Abstract P3 Table 1

Selected case scenarios by attribution mix	Causal attribution by physician case raters		
	Smoking % (median, IQR)	Occupation% (median, IQR)	Other % (median, IQR)
Case 1 (Heavy smoker, heavy occupational exposure – 43 years foundry and scrap metal work, paint fume exposure)	73 (62.5–90)	10 (10–31)	0 (0–10)
Case 2 (Heavy smoker, light occupational exposure – 9 years grain dust exposure	90 (80–96.5)	10 (0–12.5)	0 (0–10)
Case 3 (Medium smoker, medium occupational exposure – 28 years, scrap metal and cotton dust exposure)	70 (60–87.5)	20 (7.5–40)	0 (0–15)
Case 4 (Light smoker, heavy occupational exposure – 45 years as a stonemason)	50 (32.5–75)	40 (15–67.5)	0 (0–15)

Despite growing recognition that such exposures are associated with COPD, very little is known about how clinicians weight such attributions against cigarette smoking causation in individual cases.
Methods In order to assess attribution of causative factors in COPD by clinicians, we used 15 hypothetical cases of COPD, structured to represent a broad range of smoking and occupational exposure histories. Cases were developed a priori into nine categories: combinations of low, medium and high tobacco smoking and low, medium, and high COPD-risk occupational exposures. Twelve general experts in COPD and 12 specifically in occupational lung disease were invited to rate the cause of COPD in each case, attributing a percentage contribution to the harm caused by three categories: (i) smoking, (ii) occupational exposures and (iii) other causes.
Results To date, responses have been received from nine raters (seven occupational and two general). Ratings from a selected spectrum of cases are shown in Abstract P3 Table 1, expressed as median and IQR. Attribution varied with the degree of exposures, but even light smoking (less than 15 pack years) was weighted more heavily than substantial occupational exposure.
Conclusions There was a wide range of estimates relating to causative factors in COPD documented by experienced clinicians. These findings are consistent with the a priori assumption that attributing COPD causation in an individual case is difficult, as a sparse evidence base exists to guide clinicians. Further work is needed to allow translation of epidemiological findings to attribution in individual COPD cases, to better facilitate the screening, identification and management of occupational COPD.

P4 BREATHLESSNESS AND WORK PERFORMANCE IN OLDER ADULTS IN KENT

doi:10.1136/thx.2010.150961.4

J Szram, SJ Schofield, APM Woods, P Cullinan. *Imperial College, London, UK*

Dyspnoea and functional limitation due to airway obstruction may adversely affect work performance, particularly, it might be thought, in those with manual occupations. This is likely to have an impact on policies that seek to keep people employed to an older age. A questionnaire was sent to the 20 693 adults aged 51–60 registered with 33 general practitioners in Kent. Of 6732 (33%) respondents, 5315 (79%) were in full or part time paid work; of these, 26% declared breathlessness, a proportion significantly lower than of those not in current employment (43%, p<0.001). Across four categories of increasing breathlessness (modified MRC (mMRC) scale 0–3) was associated with higher levels of self-reported poor work performance, a trend more marked in men (5.0%, 17.4%, 28.6% and 42.9%). General health-related and respiratory-specific work disability shared similar relationships with increasing dyspnoea. Breathless individuals also took more extended sickness absence and were more likely to indicate that they would retire due to ill health (3.2%, 7.8%, 9.9% and 25.0% for mMRC0-3 respectively). Regression analysis confirmed the relationship between breathlessness and work performance in both sexes and indicated that it was independent of age, employment status, physical job demands and a number of psychological traits (Abstract P4 Table 1). Significant modification was observed (p=0.04) when including in the model the interaction term between breathlessness and occupational group in men. Stratum specific OR for occupational group were examined; breathlessness had the largest effect on work performance in managerial, professional and technical occupations rather than those in the more physically demanding plant,

Abstract P4 Table 1 Logistic regression of relationship between breathlessness (graded on the mMRC scale: 0=none, 1=mild, 2=moderate, 3=severe) and poor self-rated work performance, stratified by sex. Stratum-specific OR for occupational group are also presented

	Men			Women		
	OR	95% CI	p	OR	95% CI	p
Unadjusted						
mMRC 0	1.0			1.0		
mMRC 1	4.1	2.9 to 5.9	<0.01	2.3	1.5 to 3.6	<0.01
mMRC 2	7.8	4.6 to 13.3		6.0	3.6 to 9.7	
mMRC 3	13.6	7.8 to 23.5		8.5	4.8 to 15.3	
Adjusted						
mMRC 0	1.0			1.0		
mMRC 1	4.1	2.7 to 6.1	<0.01	2.0	1.3 to 3.2	<0.01
mMRC 2	7.5	4.1 to 13.6		4.9	2.8 to 8.4	
mMRC 3	8.5	4.5 to 15.9		7.1	3.7 to 13.9	
Age						
Employment	1.1	1.0 to 1.1	0.08	1.0	0.9 to 1.1	0.96
full time	1.0			1.0		
part time	1.5	0.9 to 2.5	0.13	1.1	0.81 to 1.7	0.50
General control (low)	1.6	1.1 to 2.3	0.02	1.1	0.7 to 1.7	0.58
Optimism (low)	1.5	1.1 to 2.2	0.02	1.5	1.0 to 2.3	0.03
Coping ability (low)	1.6	1.1 to 2.3	0.02	2.2	1.5 to 3.3	<0.01
Work control (low)	3.2	2.3 to 4.6	<0.01	3.1	2.0 to 4.6	<0.01
Physical strenuousness (job)						
Low	1.0			1.0		
Average	2.4	1.5 to 3.7		2.1	1.3 to 3.4	
High	2.8	1.8 to 4.5	< 0.01	2.5	1.4 to 4.2	<0.01
Major occupational group (UK SOC 2000)						
1–3	1.0			1.0		
4–5	1.1	0.7 to 1.7	0.78	0.6	0.3 to 1.0	0.08
6–9	1.0	0.6 to 1.5		0.9	0.6 to 1.4	
Stratum-specific odds rations for occupational group						
Group 1–3						
mMRC 0	1.0			1.0		
mMRC 1	5.4	2.6 to 11.0	< 0.01	3.4	1.6 to 7.5	<0.01
mMRC 2	12.7	4.9 to 32.7		11.5	4.5 to 29.6	
mMRC 3	39.6	11.2 to 140.6		17.6	5.1 to 60.4	
Group 4–5						
mMRC 0	1.0			1.0		
mMRC 1	4.0	2.0 to 7.7	<0.01	1.69	0.6 to 4.6	
mMRC 2	7.4	2.5 to 21.8		1.27	0.3 to 6.4	
mMRC 3	2.6	0.8 to 9.2		*		
Group 6–9						
mMRC 0	1.0			1.0		
mMRC 1	3.3	1.6 to 7.0	<0.01	1.5	0.8 to 3.0	<0.01
mMRC 2	4.9	1.4 to 16.6		4.5	2.0 to 10.3	
mMRC 3	9.7	3.6 to 26.1		7.8	3.3 to 18.3	

*mMRC 3 predicted failure perfectly and therefore is not presented UK SOC 2000 = Standard Occupational Classification.

process, production and elementary occupations. (Abstract P4 Table 1). The reported prevalence of doctor-diagnosed respiratory disease was low (15%), in particular smoking related lung disease (COPD, 5%). An increased prevalence of impaired work performance was seen in breathless individuals with co-existent respiratory, cardiovascular or musculoskeletal disease with highest rates in those with declared lung disease. Dyspnoea, in many cases probably the result of COPD, is strongly and independently associated with sub-optimal performance at work in later life. Strategies to better accommodate employees with breathlessness will be needed if, as planned, the age of the UK workforce does increase.

P5 AIRWAY RESPONSIVENESS MEASUREMENTS IN ASTHMATIC RECRUITS TO EMERGENCY SERVICES

doi:10.1136/thx.2010.150961.5

S Wiscombe, V Jeebun, SC Stenton. *Royal Victoria Infirmary, Newcastle Upon Tyne, UK*

Asthmatics undertaking emergency service work are thought to be at increased risk of severe bronchoconstriction with sudden exertion or exposure to irritants such as fire smoke, pepper spray or CS gas. The risks are poorly quantified and there are no clear guidelines to assist employers. We investigated the value of airway responsiveness measurements in 40 applicants to the police service who were thought to have asthma at a pre-employment examination. Their mean age was 25 years (SD 6 years); 22 (55%) were male. Only 15 (37%) reported active symptoms (wheeze, breathlessness or cough). Their median FEV1 was 106% of predicted (range 77–125%) and only 3 demonstrated airflow obstruction. Airway responsiveness was measured as $PD_{20}.FEV_1$ to methacholine using the Newcastle dosimeter technique[1] 16 (40%) had measurements in the 'definite' asthma range, that is, $PD_{20}.FEV_1<200$ µg; 6 in the "equivocal" range $PD_{20}.FEV_1<200–1000$ µg; and 18 in the 'normal' range $PD_{20}.FEV_1>1000$ µg. There was a clear relationship between pre-employment FEV1 and PD20 within the definite asthma group ($F_{(1,14)}= 9.15$; $p<0.001$) but there were no significant associations between PD20 category and symptoms, medication use or lung function. We conclude that airway responsiveness measurements are practical in this setting and identify more than 50% of asthmatics as probably at low risk of marked bronchoconstriction. Further follow-up of the cohort will be necessary to more precisely determine the risks (Abstract P5 Table 1).

Abstract P5 Table 1

	n	Current symptoms	Preventer inhaler	Median FEV1
Definite asthma	16	8 (50%)	12 (75%)	106%
Equivocal asthma	6	1 (17%)	5 (83%)	109%
Normal	18	6 (33%)	10 (55%)	107%

REFERENCE

1. **Stenton SC,** *et al*. *Occup Med* 1993;**43**:203–6.

P6 WORK-RELATED RESPIRATORY SYMPTOMS IN THE UK; DO PRIMARY CARE PHYSICIANS MISS DIAGNOSTIC OPPORTUNITIES IN OCCUPATIONAL ASTHMA?

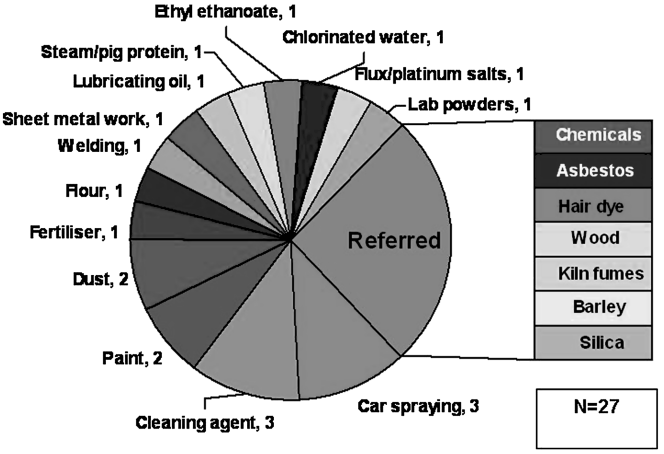
doi:10.1136/thx.2010.150961.6

[1]J Hoyle, [1]L Hussey, [1]R Barraclough, [2]R Agius. [1]*North Manchester General Hospital, Manchester, UK;* [2]*Centre for Occupational & Environmental Health, The University of Manchester, Manchester, UK*

Introduction and objectives Occupational lung disease is prevalent and costly. Population-based studies show that up to 20 cases of occupational lung disease per 100 000 workers per year should be identified.[1] The Health and Safety Executive estimates the cost of occupational asthma to our society to be over £1.1 billion for each 10 year period.[2] The prognosis of these individuals is better if they are removed from exposure quickly; however, this policy leads to unnecessary job loss in cases where the diagnosis is wrong.[3] Little is known about the number of workers who present to primary care with work-related symptoms, or what proportion of these are referred for hospital specialist advice once a work-related element has been identified.

Methods The Health & Occupation Reporting network in General Practice (THOR-GP) at the University of Manchester, collects work-related ill-health data from between 250 and 300 GPs trained to diploma level in occupational medicine. Cases of undiagnosed respiratory disease, reported as unspecified work-related respiratory symptoms between 2006 and 2009 were retrospectively identified. The cases were subdivided into exposure (if known) and categorised as referred if sent to a hospital specialist for further investigation.

Results In 2006–2009 GPs reported 4902 cases of work-related ill-health, of which 115 (2%) were reports of respiratory disease. 27 cases of non-specified work-related respiratory illness were identified. Only 26% (7/27) were referred for a specialist opinion despite uncertainty of diagnosis. Of those not referred, the majority (17/20) were exposed to known asthmagens as illustrated in Abstract P6 Figure 1 (consensus view after exposure review from three occupational/respiratory physicians).



Abstract P6 Figure 1 Agents attributed to cases reported with respiratory symptoms referred to hospital specialists.

Conclusions More than three quarters of the cases with undiagnosed work-related symptoms identified in primary care were not referred to secondary care for diagnostic clarification. 85% of these cases were exposed to known asthmagens. The lack of diagnosis and/or specialist assessment in these cases may have significant impact on disease prognosis, disability and socio-economic cost to society.

P7 OCCUPATIONAL EOSINOPHILIC CONSTRICTIVE BRONCHIOLITIS WITH ASTHMA IN A FOAM CUTTER CAUSED BY SOYA BEAN PRODUCTS

doi:10.1136/thx.2010.150961.7

[1]J Hoyle, [1]K Ballance, [2]H Francis, [2]CAC Pickering, [2]RMc Niven. [1]*North Manchester General Hospital, Manchester, UK;* [2]*North West Lung Centre, Wythenshawe Hospital, Manchester, UK*

Introduction and background Soya bean dust is a recognised cause of asthma. More recently Soya bean has bean used in the