

In 2015/16 North West CCGs have commissioned AQ COPD across 15 of the 21 Acute Trusts. An AQ incentive framework was also developed for providers and commissioners that supports “doing the right thing” collaborative events ensure that ongoing sharing of best practise happens and we have future plans to expand into Primary and Community Care.

Occupational lung disease

P52 EPIDEMIOLOGY OF OCCUPATIONAL EXTRINSIC ALLERGIC ALVEOLITIS REPORTED TO SWORD 1996–2014

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Introduction Worldwide, the true epidemiology of occupational EAA is poorly understood. Data from national reporting schemes offers one method of examining the changing demographics of this disease, and comparing the most commonly reported causes.

Methods Data was obtained for all cases of occupational EAA reported to the UK Surveillance of Work-related and Occupational Respiratory Disease (SWORD) scheme since 1996. The likely causative agents for each reported case were grouped into categories, and data compared for the earliest and latest available 5-year time periods (1996–2000 and 2010–2014). An estimate of the annual incidence of occupational EAA was calculated from the estimated number of cases in each time period divided by the average UK working population at that time (data from the Office for National Statistics).

Results Data for the early and late 5-year time periods are presented in Table 1. The estimated incidence of occupational EAA was similar for the two time periods, but there has been a notable change in reported causation. Occupational EAA due to metalworking fluid, coolant or oil mist exposure has become the most commonly reported cause, responsible for almost a third of all cases. Over the same time period, EAA in mushroom workers has fallen from the joint commonest cause to no reported cases at all.

Abstract P52 Table 1 Demographics of occupational EAA reported to SWORD between 1996–2000 and 2010–2014

	1996–2000	2010–2014
Reported cases	45	39
Mean age	54	54
Gender male:female	2.7:1	3.3:1
Reported cause (%):		
Air con/humidifiers	2	0
Avian proteins	11	15
Cleaning agents	9	0
Farming/hay/straw	22	15
Isocyanates	5	8
Mushrooms (edible)	22	0
MWWF/coolant/oil mist	2	33
Other cause	16	11
Other mould/fungus	4	13
Unknown	7	5

Discussion The estimated annual incidence of occupational EAA in the UK has remained relatively stable at approximately 1–2 cases per million workers. Although this is likely to represent an underestimate, it is similar to the estimated incidence from reporting schemes in Australia, Catalonia, and the Czech Republic, but an order of magnitude lower than that reported in Finland. Over the last 20 years, EAA due to metalworking fluid exposure has emerged as the most commonly reported cause in the UK. This change has not been noted in other published reporting schemes, where EAA due to agricultural exposures remains the most common aetiology.

P53 DETERMINATION OF SPECIFIC IGE ANTIBODIES TO MOUSE PROTEINS IN LABORATORY ANIMAL WORKERS

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Introduction Laboratory animal workers are at increased risk of developing specific IgE antibodies to laboratory animal proteins. The major allergen for mouse is Mus m 1 which is predominantly found in the urine. Specific IgE to mouse is determined using either a commercial skin prick test solution of mouse epithelium or ImmunoCAP for either mouse urine or epithelium. Specific IgE to Mus m 1 is used for routine diagnostic testing.

The aim of this study was to compare sensitisation using both ImmunoCAP and skin prick test as well as compare mouse urine and epithelium as allergens. At present there is no gold standard for sensitisation to mouse allergens.

Methods Laboratory workers exposed to mice were recruited to the SPIRAL (Safe Practice in Reduction of Allergy in Laboratories) study. Sensitisation was determined by the presence of specific IgE to Mus m 1 and mouse epithelium using ImmunoCAP (Phadia) (positive result ≥ 0.35 kU/l) and by skin prick test to mouse epithelium (positive result is a saline adjusted mean wheal diameter of ≥ 3 mm).

Results Of the participants (321), 11 (3%) were positive by skin prick test, 34(11%) with specific IgE to Mus m 1 and 35 (11%) with a positive specific IgE to mouse epithelium.

There were 25/321(8%) participants with a discordant results between SPT and specific IgE to Mus m 1 (Table 1). There were 14 participants with a discordant result between specific IgE to Mus m 1 and mouse epithelium (Table 1).

Abstract P53 Table 1 Specific IgE to Mus m 1 and mouse epithelium in laboratory animal workers

	Mus m 1 specific IgE positive	Mus m 1 specific IgE negative	Total
SPT positive	10	1	11
SPT negative	24	286	310
Total	34	289	321
Mouse epithelium specific IgE positive	26	9	35
Mouse epithelium specific IgE negative	5	286	291
Total	31	295	326

Discussion Laboratory animal workers may have specific IgE antibodies to either Mus m 1 or mouse epithelium. Diagnostic tests for mouse sensitisation may require testing to both Mus m 1 and mouse epithelium to ensure we do not miss any sensitised cases. Skin prick tests appear higher rates of false negative than anticipated and are therefore less reliable in clinical practice if used alone.

P54 RESPIRATORY SYMPTOMS, LUNG FUNCTION AND QUALITY OF LIFE IN BRITISH FOUNDRY WORKERS

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Introduction Foundry work is associated with exposure to potentially harmful substances that may cause occupational asthma (OA).

Aim To record respiratory symptoms, lung function and health-related quality of life (HRQoL) in a group of exposed British foundry workers, and investigate their associations and causes.

Method A workplace-based study was conducted, where participants were delivered a researcher-administered questionnaire in order to record individual job exposures, respiratory and general health, and HRQoL (the EQ-5D). Spirometry was performed using a --Ndd Easy on-PC Spirometer according to ATS/ERS guidelines. Fractional exhaled nitric oxide (FE_{NO}) was measured using a NOBreath device to ATS standards.

Results 351 (65%) of a possible 539 workers participated. 350 (99.7%) were men, with a mean age of 42.4 (SD 12.5) years. The average length of employment in the foundry industry was 14.8 (SD 12.7) years. Twenty-one (6%) workers self-reported a diagnosis of current asthma, and six (1.7%) self-reported COPD.

139 (40%) participants had at least one respiratory symptom, of which wheeze was the most prevalent (n = 114, 33%). One-in-five participants reported work-related respiratory symptoms (WRRS) (n = 69, 20%), of which work-related cough was the most prevalent (n = 45, 13%; Table 1). Significantly more workers reporting WRRS were ever smokers (chi squared = 5.1, p = 0.02).

Abstract P54 Table 1 Demographic data for British foundry workers with and without work-related respiratory symptoms (WRRS)

	WRRS (n = 69)	No WRRS (n = 282)
Age, years (SD)	41.1 (12.3)	42.7 (12.5)
Length of employment, years (SD)	15.4 (12.3)	14.7 (12.8)
Current smoker, n (%)	25 (36)	71 (25)
Ever smoker, n (%)	48 (70)	154 (55)*
Self-reported current asthma, n (%)	8 (12)	13 (5)
FEV ₁ /FVC <0.7, n (%)	3 (4)	31 (11)
Mean% predicted FEV ₁ (SD)	98.3 (10.5)	98.4 (14.1)
Mean% predicted FVC (SD)	103.1 (9.8)	103.6 (12.8)
Mean% predicted PEF (SD)	106.2 (17.1)	108.3 (18.2)
Mean FE _{NO} , ppb (SD)	31.1 (24.2)	29.9 (29.0)
Mean EQ-5D VAS (SD)	76.6 (15.8)	83.5 (11.0)**

*p = < 0.05, **p = 0.001.

155 (44%) workers had a FE_{NO} above 25 ppb, the suggested ATS cut off for a low probability of eosinophilic airway inflammation. No difference in FE_{NO} was found between those with and without WRRS (chi squared for FE_{NO} above or below 25 ppb = 1.50, p = 0.22).

However, WRRS were associated with significantly lower mean scores on the EQ-5D visual analogue scale (VAS; 77 vs 84, p = 0.001, 95% CI 2.89 – 11.01). In contrast, no difference in VAS was observed between those with and without an obstructive lung defect (FEV₁/FVC <0.7), (mean 83 vs 82, p = 0.63, 95% CI -5.48 – 3.33).

Conclusion Work-related respiratory symptoms among foundry workers were common and associated with impaired HRQoL. More work is required to better understand the cause of such symptoms in foundry workers, and their relationship with workplace exposures.

P55 THE OCCUPATIONS ASSOCIATED WITH COPD RISK IN THE LARGE POPULATION-BASED UK BIOBANK COHORT STUDY

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Introduction and objectives COPD is one of the leading causes of morbidity and mortality worldwide. Exposure to occupational hazards is an important and preventable risk factor. However, the contribution of each occupation to COPD risk in a general population is uncertain. Our aim was to investigate the association of COPD with occupation in a large UK population-based study.

Methods Between 2006 and 2010 the UK Biobank cohort recruited 502,649 subjects aged 40–69 years. COPD cases were defined by spirometry-based FEV₁/FVC <LLN according to ATS/ERS guidelines. Individual current occupation was coded using the Standard Occupation Classification (SOC) 2000. Prevalence ratios (PRs) and 95% confidence intervals (CIs) of COPD for exposure to each SOC-coded job were estimated using a robust Poisson model adjusted for sex, age, study centre and lifetime tobacco smoking.

Results Of the 353 SOC-coded jobs reported by 228,614 current working participants several occupations showed a significantly increased COPD risk. The occupations at highest COPD risk were Seafarers (PR = 2.64; 95% CI: 1.59–4.38), Coal mine operatives (PR = 2.30; 95% CI: 1.00–5.31), Cleaners (Industrial: PR = 1.96; 95% CI: 1.16–3.31 and Domestic: PR = 1.43; 95% CI: 1.28–1.59), Roofers/tilers (PR = 1.86; 95% CI: 1.29–2.67), Packers/bottlers/canners/fillers (PR = 1.60; 95% CI: 1.15–2.22), Food, drink and tobacco process operatives (PR = 1.46; 95% CI: 1.11–1.93), Floorers and wall tillers (PR = 1.41; 95% CI: 1.00–2.00), Postal workers/couriers (PR = 1.35; 95% CI: 1.15–1.59), Labourers in building and woodworking trades (PR = 1.32; 95% CI: 1.04–1.68), School mid-day assistants (PR = 1.32; 95% CI: 1.01–1.74), and Kitchen/catering assistants (PR = 1.30; 95% CI: 1.10–1.53). Associations were similar in analyses restricted to never smokers and to subjects never reporting a doctor's diagnosis of asthma.

Conclusions Selected occupations are associated with increased COPD risk in a large cross-sectional population-based UK study. Further analyses to investigate the underlying occupational hazards are planned. Occupational health surveillance among these occupations should be strengthened.