all exacerbators received inhaled corticosteroids (ICS) compared to 38.7% of the non-exacerbators. ICS treatment in patients with an exacerbation history in the 6 months prior to study inclusion was more frequent in patients with a duration of disease >1 year compared to those with disease duration

In the interim-analysis of 4,123 patients that have completed the 1st year of the observational period, 25.5% had at least one exacerbation during follow-up. In the subgroups CAT30, 22.0% and 40.2% of the patients had at least one exacerbation, respectively. A hospital stay was required for 3.5% of the patients who experienced an exacerbation of the total cohort during 12 months follow-up compared to 4.3% in the 6 month prior to the study.

Conclusion At baseline, the prevalence of patients reporting at least one exacerbation in this large real life COPD cohort was low and seems to be unchanged during 1 year follow-up.

P47 RECORDING OF HOSPITALISATIONS FOR ACUTE EXACERBATIONS OF COPD IN UK ELECTRONIC HEALTHCARE RECORDS DATABASES

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Background The Clinical Practice Research Datalink (CPRD) is a UK database of primary care health records covering 11 million residents of England and Wales, including at least 200,000 COPD patients. We have recently validated both the recording of COPD and algorithms to identify acute exacerbations of COPD (AECOPD) treated in primary care. It is unclear if primary care records alone can be used to identify hospitalisations for AECOPD. We aimed to validate strategies for identifying hospitalisations for acute exacerbations of COPD (AECOPD) using CPRD.

Methods We identified 22,599 patients with a validated diagnosis[1] of COPD who had HES data linked to CPRD. We assessed the positive predictive value (PPV) and sensitivity of four strategies to identify hospitalisations for AECOPD using CPRD: 1) AECOPD hospitalisation code; 2) AECOPD identified using our validated algorithm; 3) generic hospitalisation code; or 4) AECOPD identified using our validated algorithm and generic hospitalisation code on the same day. We identified hospitalisations for AECOPD in HES using ICD codes, and used HES identified AECOPD hospitalisation as the reference standard. We used ICD-10 codes J44.0 and J44.1 in any position and J44.9 in first position to identify hospitalisations for AECOPD in HES. We searched primary care records over a 30 day window after a record for hospitalisation for AECOPD for recording consistent with AECOPD hospitalisation defined by the four strategies. Patients were followed up between January 2004 and July 2013. As a sensitivity analysis, we repeated the analysis using a more specific definition of hospitalisation for AECOPD (J44.0 or J44.1 in first position only).

Results 19,507 hospitalisations for AECOPD were identified based on HES during the study period. The PPV and sensitivity of the various strategies to identify hospitalisations for AECOPD from CPRD alone are presented in Table 1. Sensitivity analysis did not significantly change the results.

Abstract P47 Table 1 PPV and sensitivity of different strategies to identify hospitalizations for AECOPD using primary care records compared to HES reference standard

Strategy	PPV (95% CI)	Sensitivity (95% CI)
AECOPD hospitalisation code	26.5% (21.5-32.2%)	1.8% (1.6-2.0%)
AECOPD code	1.9% (1.8-2.1%)	27.0% (26.2-27.8%)
Generic hospitalisation code	15.5% (14.5-16.6%)	29.3% (28.5-30.1%)
AECOPD code & generic hospitalisation code	47.5% (41.7-53.4%)	15.4% (14.8-16.1%)

Conclusions Primary care electronic healthcare databases are not sufficient to accurately identify hospitalisations for AECOPD. Future studies should use HES data linked with primary care records to study AECOPD which result in hospitalisation.

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P48 IDENTIFYING EXACERBATIONS USING SYMPTOMS: READING BETWEEN THE LINES

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Introduction Exacerbations of COPD are associated with significant morbidity and mortality; however there is no clear consensus to the definition of an exacerbation and this remains subjective. Furthermore, it has been challenging to identify an individual biomarker, be it biological or physiological to identify an exacerbation, although identification of exacerbation phenotypes improves this. Most, if not all, patients report increase in symptoms during an exacerbation, measured using the visual analogue scale, performed on a 100 mm line ranging from no symptoms to worst ever symptoms. However, it is unclear if there is a linear relationship with the increase in VAS symptoms and the onset of an exacerbation. In this study, we seek to mathematically model relationships with the VAS and symptoms of dyspnoea, sputum production, sputum purulence and cough in patients with COPD at stable state and during exacerbations.

Methods Patients with COPD with completed assessments of VAS during both stable state and exacerbations were studied. An exacerbation was defined according to healthcare utilisation and increased symptoms. Classifier algorithms (Waikato Environment for Knowledge Analysis software ®) were run to predict the value of an exacerbation and multiple cross validation was used to assess the predictive accuracy. The Naïve Bayes (based on conditional probability), Multi-layer Perceptron (neural networks), J48 (decision tree) and Random Forest classifier were each run to model relationships.

Results Data from 149 COPD subjects was collected, with 180 instances of an exacerbation recorded. The mean (SD) VAS (mm) for cough, dyspnoea, sputum production and purulence at baseline was 35 (27), 47 (27), 33 (27) and 28 (25) respectively. At exacerbation there was a significant increase ($p < 0.001$) for all these parameters compared to stable state (mean difference,