score. The study is powered to detect a 13% difference in prevalence of respiratory symptoms between groups and statistical analysis will be undertaken when the study closes (September 2011).

**Results** To date, we have recruited 409 subjects. Group 1: n=199 (66 men, median age=47.5 (range 24–73)); (133 women, median age 42.0 (range 17–66)). Group 2: n=210 (126 men, median age 38.5 (range 20–63) and 84 women, median 35.0 (range 22–58)). The majority (>90%) of cannabis smokers employ unfiltered single skinned joints: 78% smoke resin and 22% grass. The median (range) cumulative py tobacco for group I males=31 (5–116); females=23 (5–70); group 2 males=25 (2.5–113); females=20 (1–88). Group 2 median (range) jy: males=110 (1–1050); females=54 (1–280). Compared with Group I, Group 2 smokers more frequently report cough, sputum production, wheezing and breathlessness and are more likely to report more than 3 NHANES symptoms. To date, 352 lung function tests meet GOLD criteria for acceptability: Group 1=166 and group 2=186. The prevalence of airflow limitation in Group 1 is 24.1% and in Group 2 is 24.2%.

**Conclusions** Despite being younger and smoking less tobacco, cannabis smokers report a greater number of respiratory symptoms than tobacco-only smokers and show an equal prevalence of airflow limitation.

## P264 THE PREVALENCE OF β-BLOCKER PRESCRIPTION IN COPD PATIENTS

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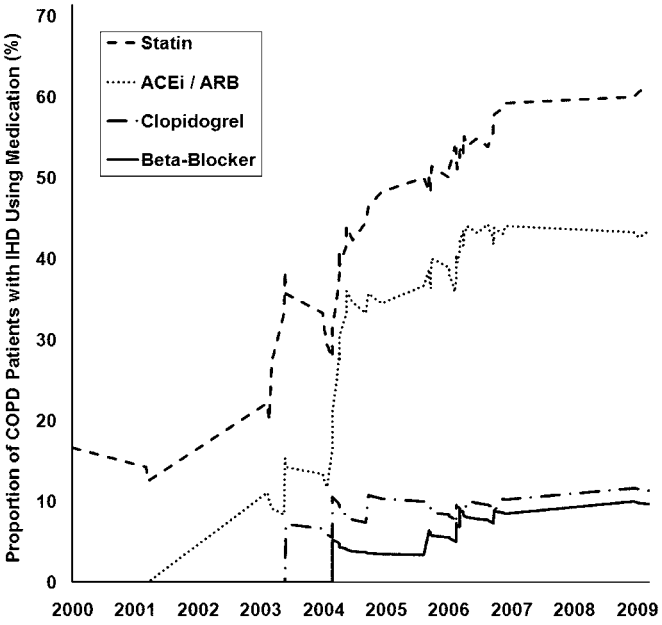
**Introduction** Ischaemic heart disease (IHD) is a major cause of morbidity and mortality in COPD patients. Effective cardiovascular therapies may have significant impact in COPD populations. In particular, β-blockers have been shown to be safe and effective in COPD. We aimed to quantify the changing prevalence of emerging cardiovascular medications in this group over the last decade.

**Methods** We analysed the recruitment records of well-characterised patients enrolled into the London COPD Cohort from 1995 to 2010. Date of enrolment, comorbidities, medications, demographics, smoking history and spirometry results were analysed. Prescribing data reflects that of the patients' primary physicians.

**Results** The mean±SD age of 386 COPD patients was 68.4±8.7 years, $FEV_1$ was 1.22±0.55 l or 49.5±19.6% predicted. 57% were male, 24% were current smokers with a median (IQR) pack year history of 45 (25–65). 64 (17%) patients had IHD of whom half had a previous myocardial infarction, 4% had heart failure, 6% had a previous stroke, 5% had peripheral vascular disease (PVD), 9% had a tachyarrhythmia. The overall prevalence of at least one cardiovascular disease was 30%. 36% had hypertension, 8% had hypercholesterolaemia and 7% had diabetes. Common cardiovascular medications included statins (28%), aspirin (23%), calcium-channel blockers (21%), ACE-inhibitors (18%), loop diuretics (15%), thiazides (14%) and angiotensin receptor blockers (7%). β-blockers were indicated in 25% of patients (IHD ± heart failure ± tachyarrhythmia; 22% when those with the contraindication of PVD are excluded). The prevalence of β-blockers was only 5% overall and prescribed to only 8/84 (10%) in those with a clinical indication and no PVD ($\chi^2$ test, p=0.020). In the 64 patients with IHD, statins and angiotensin pathway drugs became more prevalent in the last decade of the study period (Abstract P264 figure 1) in keeping with emerging evidence of benefit. β-blockers did rise in prevalence as evidence of safety emerged, although to a much smaller extent than statins and angiotensin pathway drugs.




Abstract P264 Figure 1 The cumulative proportion of emerging cardiovascular medications in newly recruited COPD patients with ischaemic heart disease.

**Conclusions** Emerging cardiovascular medications have become more common in COPD patients reflecting greater recognition of cardiovascular risk. However, β-blockers were underused despite clear indications and evidence of safety and benefit in COPD. Measures are required to improve evidence-based prescribing to overcome historical beliefs.

## P265 A RANDOMISED CONTROL TRIAL TO INVESTIGATE THE EFFECTIVENESS OF PLB IN THE CLINICAL SETTING

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**Introduction** Pursed lips breathing (PLB) at rest increases oxygen saturation and tidal volume and reduces respiratory rate. Used with exercise it shortens the recovery period, reduces end-exercise breathlessness and improves reported physical function measured by SF-36 (Roberts SE *et al*, 2009). This study aimed to explore, in a clinical setting, the effectiveness of PLB, in the management of dyspnoea in stable COPD.

**Methods** COPD patients referred to pulmonary rehabilitation (PR) were randomised to a control or PLB intervention group. Patients were visited twice at home over 8 weeks prior to starting PR. Each visit comprised a respiratory examination and provision of information on the PR programme; the intervention group were also taught PLB, instructed to practise this daily and to use the technique whenever troubled by breathlessness. Use of PLB was recorded in a home diary. Primary outcome measures were the Self Report Chronic Respiratory Disease Questionnaire (CRQ-SR) dyspnoea and mastery domains and the Endurance Shuttle Walk Test (ESWT). An a priori power calculation, for 80% power, was based on local PR data. Secondary outcome measures were change in Borg breathlessness, respiratory rate, heart rate and oxygen saturation on ESWT.

**Results** 41 patients with COPD were recruited (PLB n=22, control n=19); mean (SD) age 68 (11) years, mean (SD) $FEV_1$% predicted 47 (15.80)%. There was no statistically significant difference between groups in the primary outcome measures and in retrospect the RCT was insufficiently powered. Post hoc analysis found effect sizes for primary outcome measures were: CRQ-SR dyspnoea 0.05, mastery 0.48 and ESWT 0.44. For secondary outcome measures unpaired t-test showed a significant (p=0.02) reduction in oxygen desaturation on ESWT in favour of PLB group.

**Conclusion** This study showed PLB practised over 8 weeks resulted in reduced physiological stress with respect to oxygen desaturation when performing a standardised endurance walk. Additionally it raises questions regarding use of a health related quality of life dyspnoea tool when investigating PLB. To date beneficial effect of PLB on dyspnoea related to exercise has only been shown using the Borg breathlessness score (Nield *et al*, 2007).

## NIV: COPD, neuromuscular disease and obesity

### P266 LATE VENTILATION IS ASSOCIATED WITH HIGH IN-HOSPITAL MORTALITY IN PATIENTS HOSPITALISED WITH ACUTE EXACERBATIONS OF COPD

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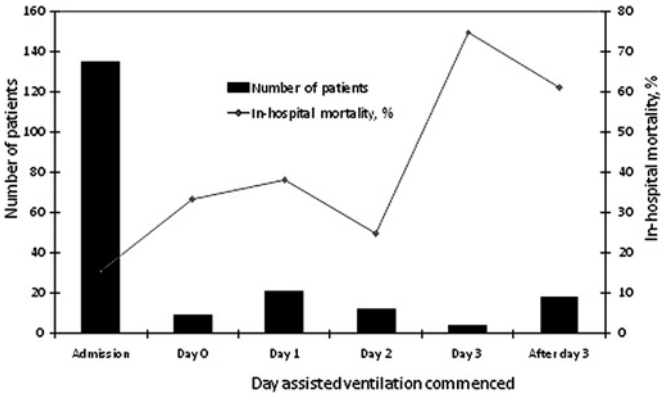
**Background** Patients with severe acute exacerbations of COPD (AECOPD) often require treatment with non-invasive ventilation (NIV). The BTS audit reported that patients who develop respiratory acidosis and require NIV after 24 h in hospital have a high mortality risk but this relationship has not been investigated prospectively.[1]

**Methods** Consecutive patients hospitalised with AECOPD and receiving assisted ventilation (NIV or IPPV) were identified. Demographic information, time from admission to commencement of ventilation, arterial blood gases at admission and at time of development of respiratory acidosis (if different), and outcomes of treatment were recorded.

**Results** 195 of 920 patients admitted with AECOPD were initially treated with NIV and four were ventilated invasively. Mean (SD) age was 73.6 (9.8) years, and most: were female (61.4%); had experienced frequent exacerbations in the previous year (median 3, IQR 1–4); were of normal weight (mean (SD) BMI 25.1 (7.0) $kg/m^2$); and had severe airflow obstruction (mean (SD) $FEV_1$ 38.1 (16.1) % predicted). 27.6% of patients had received NIV previously for treatment of AECOPD, and 81 (40.7%) patients had coexistent pneumonia on admission.

Median duration of ventilation was 4 days (IQR 1.5–5) and four of the patients who initially received NIV progressed to invasive ventilation. 49 (24.6%) patients died in-hospital. The risk of death increased with longer time from hospital admission to ventilation commencement (Abstract P266 figure 1), with more than 60% of patients who required ventilation after day 2 of their hospital admission not surviving to discharge.

**Conclusion** Mortality in AECOPD is particularly high in patients who deteriorate and require ventilation after day 2 of the admission. The time from admission to needing ventilation (NIV or IPPV) should inform clinicians considering the prognosis of patients hospitalised with AECOPD.




Abstract P266 Figure 1 Time from admission to commencement of ventilation, and the associated in-hospital mortality.

### REFERENCE

1. **Roberts CM,** Stone RA, Buckingham RJ, *et al*. Acidosis, non-invasive ventilation and mortality in hospitalised COPD exacerbations. *Thorax* 2011;**66**:43–8.

### P267 ASSOCIATION OF THE LENGTH OF NON-INVASIVE VENTILATION (NIV) WITH ARTERIAL BICARBONATE LEVEL IN COPD PATIENTS WITH ACUTE HYPERCAPNIC RESPIRATORY FAILURE (AHRF)

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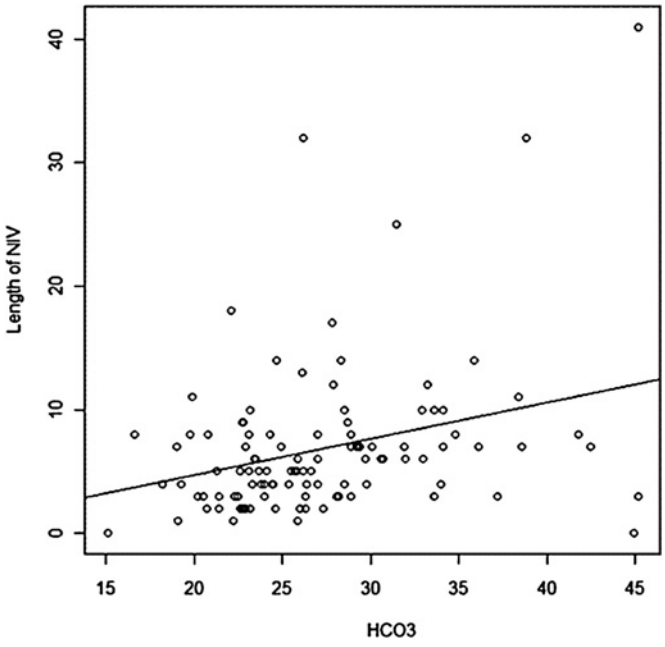
**Introduction** Following the British Thoracic Society (BTS) NIV audit 2011 we noted that our institution's length of stay was longer than the national average. Factors related to length of stay are complex and related to a lot of non-medical factors, however length (duration) of NIV treatment is not. Although the associations of mortality of COPD patients requiring NIV are well-documented (Non-invasive ventilation (NIV) in chronic obstructive pulmonary disease (COPD) exacerbations with AHRF with pH<7.26. Thomas




Abstract P267 Figure 1 Scatter plot of Length of NIV against $HCO_3$. p Value for HCO3 is 0.00117, which suggests that $HCO_3$ is significant and has a positive effect on the length of NIV.