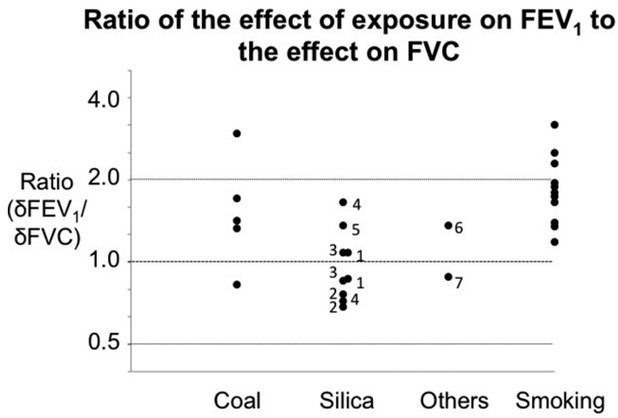
symptom. Mean lung function values were as follows; mean (SD) percentage predicted FEV_1 98.1 (15.2) and FVC 102.4 (13.9).

Fourteen workers had measured airways obstruction (as defined by an FEV_1/FVC <0.7); in this cross sectional analysis its presence did not significantly relate to current smoking status or lifetime duration of RCS exposure, although was significantly associated with an increased time worked in the current work area. Airways obstruction was also associated with the reporting of a diagnosis of (ever having) asthma and wheeze in the last 12 months.

Conclusions This cross sectional study of silica exposed brick workers has identified a cohort for longer term follow up. Future work will allow the development of dose response relationships, corrected for other relevant factors, between cumulative RCS exposure and FEV_1 decline and will assist in the development of workplace interventions to reduce the health risks associated with RCS exposure in this group of workers.



Abstract P62 Figure 1 Key to exposures: 1 = gold mining, 2 = foundry work, 3 = talc processing, 4 = mixed exposures, 5 = silicon carbide processing, 6 = potash mining, 7 = carbon black mining

P62 A COMPARISON OF THE RELATIVE EFFECTS OF EXPOSURE ON FEV1 AND FVC IN OCCUPATIONAL COPD

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Introduction and objectives A wide range of occupational exposures to dusts and fumes are known to cause COPD. Little is known about the underlying pathophysiology as few studies have measured gas transfer or included CT scans. It is not known whether the relative degree of small airway disease and emphysema is similar to that seen with smoking or varies by causative agents. The modifying effect on lung function of pneumonoconiosis, that is a feature of several accepted or possible causes of occupational COPD, is also uncertain.

Methods We have reviewed papers investigating exposure-response relationships for FEV_1 and FVC to a range of occupational dusts and fumes. We examined the ratio of the slopes of the regression equations relating exposure to FEV_1 and FVC for the occupational exposures and for cigarette smoking.

Results We identified 15 papers dealing with exposure to coal mine dust (5 papers), silica-containing dusts (8 papers) and other dusts (2 papers). The relative effects of exposure on FEV_1 and FVC are shown in Figure 1, together with the relative effects of smoking on FEV_1 and FVC obtained from the same papers. It should be noted that as FEV_1 is lower than FVC, an equal reduction in FEV_1 and FVC with exposure (ratio = 1) still leads to airflow obstruction. Cigarette smoking had an effect on FEV_1 that was approximately twice the effect on FVC. Coal mine dust was associated with a similar ratio of effect though with greater variability. Studies on silica-containing dusts had a more equal effect on FEV_1 and FVC. That was also the case for the two studies of non-silica containing dusts (carbon black and potash mining).

Conclusions COPD associated with exposure to silica-containing dusts appears to be associated with a more restrictive abnormality than COPD associated with cigarette smoking and coal dust, possibly because of a modifying effect of associated lung fibrosis.

P63 IS DATA QUALITY MORE IMPORTANT THAN DATA QUANTITY IN THE DIAGNOSIS OF OCCUPATIONAL ASTHMA FROM SERIAL PEAK FLOW RECORDS?

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Background Serial measurements of peak expiratory flow (PEF) are a recommended method for confirming a diagnosis of occupational asthma and are the only available method for low molecular weight agents available to many non-specialists. There is a tradeoff between accepting only measurements fulfilling quality standards with reduced data quantity and accepting all measurements irrespective of quality. We have investigated the effect of systematically reducing quality or quantity on the diagnostic sensitivity and specificity of these records in the diagnosis of occupational asthma using the Oasys system.

Methods Serial PEF measurements from 36 specific inhalation challenge positive occupational asthmatics and 44 non-occupational asthmatics were used. Records contained 4 weeks of $\geq$ 4 PEF readings/day for 75% of days. PEFs were measured on metres without any data quality requirements. Data was corrupted in 2 ways: 1) Each PEF measurement was randomly changed to be up to +50 L/min or -50 L/min from the original value in increments of 10 L/min. Records were randomised 3 times and the sensitivity and specificity compared at each randomisation to the original using the Oasys score, area between curves (ABC) score and timepoint analysis. 2) Independently, the number of readings per day were reduced sequentially from $\geq$7 readings per day to 2 readings per day. The sensitivity and specificity of the Oasys score, area between curves (ABC) score and timepoint analysis were compared after each reduction.

Results Random alteration of individual readings had small effects on sensitivity and specificity at each randomisation (Table 1). When the number of readings were reduced, the sensitivity of the Oasys score and ABC score was extremely robust in all reductions down to 3 readings per day. The sensitivity of the