however should exercise caution with using interpretation of spirometry values documented in primary care records.

P224 THE ASSOCIATION BETWEEN DEGREE OF AIRFLOW LIMITATION AND DEGREE OF CORONARY ARTERY ATHEROMA IS NOT ATTRIBUTABLE TO SMOKING HISTORY

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Introduction Prevalence of coronary artery disease (CAD) in chronic obstructive pulmonary disease (COPD) is 16–53% (Smith and Wrobel. Int J Chron Obstruct Pulmon Dis. 2014;9:871–888), with ~25% COPD patients dying from cardiovascular disease. Diverse studies demonstrate ~2-fold increased risk of CAD in COPD after adjustment for known cardiovascular risk factors. By contrast, in asthma increased CAD risk appears to be restricted to smokers (Colak *et al*. Am J Respir Crit Care Med. 2015 Apr 27). Our objectives were to investigate the association between airflow limitation and severity of coronary artery atheroma in patients undergoing coronary angiography and to determine the effect of smoking on this relationship.

Methods Patients attending for elective coronary angiography March–July 2015 underwent clinical assessment and spirometry prior to the procedure. Coronary artery disease burden was quantified from angiograms using the Gensini score (Needland *et al*. Am Heart J 164:547–552). A single rater (Professor of Interventional Cardiology), blinded to clinical diagnosis, determined number and severity of lesions. Blinded repeats were performed and ratings compared to clinical reports to ensure reliability. A nonlinear score was assigned to each lesion based on the severity of stenosis and a multiplier applied depending on lesion location in the coronary tree. Lesion scores were summed to derive total score, which was log-transformed for analysis.

Results 233 people (age 66 ± 10 years (mean±SD), 69% male) had FEV_1 82 ± 21% predicted, FVC 89 ± 21% predicted, FEV_1:FVC ratio 73 ± 10%, Gensini median score 14 (IQR 6–33). On univariate analysis (Table 1), FEV_1 and FEV_1:FVC were significantly and inversely correlated with Gensini score, but Gensini was not significantly associated with smoking status or pack year load. On multivariate analysis, neither airflow limitation nor smoking were significant determinants of Gensini.

Conclusions People with more severe airflow limitation have more coronary atheroma, but smoking does not appear to be a direct determinant of this relationship. Shared comorbid disease (e.g. dyslipidaemia) between COPD and CAD may be more important than smoking in determining the association, supporting the hypothesis that COPD and CAD are part of a multi-morbid disease complex.

Abstract P224 Table 1 Univariate and multivariate relationships between log Gensini score, lung function and clinical variables

	Univariate analysis		Multivariate analysis (ANOVA)	
Pearson's correlation	**R value**	**P value**	**Partial eta^2**	**P value**
FEV_1% predicted	-0.149	0.036	0.01	0.191
FVC predicted	-0.116	0.105		
FEV_1:FVC	-0.157	0.027	0.000	0.964
Age	0.192	0.007	0.003	0.475
Waist to hip ratio	0.129	0.071		
Body mass index	-0.157	0.027	0.006	0.291
Systolic blood pressure	0.052	0.469		
Diastolic blood pressure	-0.056	0.436		
LDL cholesterol	0.145	0.049	0.049	0.003
HbA_{1c}	0.053	0.705		
Creatinine	0.165	0.02	0.002	0.518
hsCRP	-0.022	0.759		
Fibrinogen	0.078	0.285		
Charlson index	0.231	0.001	0.017	0.086
Pack year smoking history	0.080	0.259	0.000	0.795
Number of chest infections in last year	-0.141	0.047	0.012	0.152
ANOVA (categorical variables)	**F statistic**	**P value**		
Gender	8.6	0.004	0.035	0.013
Ever smoked	1.4	0.261		
Childhood respiratory illness	0.6	0.432		
Recurrent chest infections	3.0	0.084		

FEV_1, forced expiratory volume in 1 s, FVC, forced vital capacity; LDL, low density lipoprotein; HbA1c, glycated haemoglobin; hsCRP, high sensitivity C reactive protein; ANOVA, analysis of variance.

P225 IDENTIFYING ASTHMA PATIENTS IN WALES USING LATENT CLASS ANALYSIS OF ROUTINE DATA

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Background The Wales Asthma Observatory aims to produce current estimates of asthma prevalence and disease burden using routine data. In the absence of a feasible gold standard to validate case definitions, latent class analysis (LCA) can be employed.

Objectives To estimate the prevalence of treated asthma in Wales using LCA of routine health data.

Methods We performed LCA using observed variables of asthma-related healthcare diagnostics and utilisation in the fiscal year 2011–2012 for a random sample of 98,042 individuals in the Secure Anonymised Information Linkage (SAIL) databank. The observed variables were chosen if they exhibited expected distributions. Diagnostic performance of each of the observed variables was calculated. The model was tested for stability over multiple time windows and small area configurations. Since COPD can be misdiagnosed as asthma, a separate LCA was performed to identify COPD patients and cross-validate the asthma model.

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Results Our LCA model estimated the prevalence of treated asthma in Wales in 2011–2012 as 8.9% (95% CI: 8.7%–9.1%), which was higher than estimates from the Quality and Outcome Framework (6.9%), but lower than both the prevalence of self-reported treated asthma estimated by the Welsh Health Surveys in 2011 (11.0%) and 2012 (10.0%) and the prevalence of 'GP reported and treated asthma' from the 'True Costs of Asthma in the UK' project (13.0%). In our model, prescription of any asthma medication had the highest accuracy among other observed variables (sens. = 99%; spec. = PPV = NPV = 100%), while asthma diagnosis variable had a lower accuracy (sens. = 66%; spec. = 94%; PPV = 51%; NPV = 97%). In the same sample, COPD prevalence was 2.0% (95% CI: 1.9%–2.1%) with only 2.8% of those classified as asthmatics were also classified as having COPD.

Conclusion Our LCA model provides a reasonable, data-driven, reference identification of people with treated asthma in Wales. Further work is needed to explore potential reasons for the observed differences in the estimates from other sources.

P226 IMPAIRED RESPIRATORY HEALTH STATUS IN THE UK HIV INFECTED POPULATION DESPITE THE USE OF ANTIRETROVIRAL THERAPY

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Background The widespread use of antiretroviral therapy (ART) has led to a reduction in HIV related opportunistic infections. An increase in chronic non-HIV related co-morbidities has been observed in stable HIV positive individuals receiving ART. The extent to which HIV infection remains an independent risk factor for respiratory disease despite the use of antiretroviral therapy is uncertain and few studies have systematically evaluated respiratory disease in HIV-infected populations with access to antiretroviral therapy.

Aims We sought to evaluate the frequency of (a) smoking and (b) respiratory symptoms and (c) spirometric impairment in the ambulatory UK adult HIV infected population, compared to HIV uninfected controls.

Methods HIV-positive participants were recruited from a large HIV care service, HIV uninfected participants were recruited from Sexual Health services (where recruitment was stratified by age to approximate that of the HIV positive subjects). Participants completed a questionnaire which included questions on smoking history and respiratory health status using the St George's Respiratory Questionnaire (SGRQ), and undertook spirometry without bronchodilation.

Results 249 participants were recruited between April and July 2015 (Table 1). 28% of HIV positive and 33% of HIV negative participants were current smokers (p = 0.22). 9% of HIV positive and 7% of HIV negative participants had an FEV_1/FVC of <0.7 (p = 0.38). 92% of HIV positive participants were using antiretroviral therapy, 86% had an undetectable plasma HIV viral load and mean CD4 count was 684 cells/μL.

Abstract P226 Table 1

		HIV positive (N = 181)	HIV negative (N = 68)	
Age [years]		50 (43–56)	44 (38–52)	P = 0.006
Using antiretroviral therapy		92%		
CD4 count [cells/μL]		617 (458–839)		
Male		79%	68%	P = 0.065
Current smoker		28%	33%	P = 0.22
FEV_1		3.43 (0.86)*	3.20 (0.78)*	P = 0.08
FVC		4.24 (1.06)*	3.87 (0.98)*	**P = 0.02**
FEV1/FVC <0.7		9%	7%	P = 0.55
SGRQ	**Total score**	**12 (6–29)**	**8 (3–18)**	**P = 0.032**

Values median (IQR) or% unless otherwise stated. *mean (SD).

Significantly higher SGRQ scores were observed in HIV positive participants than HIV-negative participants with a median total SGRQ score of 12 for those with HIV infection and 8 for the HIV negative participants (p = 0.03). In a linear regression (log scale) model, HIV infection was associated with a 62% increase (95% CI 1.19–2.21, p < 0.01) in SGRQ in unadjusted analysis and 48% increase (1.08–2.02, p = 0.01) in a multivariable analysis adjusting for age, gender and smoking status.

Conclusions Despite widespread use of ART, HIV infection is independently associated with impaired respiratory health status. This does not appear to result from current smoking or obstructive lung disease.

P227 LUNG CANCER DIAGNOSIS AT EMERGENCY ADMISSION – HOW DOES DORSET COMPARE?

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Introduction Survival for lung cancer patients in the UK is worse than in comparable countries, at least partly because they present with more advanced disease.[1] Recent data suggest that rural residence is associated with an increased risk of early death in lung cancer.[2]

As our region encompasses rural areas, we investigated rates of emergency admission at the three major hospitals in our region and factors which may lead to this.

Methods We retrospectively identified new presentations of lung cancer as emergencies from August to October 2014. We gathered patient demographics, mortality and GP presentation data and compared them with local lung cancer database data for the same time period.

Results We identified 41 new lung cancer diagnoses in this period, from a total of 119 new diagnoses. This gives an emergency diagnosis rate of 34.5%, comparable to national figures of 39%.[1] However, there was significant variation (21–43%) between the three sites.

When analysed by gender, only 30% of male diagnoses were made at emergency presentation, compared with 41% of females. Unfortunately our sample size was not large enough to demonstrate statistical significance (p = 0.22).

GP data were available for 28 patients, of whom 17 had reported symptoms to their GP. The median duration between