY

[1]D Amin, [2]N Collins, [2]K Kentosova, [2]C Worger-Ridgley, [2]N Murray, [1,2]JC Davies. [1]Imperial College London, London, UK; [2]Royal Brompton Hospital, London, UK

Introduction Cystic Fibrosis (CF) patients most commonly suffer from chronic infections of *Pseudomonas aeruginosa* (PA) which is a very virulent bacteria associated with increased mortality and further hospitalisations. Earlier detection of bacterial cultures can lead to quicker interventions however current sample methods are either too invasive (Bronchoalveolar Lavage) or not sensitive enough (Cough Swabs (CS)). Sputum Induction (SI) uses nebulised Hypertonic Saline (HTS) to instigate a cough reflex within patients that cannot expectorate sputum samples for culture. This project will look into the viability of SI against CS for positive isolations in Paediatric CF patients and particularly focusing on PA therapies directed at eradication (TDE).

Methods Nebulised HTS used an ultrasonic device in three 5-minute intervals for administration along with spirometry and basic observations. This was a retrospective observational cohort study with cross-sectional elements; data was collected at initial SI event and micro-biological results were catalogued post SI to 01/03/2019. N=244 (SI events) involving 145 patients. Data collated on excel and analysis performed using chi-squared tests.

Results Median age of 7 years (IQR= 7 years; Q1= 4, Q3=11). The procedure was well-tolerated in 87% of cases with reasons for poor tolerance including: bronchoconstriction (6%), procedural distress (4%), vomiting (1%) and other (2%).

There was a 24x fold increase in positive bacterial cultures detected on SI samples only against positive cultures on CS only (94 vs 4) and a 13x fold increase when looking at SI vs CS for PA eradication patients (13 vs 1 respectively). The data presented good evidence that PA TDE was working at an adequate rate, 71.3% patients remained PA free post SI (80.4% of SI events).

Conclusion HTS is a mucoactive drug that helps reduce the viscoelasticity of mucus and stimulate the mucociliary escalator providing larger and more representative samples. Thus SI can manipulate patients' management more effectively, which can reduce the mortality of a PA infection. Unfortunately, without Bronchoalveolar Lavage (GOLD standard), the sensitivity of SI cannot be officially confirmed. In conclusion, SI is a superior method over CS for positive bacterial cultures from sputum samples.

P239 | ERADICATION OF NEW PSEUDOMONAS AERUGINOSA ISOLATES IN ADULTS WITH CYSTIC FIBROSIS

[1]WL Boyes, [2]R McVean, [2]RJ Bright-Thomas. [1]The University of Manchester, Manchester, UK; [2]Manchester University NHS Foundation Trust, Manchester, UK

Introduction UK national CF registry data 2017 demonstrates that 44.5% of UK adults with CF are chronically colonised with *Pseudomonas aeruginosa* (PA). Chronic PA infection, once established, is usually impossible to eradicate and is associated with reduced life expectancy in CF. The aim of this study was to examine eradication rates, PA strain typing, and treatment regimens used following new isolations of PA at a large UK Adult CF Centre.

Methods Data was examined for all patients not known to have chronic PA infection attending a large regional UK CF Adult Centre isolating PA over a 7 year period. Results were gathered using the hospital online results system, clinic letters and national laboratory strain typing reports for 2012 – 2019. Successful eradication was defined as ≥3 sputum samples clear for PA over 6 months with no subsequent isolation of the same strain.

Results 168 patients, not considered chronically colonised with PA were identified. 72 of these isolated PA over the 7-year study period. 19 patients isolated PA on multiple separate occasions resulting in 91 individual PA infection episodes. Examining these episodes in detail:

55/91 episodes were new PA isolates. 46/55 (83.6%) of these successfully eradicated. Unique strains had the highest eradication rate at 20/21 (95.2%), followed by common environmental strains at 19/25 (76.0%) and epidemic (presumed transmissible) strains 3/5 (60.0%). Patients' first PA infection episodes had a higher eradication rate 38/44 (86.4%) than second episodes 7/10 (70.0%). One patient had a third episode and successfully eradicated.

29/91 episodes were identified on strain typing as chronic PA infection: 15/29 (51.7%) were chronic on transfer to the unit and 14/29 (48.3%) had suppressed chronic infection due to long term inhaled antibiotics. The first episode of PA isolation was classed as a failure to eradicate and subsequent episodes as supressed.

7/91 episodes had incomplete data due to transfer or ongoing treatment.

Discussion In adults with CF, eradication rates of new PA isolates are extremely high at our centre but accurate strain typing is essential to distinguish acute from chronic PA infection and unique from epidemic strains.

P240 | LUNG FUNCTION AND LOW BONE MINERAL DENSITY IN CYSTIC FIBROSIS

[1]DK Edwards, [2]SB Carr, [1]P Cullinan. [1]National Heart and Lung Institute, Imperial College London, London, UK; [2]Department of Paediatric Respiratory, Royal Brompton Hospital, London, UK

Objectives Low bone mineral density (BMD) is a known complication in those with cystic fibrosis (CF), and worsening lung function has been associated with low BMD in COPD patients and asthma patients. Using a large national registry, we aim to explore the relationship between low bone mineral