Flow (PEF) is usually the most convenient first step in the confirmatory process. We previously described a statistical method of analysis comparing mean 2-h values on work and rest days which required the worker to wake at similar times on rest and work days. This was achieved in only 43% of records. We describe a new method of timepoint analysis without this restriction and overcoming a theoretical problem with the original analysis (the assumption that the variance of the waking reading was the same as the variance at other times of the day).

Methods Workers were asked to measure PEF approximately 2-h from waking to sleeping for 3–4 weeks. 236 PEF records from workers with independently diagnosed occupational asthma, and 320 from asthmatic controls were available. Readings were grouped by the time since waking, in an attempt to correct for changes in diurnal variation induced by changes in shift and waking time. Daily PEF measurements were meaned into matching 2-h time segments. The pooled SD for rest day measurements (excluding waking readings) was obtained from a one-way ANOVA. Timepoints with mean workday PEF statistically lower (at the Bonferroni adjusted 5% level) than the restdays were counted, after adjusting for the number of contributing measurements at each point.

Results A minimum of four analysable timepoint comparisons per day was needed. 78% of records were suitable for analysis. Records with one or more timepoints statistically worse on workdays gave a sensitivity of 71% against independently diagnosed occupational asthma and a specificity of 93% in non-occupational asthmatics.

Conclusion The removal the requirement to wake at similar times on work and rest days increased the utility of timepoint analysis for the diagnosis of occupational asthma from 43–78% without compromising sensitivity or specificity. Statistical validity was also improved.

P10 ASBESTOS-INDUCED DIFFUSE PLEURAL THICKENING—A CONTINUING PROBLEM

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Introduction Asbestos-induced diffuse pleural thickening (DPT) remains a relatively common but poorly understood disease.

Methods We reviewed the clinical, physiological and radiological features of patients referred to our department for assessment. Diagnosis was based on a history of asbestos exposure, chest radiographic pleural thickening with blunting of costophrenic angle, and exclusion of other likely causes of pleural disease.

Results 75 patients were identified. All were male. Mean age was 65±9 years. Asbestos exposures occurred in shipyards (n=35), construction work (n=19), power stations (n=4) and other/multiple sites(n=17). Median duration of asbestos exposure was 13 years. Presentation occurred at a median of 36 years (range: 12–55 years) after onset of exposure. Pleural disease was an incidental radiological finding in 18% (n=14). 72%presented with breathlessness, 27% with chest pain, and 11% had flu-like symptoms. 40% (n=30) presented with a pleural effusion, which was suspected to be asbestos-related. Mean latency for development of pleural effusions was 31 years (range: 12–55 years). 24 of these were unilateral only, and 6 were bilateral. Right-sided effusions were five times more prevalent than left-sided effusions. After the diagnosis of a pleural effusion, DPT was noted radiologically after a median of 7 months (range: 1 month to 2 years). In 10% (n=3), the effusion persisted over a median follow-up period of 2 years. Overall, 73% (n=55) had unilateral disease at presentation and 24% (n=13) were observed to progress from unilateral to bilateral disease after a mean time of 3.1±3.6 years (range: 1 month to 13 years) after onset of disease or diagnosis. Once established, the degree of thickening remained stable in 91% (n=68). There were no significant differences in either duration of asbestos exposures or latency in patients with stable versus progressive disease. No difference in duration of asbestos exposures was also found between those with unilateral versus bilateral disease. Most patients had restrictive abnormalities on lung function testing with mean TLC 74% and mean RV 73% of predicted. Radiographic appearances correlated poorly with lung function impairment or symptom progression.

Conclusion Understanding its natural history should help clinicians diagnose and manage asbestos-induced benign pleural thickening.

P11 CARDIO-RESPIRATORY FITNESS AT WORK; THE EFFECTS OF PUBLIC HEALTH GUIDANCE?

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Physical activity is important to improve and maintain cardiorespiratory fitness. More recently, additional wider health benefits of physical exercise have been highlighted, including reduction in obesity and promoting mental wellbeing. Increased recognition of these benefits has led NICE to issue recent public health guidance in this area (PH13; promoting physical activity in the workplace). These recommendations aim to help employers and workplace health professionals prevent diseases associated with a lack of physical activity. We have audited the approach taken to physical activity at work taken by two large organisations, using PH13 to develop 23 appropriate gold standards (GS). For example, GS1 states that 'There is an organisational policy to encourage and support employees to be more physically active', GS5 that 'There are organisational goals for physical activity in the workforce' and GS10 that 'There are policies to encourage employees to be physically active while travelling to work (eg, walking and cycling)'. 44 employees from a health provider (Health) and 63 employees from a public sector organisation (PSO) underwent a self-completed questionnaire enquiring about a broad range of workplace-based exercise issues, each question mapping to an a priori defined gold standard. Various clear differences emerged between organisations in attaining the GS, although compliance by both with certain of these was good. For example, GS7 stated 'A multi-component programme is in place to encourage and support employees to exercise'. Overall, employees from Health and PSO were positive about the facilities to encourage exercise, the majority of employees being aware of various facilities in place including safe bike storage (PSO; 73.0%, Health 52.3%) and showers (PSO; 87.3%, Health; 40.9%). Compliance with other GS was poor. For example, GS9 required that there was employee knowledge of an 'incentive schemes to encourage exercise'. Despite the presence of incentives to exercise at each site, only 14.3% of PSO employees (Health; 13.6%) were aware of financial incentives and 9.5% (Health; 9.1%) aware of non-financial incentives to exercise. Whilst exercise is an important contributor to health, further work is required to ensure that recent PH guidance aimed at improving exercise at work has maximal worker benefit.

P12 ALARMING IGNORANCE ABOUT THE DANGERS OF ASBESTOS AMONG UK HOMEOWNERS

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Introduction Nearly 14 million homes were built possibly using asbestos-containing construction materials between 1950 and the mid-1980s. Certain types of asbestos were not banned until 1999.

Although exposure to asbestos is the most common cause of death from occupational lung disease, a recent survey clearly demonstrated poor awareness of the dangers of asbestos exposure amongst those trades-people most likely to be exposed to it. Since Do-It-Yourself (DIY) commonly results in asbestos exposure, we wondered whether homeowners are aware of the hazards of asbestos exposure in residential properties.

Methods A UK-wide, on-line questionnaire survey of homeowners was conducted among the 60 000 users of 'Opinion Matters' to elicit their knowledge and views on asbestos between 18.05.2010 and 01.06.2010.

Results 2002 homeowners completing the questionnaire. 55% live in homes built during the era when asbestos was commonly used as a building material. Respondents were predominantly from older age groups; knowledge about asbestos increased with the homeowner's age. When buying houses, 40% did not check whether the fabric of the home contained asbestos. 52% respondents had performed DIY in their homes and 23% were planning to do so within the year. While 60% respondents thought that asbestos had been used in residential building and refurbishments, 3% believed that it had never been used and 12% believed that it was present only in factories and warehouse. 41% thought that all asbestos has now been removed from residential buildings. Most respondents (88%) sought professional advice regarding asbestos disposal but 3% just took it to the Council tip, 2% put it into their normal dustbins and 3% didn't know what to do with it. Some precautions were taken when undertaking DIY; 71% respondents covered the furniture, 50% wore a dust mask and 43% wore protective overalls and goggles. However, only 29% checked for the presence of asbestos-containing materials (Abstract P12 Table 1).

Abstract P12 Table 1 Asbestos knowledge of home owner respondents—by age

	Total	16–24 years	25–34 years	35–44 years	45–54 years	>55 years
No. of respondents	2002	9	252	451	540	750
Know asbestos used as building material (%)	39	11	28	34	39	46
Not confident to identify asbestos (%)	65	78	75	70	69	54
Would ask for professional to dispose of asbestos (%)	88	100	85	86	90	89
Has never had information on how to identify/mange asbestos	58	67	53	61	58	51
Have not heard of mesothelioma (%)	61	56	74	65	63	53

Conclusions Despite recent Health and Safety Executive awareness campaigns among trades-people, homeowners, including those who practice DIY, have dangerous misconceptions about the presence of asbestos in residential properties and have a poor grasp of essential safety precautions necessary for dealing with it. More effective public awareness campaigns are urgently required.

P13 CLINICAL, RADIOGRAPHIC AND PULMONARY FUNCTION FINDINGS IN SILICOSIS

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Introduction Silicosis is a pneumoconiosis caused by the inhalation of respirable silica. The condition is irreversible, and may be complicated by other pulmonary and non-pulmonary diseases. We describe clinical, radiographic and pulmonary function testing characteristics in a case series of silicosis.

Methods Cases were identified from clinics in two Edinburgh teaching hospitals. The diagnosis was based on characteristic radiographic features and a history of exposure to respirable silica; in two subjects silicosis was confirmed by surgical biopsy. Average length of follow up was 64 months.

Results 18 cases were identified, all were male. Median age = 52 years (range 28–66). 12 subjects worked as stonemasons, 5 as miners and 1 in a brick works. Common symptoms at presentation were dyspnoea (61%), cough (44%) and sputum (33%) but one-third were entirely asymptomatic and identified by radiological screening. Asymptomatic subjects tended to be younger; median 41 (range 28–66) vs 53 (range 28–66). 15 subjects (83%) had an abnormal CXR; the remainder had abnormalities on HRCT only. PMF was present in 9 cases (50%), one of whom was asymptomatic, and significant emphysema was present in 2 cases (11%). 60% of subjects with simple silicosis had normal spirometry and normal transfer factor (TCO). Seven subjects had obstructive spirometry; four were ex- or current smokers (average 16.5 pack years) and three never smokers. Only three subjects had a restrictive defect on spirometry, two of whom had radiographic evidence of PMF. 81% with a reduction in gas transfer had either a smoking habit or PMF. Lymphopenia was present in six subjects. Ten subjects had immunology performed; four were positive for anti-nuclear antibodies; one subject had a pre-existing diagnosis of systemic sclerosis and one subsequently developed SLE. All subjects had normal renal function. Two subjects developed *mycobacterium tuberculosis* and two (both smokers) developed bronchogenic carcinoma.

Conclusions Despite the risks of silicosis being well described and legislation aimed at controlling silica exposure local experience suggests a resurgence of silicosis, particularly amongst younger workers who may be asymptomatic and may not have significant lung function changes.

Clinical and experimental studies in asthma

P14 DOES VITAMIN D AXIS HAVE AN EFFECT ON THE SEVERITY OF ASTHMA?

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Background Vitamin D (VD) has been suggested to play a role in the development of asthma and frequency of asthma exacerbation[1]. Vitamin D Binding Protein (VDBP) is thought to influence the development of COPD through its immunomodulatory effect[2]. This study explores the role of vitamin D axis in relation to asthma severity.

Method An observational case control study with a healthy group (H) and subgroups of severity of asthma – steroid 'naïve' mild asthma (MA), severe asthma (SA), severe asthma dependent on oral corticosteroids (SACS) and 'type 1 brittle' asthma (BA1) was conducted. VD, VDBP, spirometry, Fractional exhaled nitric oxide (FeNO) and exacerbations requiring oral corticosteroids/year (E) were recorded in all the patients. The data were analysed by Kruskal Wallis and Spearmans rank correlation test. The study was conducted between July 2009 and April 2010.

Results Sixty subjects [16M; mean age: 39 years (19–57)] were recruited into this study. The parameters measured are shown in Abstract P14 Table 1. We observed no significant difference in serum VD between the healthy group and any of the asthma subgroups (p=0.52), or indeed between all asthmatics grouped together and