

being the second most common therapy (1699/10882, 15.6%) (table 1). Over a third of patients (4168/10882, 38.3%) were $\leq 50\%$ adherent on at least one therapy. Patients with $\leq 50\%$ adherence had more health care contacts in the 12 months prior to 1st March 2022, worse dyspnoea and inhaler technique, and proportionally higher prescriptions for triple therapy. Furthermore, patients on triple therapy were more likely to have $\leq 50\%$ adherence compared to any other therapy type (43.5% vs 31.4% or lower).

Conclusions Poor adherence was common amongst exacerbating COPD patients, and was associated with more health care contacts, and worse respiratory symptoms and inhaler technique. Triple therapy was the most common inhaled maintenance therapy in this patient population, but it also had substantially lower adherence compared to other therapies. Adherence was worse amongst patients on dual and triple therapies, indicating that future adherence support interventions should be targeted at these subgroups. Analyses comparing adherence to open/closed inhaled therapies will be presented at the conference.

S118 DIGITAL PEAK FLOW MONITORING CAN PREDICT NEXT-DAY PEAK FLOW MEASUREMENTS

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Introduction Mobile health is increasingly empowering patients to monitor their disease. Commercially-available digital peak flow meters are used by asthma patients to self-monitor their condition and claim to predict deteriorations in peak flow measurements. Thus, evaluation of their ability to provide accurate peak flow predictions is essential.

Aim The aim of this study was to assess the accuracy of a digital peak flow meter in predicting next-day peak flow measurements.

Methods The digital peak flow meter connects to the patient's smartphone, allowing the patient to upload their peak flow measurements to a mobile application (figure 1). Peak flow measurements are divided into three zones: 'Green' ($>80\%$ of the patient's best peak flow measurement), 'Yellow' (60–80%) and 'Red' ($<60\%$). The mobile application uses deep learning neural networks to analyse the patient's peak flow measurements over the last 2 weeks, to predict which peak flow zone the patient will be in tomorrow. Peak flow measurements and predictions for a random 2-month period were analysed.

Results Between February–April 2022, 23,485 peak flow zone predictions were made. The average patient age was 26.1 years and 51.5% (13,646/26,485) of the peak flow measurements were performed by females. Patients originated from 24 countries. 92.0% (21,655/23,485) of next-day peak flow zone predictions were correct. The algorithm's average forecasted probability of predicting the correct peak flow zone was $94.0 \pm 8.6\%$. The average peak flow measurement was $93.3 \pm 17.6\%$ of the patient's personal best.

Conclusions Digital peak flow monitoring using machine learning algorithms can predict next-day peak flow measurements with high accuracy, thus alerting patients to impending deteriorations in their asthma control. Further work is needed to assess whether patients tailor their



Abstract S118 Figure 1 Screenshot from the mobile application's clinician dashboard, showing the patient data which can be uploaded to the mobile application and reviewed by clinicians

asthma self-management based on these predictions. Patient perspective on digital peak flow monitoring should also be explored to determine whether digital peak flow monitoring can be an acceptable alternative to traditional peak flow monitoring.

Please refer to page A212 for declarations of interest related to this abstract.

S119 DOMICILIARY FRACTIONAL EXHALED NITRIC OXIDE AND SPIROMETRY IN PREDICTING ASTHMA CONTROL AND EXACERBATIONS

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Introduction Domiciliary measurements of airflow obstruction and inflammation may assist healthcare teams and patients in determining asthma control and facilitate self-management. We report on the analysis of the physiological and behavioural data of domiciliary use of spirometry and fractional exhaled nitric oxide (FeNO) in patients with asthma. We investigated the compliance rate with these measurements, and explored which parameters were predictive of disease-related outcomes during and after the monitoring period.

Method We used data collected from the EU-Horizon 2020 myAirCoach study, which utilised an app-based platform to facilitate data collection. Patients were provided with handheld spirometry and FeNO devices in addition to their usual asthma care, and instructed to perform twice-daily measurements for one month. Daily symptoms and medication change were reported through the mobile health system. The Asthma Control Questionnaire was completed at the end of the monitoring period.

Results One hundred patients were provided with home-spirometry equipment, and 60 of these were also given FeNO devices. Compliance rates for twice-daily measurements were low (median [IQR]: 43 (25–62)% for spirometry; 30 [3–48]% for FeNO); 15% of patients rarely took measurements for spirometry and 40% for FeNO (defined as ≤ 7 data points over a month). The compliance rate was not