treated with antibiotics were excluded. Analysis was restricted to those patient visitation cared by physician specialty with general practice, family practice, and internal medicine. Multivariate logit regression analysis was performed to assess the relationship between patient insurance status and the prescribing of broad-spectrum antibiotics controlling for specialty, gender, race and ethnicity, physician specialty, and comorbidities. RESULTS: Of 851 adults patients care for ARTI, 38% were prescribed one or more broad-spectrum antibiotics. In multivariate regression analysis, compared to those with private insurance, those with Medicaid, a public insurance program for low-income Americans, was associated with lowerelihood of prescribing of broad-spectrum antibiotics (adjusted odds ratio (OR) 0.496, p = 0.003), so were those without health insurance (adjusted OR 0.499, p = 0.028), and those with Medicare, a public insurance program for the elderly or disabled adults (adjusted OR 0.666, p = 0.040). CONCLUSIONS: In the case of ARTI, those with private insurance were substantially more likely to be prescribed with broad-spectrum antibiotics, where the society may be better off if such overuse of antibiotics could be reduced.

### RESPIRATORY-RELATED DISORDERS – Conceptual Papers & Research on Methods

**PR545**

**COMPARING RISK ADJUSTMENT MODELS: PROPENSITY SCORE MATCHING, STANDARD REGRESSION ANALYSIS AND INSTRUMENTAL VARIABLE METHOD**

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**OBJECTIVES:** To compare three common risk adjustment models when estimating significant only in those diagnosed within a year of death (HR > 1.6; p = 0.0162), whereas the hemiplegia/paraplegia effect was found only in those diagnosed over a year ago (HR > 1.6; p = 0.0163). **CONCLUSIONS** To adequately adjust for comorbidity influence in outcome studies, we recommend stratification of each comorbidity on the basis of its duration (at start of follow-up for a cohort, or at time of outcome for a case-control study) to test for possible time-dependent effect. Adopting such approach as part of the exploratory analysis may improve the model and lead to more accurate estimations.

**PR546**

**ASSESSING THE TIME-DEPENDENT NATURE OF COMORBIDITY INFLUENCE IN COPD**

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**OBJECTIVES** In most outcome studies, comorbidity influence is modelled as constant with the duration of the comorbidity. The nature of the comorbidity and the effect persists. We challenge these assumptions as we demonstrate the time-dependent nature of the influence of certain comorbidities on patient survival.

**METHODS** A retrospective cohort of 23,881 patients aged 50+ in the UK-GPRD at time of incident COPD diagnosis between 1990 and 1998 provided an appropriate setting. Each death patient was matched to as many survivors from the same practice as possible, of same age, sex and COPD duration. Some 18 binary comorbidities measured at the time of death were analysed in relation to mortality. Using conditional logistic regression model, we estimated hazard ratio (HR) for each comorbidity, adjusted for key baseline characteristics in two different models: In model A, we treated comorbidities as constant variables, whilst in B, we stratified each into two-time-dependent categorical variables. We retained interactions between comorbidities which were significant. RESULTS Some 2938 dead patients were matched to 5792 survivors. We found evidence of time-dependent effects on risk for all but peripheral vascular disease and diabetes. Only in model B did we find evidence for peptic ulcer, moderate/severe liver disease and hemiplegia/paraplegia. The liver disease effect was significant. CONCLUSIONS Some 2938 dead patients were matched to 5792 survivors. We found evidence of time-dependent effects on risk for all but peripheral vascular disease and diabetes. Only in model B did we find evidence for peptic ulcer, moderate/severe liver disease and hemiplegia/paraplegia. The liver disease effect was significant. CONCLUSIONS Some 2938 dead patients were matched to 5792 survivors. We found evidence of time-dependent effects on risk for all but peripheral vascular disease and diabetes. Only in model B did we find evidence for peptic ulcer, moderate/severe liver disease and hemiplegia/paraplegia. The liver disease effect was significant. CONCLUSIONS Some 2938 dead patients were matched to 5792 survivors. We found evidence of time-dependent effects on risk for all but peripheral vascular disease and diabetes. 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