mortality, outpatient mortality up to six months after discharge and hospital re-admission rates in the six months post discharge. Chi-squared test was applied to assess the relationship between respiratory acidosis and our outcomes.

Results 234 patients had an admission ABG and were subsequently followed up to the point of death or six months post discharge. Patients with a $PaCO_2$ of >6 Kpa were 2.33 times (95% CI 1.11 to 4.96) more likely to die in hospital as compared to those patients with a normal value. Patients with a lower arterial pH (<7.35) were 2.32 times (95% CI 1.07 to 4.96) more likely to die in hospital as compared to those with a pH of >7.35. The increased risk in mortality was only seen for in-hospital mortality and there was no association with death in the 6 months following discharge, hospital re-admission or re-admission for a respiratory problem.

Conclusion This data supports previous studies that suggest hypercapnia and respiratory acidosis are associated with increased inpatient mortality, therefore further demonstrating the usefulness of pH and $PaCO_2$ as prognostic markers for inpatient outcomes. However our study does suggest that patients with respiratory acidosis on admission, who survive until discharge from hospital, do not have an increased risk of six month mortality or readmission compared to those with a normal admission ABG.

P45 PRACTICAL USE OF THE DECAF SCORE: CAN WE IMPROVE OUTCOMES IN ACUTE EXACERBATION OF COPD ADMISSIONS?

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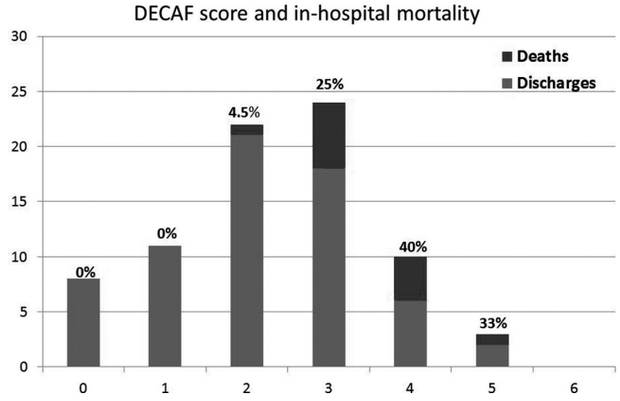
Background Acute exacerbations of COPD (AECOPD) are the second most common cause of emergency hospital admission in England and are associated with an inpatient mortality rate of 4.3%.[1] The Dyspnoea, Eosinopenia, Consolidation, Acidaemia and Atrial Fibrillation (DECAF) Score, is an effective prognostic tool that predict mortality in AECOPD admissions. This scoring system is easy to apply during admission and has performed better than existing prognostic tools.[2] We aim to appraise the efficacy of DECAF score in our busy respiratory and medical admissions unit.

Method Hospital admissions with AECOPD from Dec 2014 to Mar 2015 are prospectively reviewed and DECAF score applied to each patient. Morbidity and mortality indicators were then correlated with both total DECAF scores and each predictive index.

Results 78 admissions were reviewed, 60% were male and the mean age was 72.7 years. Average length of stay was 15.3 days and 12 patients died in hospital. Our results were comparable with previous studies[3], with inpatient mortality highest in those with DECAF scores of 3–5 (92%) and lowest in those with scores of 0–1 (0%). Higher DECAF scores were also associated with use of non-invasive ventilation (43%).

Furthermore, each individual predictive index within the DECAF score was independently related to an increased mortality rate. There was 44% mortality in patients with atrial fibrillation and 30% mortality in patients with dyspnoea score of eMRC 5B. In-hospital mortality rate increased with each DECAF score (Figure 1).



Abstract P45 Figure 1

Conclusions Introduction of DECAF score as clinical prediction tool for AECOPD admissions in our departments may be beneficial in reducing morbidity and mortality. Those scoring highest should be considered for early escalation, higher level of care and or palliative management. Those with lower scores may be suitable for early supported discharge. Further study of a larger group however is advisable to confirm the significance of these findings.

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P46 FREQUENCY OF COPD EXACERBATIONS IN THE GERMAN DACCORD REGISTRY

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Introduction In patients with COPD, exacerbations are among the most relevant safety measures. In this analysis of data from the observational DACCORD study, we report the frequency of exacerbations in a COPD population.

Methods To get insights into occurrence and frequency of exacerbations, data from 4,123 patients were obtained from 349 primary and secondary care centres in Germany. To be eligible for entry into DACCORD, all patients had to have a COPD diagnosis (consistent with the German Disease Management Programme definition), and had to have a change in bronchodilator maintenance medication, prior to entry. Data collected included history and treatment of exacerbations 6 months prior to inclusion, and for the duration of follow-up. Exacerbations were defined based on prescription of oral corticosteroids and/or antibiotics or on hospitalisation.

Results Mean age of the patients was 65.7 years; 36.9% of patients had severe or very severe airflow limitation (GOLD 2010). In the 6 month period prior to study inclusion, 26.4% of the patients had at least one exacerbation. Fewer patients in the subgroup with CAT30 (16.7% vs 47.9%). Interestingly, 45% of

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,