diseases in Turkey by law. We aimed to evaluate proportion of pneumoconiosis in occupational diseases and occupational pulmonary diseases in annual statistics reports of SSI.

Methods Annual statistics reports published between 2006–2015 by SSI were evaluated. Diagnoses classified as pneumoconiosis in reports published before 2013 were coal worker's pneumoconiosis, asbestos or other mineral fibre induced pneumoconiosis, talcosis, silicosis, aluminosis, boxide fibrosis, beriliosis, graphite fibrosis, siderosis, stannosis, and other unclassified pneumoconiosis. Diagnoses classified as pneumoconiosis in reports published starting from 2013 were silicosis and silicotuberculosis, asbestosis, silicatosi, siderosis, and pneumoconiosis induced by hard metal dusts, aluminium, and its compounds.

Result Total numbers of cases with occupational diseases varied between 351 and 1208 in annual reports of SSI. Most frequent occupational diseases were pneumoconiosis and diseases induced by lead and its dusts. When occupational diseases listed according to the frequency, rank of pneumoconiosis was 1 or 2 in all of the evaluated years. Total numbers of cases with pneumoconiosis varied between 68–1010. Percentage of pneumoconiosis in all cases with occupational diseases and in cases with occupational pulmonary diseases varied between 19.3%–83.6% and 80.2%–99.3% respectively.

Discussion Despite low total numbers of occupational diseases in the annual SSI statistics, pneumoconiosis constitutes the major proportion of occupational diseases in Turkey. This could be a result of directive about dust induced diseases which defines periodical health surveillance for workers with high-risk occupations. Proper application of initial assessment of fitness and health surveillance for workers with current or prior history of risk of pneumoconiosis may increase diagnoses.

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EVALUATION OF THE RELATIONSHIP BETWEEN SMOKING AND PNEUMOCONIOSIS: A REVIEW OF THE LITERATURE

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Introduction Pneumoconiosis is a condition that results in fibrosis in the lung tissue due to accumulation of inorganic dusts in the lung. Smoking and exposure to inorganic dusts affect respiratory functions separately. However, the combined effect may be much more increased than either exposure alone. In this review, we aimed to evaluate the relationship between smoking and dust exposure and their effects on pulmonary function tests (PFT).

Methods Studies have been conducted between 1961 and 2016 on the relationship between smoking and dust exposure, and their effects on PFT were evaluated.

Result All 4 researches evaluated were performed in coal workers. In 1961, Ashford, *et al* evaluated 4014 coal workers in 3 coal mines of Scotland. Statistically significant increase in respiratory symptom frequency and decrease in forced expiratory volume in 1 s (FEV1) were found in smokers compared to non-smokers. In 1980, Oger, *et al* investigated 465 coal workers with diagnosis of pneumoconiosis. Airflow obstruction was detected in 74.1% of smokers and 26.3% of non-

smokers. In 1988, William, *et al* included 3380 coal workers to their study in the United Kingdom and found that smokers had higher respiratory symptoms and more FEV1 reductions. In China, Quink, *et al* included 376 coal workers to their study published in 2016. Of those, 200 (53.1%) were smokers. Cigarette smoking and exposure to dust impaired respiratory functions more than exposure alone and it has been determined that as the exposure time increases, the abnormality increases in the PFT. No significant difference was found between the non-smoking coal workers and the non-smoking control group.

Discussion Results of researches supporting combined effects of smoking and dust exposure reveal the requirement of minimization of dust exposure and cessation of smoking. Further studies could be performed to elucidate relationship between smoking and other types of dust exposures in terms of respiratory symptoms and dust exposure.

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TRENDS IN OCCUPATIONAL DISEASES IN FINLAND 1975–2013

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Introduction The objective was to investigate trends in the incidence of recognised and suspected cases of occupational diseases in Finland 1975–2013, including variations by gender and industry.

Methods The data consisted of recognised and suspected cases of occupational diseases registered in the Finnish Registry of Occupational Diseases (FROD) in 1975–2013. From the annual workforce statistics and data of FROD we calculated the incidence of occupational diseases and suspected occupational diseases per 10 000 employed. For time trends by industrial sector, we used a five-year moving average and Poisson's regression analysis.

Results Annual average rates of occupational diseases (per 10 000 employees) have varied from year to year. The total number was 25.0/10,000 in 1975 and 20.1/10,000 in 2013. Screening campaigns and legislative changes have caused temporary increases.

The highest incidence rates in different industrial sectors were in mining and quarrying (9.87; 95% CI: 8.65 to 11.30), construction (9.11; 95% CI: 9.98 to 10.43), manufacturing (9.04; 95% CI: 7.93 to 10.36) and in agriculture (8.78; 95% CI: 7.69 to 10.06), when financial sector was the reference (1.0). During that time, women had significantly less occupational diseases than men (RR 0.62; 95% CI: 0.57 to 0.68).

There is a more distinct decreasing trend from 2005 onwards: the average annual change in incidence was e.g. in agriculture –9.2%, in transportation –10.3% and in construction –4.7%. The average annual decline was greatest in upper limb strain injuries (–11.1%).

Discussion This study provides a useful overview of the status of occupational diseases in Finland over several decades. These data are a valuable resource for investigating which occupations are at an increased risk and where the preventive actions should be focused on. It is important to study the long-term

trends in the statistics of occupational diseases to discover the real trends behind year-to-year fluctuations.

1475 MALIGNANT HEMOPATHIES DUE TO PROFESSIONAL EXPOSURE IN MOROCCO

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Introduction Malignant hemopathies are rare diseases whose professional origin is probably underestimated, despite the growing number of epidemiological studies on this subject. The important role of extraprofessional factors (especially genetic factors), the rarity of malignant hemopathies, their heterogeneity, and their significant onset after carcinogenic exposure, all contribute to explain the difficulties of etiological research in regards of occupational factors.

Methods The aim of this work is to study the various work related malignant hemopathies recognised by the legislator and their etiologies, based on data from the literature as well as the Moroccan occupational diseases charts.

Results Only benzene and ionising radiation are recognised as undisputable carcinogens for blood-forming organs. Thus, different types of leukaemia occurring in the context of occupational exposure to these toxic substances, are included in the occupational diseases charts and are, for this reason, compensable. Nonetheless, there are uncertainties regarding the induction of malignant hemopathies by exposure to certain pesticides, organic solvents, infectious agents and electromagnetic fields for which further epidemiological studies are required.

Discussion Since the only agents known for their induction of malignant hemopathies and are recognised by the Moroccan regulations are benzene and ionising radiation, it is necessary to push the interrogation to establish the causal link to influence the repair of other cancers due to alternate professional exposures and to put in place preventive actions.

Conclusion Prolonged conservation of medical records of the exposed employees and the appeal to the responsible committee are necessary for the improvement of knowledge and the evolution of regulation.

In terms of prevention, medical surveillance, the protection of employees and the use of less toxic alternatives as soon as possible are obviously essential.

61 THE IMPACT OF METABOLIC SYNDROME ON KAROSHI FROM OVERWORK

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Introduction Cardiovascular and cerebrovascular diseases (CVD) were found to be associated with overwork in Asia countries, as was death from overwork or known as karoshi. Emerging evidences pointed out a strong dose-response

association between working long hours and risk of CVD. However, there was little information concerning the effect of metabolic syndrome on CVD mortality in patients with overwork or without overwork. The aim of this study was to investigate the risk of karoshi from overwork among bus drivers with metabolic syndrome (MetS).

Method In the Taiwan Bus Driver Cohort Study during the period 2005–2012, 1014 professional drivers completed comprehensive studies. Working pattern questionnaire, job stress questionnaires, Swedish occupational fatigue inventory, stress satisfaction offset score (SSOS), biochemical measurements, and physical examinations were used to assess the overwork status and the presence of metabolic syndrome. This cohort was linked to the National Health Insurance Research Dataset to determine whether these workers had higher risk of karoshi from overwork.

Results There were 1014 enrolled bus driver with mean age of 41.05 ± 7.83 . The demographic characteristics, biochemical indices, and job stress scores of drivers were presented. For cardiovascular disease mortality, the unadjusted HRs for participants with MetS were 2.00 (95% CI: 1.47 to 2.73; $p < 0.001$) with comparison to those without MetS. After additional adjustment of pertinent variables, positive association remained essentially unchanged (HR=1.47, 95% CI: 1.04 to 2.09; $p = 0.030$). In terms of individual metabolic risk components for cardiovascular disease mortality, BMI, high blood pressure, and high fasting glucose were found to be statistically significant for risk of mortality. After adjusting for covariates, BMI and high blood pressure were two important predictors of CVD mortality.

Conclusion Our study highlighted that the incurrence of metabolic syndrome in bus driver combined with overwork was associated with increased cardiovascular mortality. Regarding metabolic components, BMI and high blood pressure were prognostic predictors of CVD mortality.

407 IMPORTANCE OF OCCUPATIONAL VISUAL SCREENING: JHAH MODEL

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Introduction Saudi Aramco is the national oil company of Saudi Arabia. JHAH is the healthcare provider for eligible Saudi Aramco employees and their dependents.

The JHAH vision conservation program provides quality assurance for prescription safety spectacles, visual assessment of cases referred from occupational medicine, eye examination for laser users, visual assessment for drivers and heavy equipment and crane operators, and a glaucoma screening program.

Glaucoma was the cause for the permanent disability of 38 staff members due to blindness between 1975–1984. As a result, Saudi Aramco decided to keep its glaucoma screening program in-house and not outsource it as other large companies do.

Methods Employees above the age of 45 are enrolled in glaucoma screening and are assessed once every 5 years.

During the screening examination, an employee is provided with a detailed history with symptoms, visual acuity assessment, an ocular health examination and intraocular pressure measurements. If a test comes back abnormal, the employee is scheduled for a detailed screening examination in the