Results There is strong evidence for an association between high exposure to ionising irradiation and stroke, from studies on patients undergoing therapeutic x-tray treatment and atomic bomb survivors. The evidence for an association with occupational exposure to ionising irradiation is limited. There is moderate evidence for an increased risk among smelter workers, and limited evidence for carbon disulfide. The evidence for dynamite, motor exhaust and other combustion products is insufficient.
Conclusions This review identified limited evidence for an association between several chemical and physical occupational exposures and stroke. The few available studies on smelter workers all showed indications of an increased risk of stroke, and this association needs further investigation.

0252 OCCUPATION AND SURGERY FOR SUBACROMIAL IMPINGEMENT SYNDROME - A NATIONWIDE DANISH COHORT STUDY

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Objectives Little is known about the time window for accumulation of occupational exposures and shoulder disorders. We aimed to evaluate cumulative occupational shoulder exposures as risk factors for surgery for subacromial impingement syndrome (SIS), and to examine how long the relevant exposure time period is.
Method We conducted a nationwide register study of all persons born in Denmark (1933–1977), with at least 5 years of full-time employment (1993–2007). In the follow-up period (2003–2008), first-time events of surgery for SIS were identified. Cumulative exposure estimates for a 10-year period were obtained by linking occupational codes with a job exposure matrix. Exposure estimates were expressed according to the pack-year concept of smoking (e.g. arm-elevation-years). We used logistic regression equivalent to discrete survival analysis with a one year time lag, adjusting for age, sex, region, and calendar year, and compared the ORs for exposure time windows of increasing length.
Results The adjusted OR (ORadjusted) for surgery for SIS reached 2.0 for arm-elevation-years, repetitive-movement-years, and force-years, and the ORadjusted for hand-arm-vibration-years reached 1.5. We found an increase in ORadjusted from 1.0 to 2.1 when expanding the exposure time window from 2 to 10 years back in time.
Conclusions Our findings suggested that upper arm-elevation, repetitive movements, forceful exertions, and hand-arm-vibration were risk factors for surgery for SIS, and indicated a cumulative exposure effect within a 10 year time span.

0254 COMMUTING ACCIDENT IN MALAYSIA: ARE WE DOING ENOUGH?

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Objectives Commuting accidents are accidents occurring while travelling to and from work, and in the course of work. Effort to reducing commuting accidents is important in managing occupational accidents. In Malaysia, the number of claims for commuting accident has showed an increased of 28.3% (17 170 to 22 036) from 2001 to 2010, compared to a decreased in number workplace accident claims by 31.8% (61 163 to 35 603). This increase was despite the total number motor vehicle casualties decreased by 44.0% over the same period. The aim of this study is to review the current efforts on reducing motor vehicle accident.
Method Systematic review of peer review literature, accidents statistics, initiatives and policies related prevention of motor vehicles accidents
Results Review of the statistics showed that most of the commuting accident causalities occurred during travel to and from work (88.5%), during the morning shifts (68.8%) and involving less than five kilometres of travel (55.0%). Motorcycles riders contributed significantly to these causalities. Although motorcycles only accounted for 15.8% of the vehicles involved in accidents, they contributed 49.7% of casualties and 58.7% of the total fatalities. Many initiatives targeted at motorcycles riders were already in place; including mandatory usage of helmet (rider and pillion), compulsory use of daytime headlight, dedicated motorcycle lanes on highways, road safety education in schools and workplace, however the accident rates were still high.
Conclusions A more comprehensive intervention programme targeted at motorcycle riders and the investment on safer public transportation system is needed to reduce commuting accidents.

0258 FACTORS PREDICTING NURSES' CONSIDERATION OF LEAVING JOB (ALSO TO BE CONSIDERED FOR MINI-SYMPOSIUM: EARLY DETECTION AND MANAGEMENT OF WORKERS UNDER STRESS)

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Objectives Nursing manpower shortage has long been a problem in the healthcare system in Taiwan. The main cause of this problem has been nurses' lacking of willingness to retain in job. This study aims to identify factors for nurses' consideration of leaving their job.
Method Study participants included female nurses from a nation-wide representative sample of accredited tertiary and secondary referral hospitals, selected using stratified random sampling. To candidate participants, a structured, self-administered questionnaire was distributed, which included demographic information, description of work conditions, the Chinese Job Content Questionnaire, and the modified Chinese Copenhagen Burnout Inventory. Consideration of leaving job is defined by "having ideation of leaving job weekly or more frequent" and the estimation of not working as a nurse in two years.
Results A total of 1031 female nurses completed the questionnaire satisfactorily. Among them 16.7% considered leaving job. Personal burnout, client-related burnout, and conflict with family needs predict consideration of leaving job. While inquired what work factors were important for their making decision of leaving job, overtime work was listed number one, followed by shift

work, insufficient vacation time, affected personal health, unexpected or short notice in shift arrangements, low respect at work, and salary and benefits.
Conclusions The problem of high percentage of nurses considering leaving job has been real. This problem was related to high burnout and conflicting with family needs in nurses, most likely caused by high work load and problems in work arrangements.

0260 COMBINED EFFECT OF CIGARETTE SMOKING AND NON-FERROUS METAL EXPOSURE IN THE DEVELOPMENT OF DIGESTIVE DISEASE IN INDUSTRY WORKERS

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Objectives Purpose of the study: (1) to determine the prevalence of digestive diseases in workers in non-ferrous metallurgy, and (2) to evaluate the effect of cigarette smoking in the development of digestive diseases in exposed workers.
Method A retrospective combined cross-sectional and case-control study was performed. Industry workers from a nonferrous plant and controls were monitored for an 8-year period. All workers received regular clinical examinations: evaluation for *smoking status, *occupational exposure to Pb and Cd, *digestive disease using an epidemiological survey. Four representative groups were selected: Group (1)-exposed smokers, Group (2)-non-exposed smokers, Group (3)-exposed non-smokers, Group (4)-non-exposed non-smokers. The prevalence of digestive diseases was determined in each group. Linear regression analysis was used to assess the correlation between the levels of exposure and biomarkers of exposures, as well as between the amount of smoking and the burden of digestive disease.
Results During the studied period, Pb&Cd levels in the air of all workplaces were persistently high (Pb = 0.9–13.3 mg/m^3; Cd = 0.3–1.3 mg/m^3). Clinical examination identified the classic symptoms of chronic occupational intoxication with Pb. There was a relatively high prevalence of smoking in group (1) and (2). The prevalence of digestive disease was significantly higher in exposed smokers. Linear regression analysis showed close relationship between the studied parameters.
Conclusions There is high prevalence of smoking and digestive disease in industry workers. Cigarette smoking may act as a confounder in the assessment of the severity of occupational disease related to noxious metal exposure in industry workers. The goal for all facilities and workers is to minimise smoking and occupational exposure to noxious agents.

0262 PREVALENCE OF SPONTANEOUS ABORTION IN WORKERS IN THE WOOD-PROCESSING INDUSTRY

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Objectives The purpose of the study was to determine the prevalence of spontaneous abortion in workers exposed to organic solvents in the wood-processing industry.
Method A retrospective combined cross-sectional and case-control study was performed. Female workers from a wood-processing factory were monitored for a 10-year period through periodic clinical exams and epidemiologic surveys. Only fertile female workers were monitored, infertile workers (postmenopausal, status post hysterectomy) were excluded. The level of organic solvents was measured in the air during the study period. Each exposed fertile female was matched to a corresponding control subject without exposure to organic solvents. The prevalence rate of spontaneous abortions was evaluated in both groups.
Results During the study period, the organic solvents levels exceeded several times the maximal admissible concentrations. There were 366 exposed fertile female workers. The prevalence of spontaneous abortions in the exposed group was higher compared to the reference group and general public. The majority of abortions happened in the first trimester of pregnancy.
Conclusions Long-term exposure to organic solvents may cause decreased fertility in female workers. The goal for all facilities and workers is to minimise occupational exposure to noxious agents.

0263 CAN WORKPLACE CHEST X-RAY SURVEILLANCE PROGRAMS SHED LIGHT ON WORKERS' INJURIES? PREVALENCE AND PREDICTORS OF RIB FRACTURES AMONG ACTIVE AND FORMER UKRAINIAN COAL MINERS

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Objectives Chest x-ray surveillance programs for pneumoconiosis are well established public health tools. Data on rib fractures, part of the ILO system of classification, may shed light on injuries in these populations. We sought to determine the prevalence of rib fractures from a cross-sectional study of current and former Ukrainian coal miners.
Method Between 2001 and 2003, coal miners with at least five years of underground mining experience were randomly selected from employment records of 7000 current and 9000 former miners from three mines. CXRs were read by two NIOSH B-readers. Interviewers collected work and smoking history. The prevalence and predictors of at least one rib fracture with 95% confidence intervals [95% CIs] was estimated using univariate methods and logistic regression.
Results Average age was 47.1 years among the 598 active miners and 56.9 years among the 468 former miners. Total mining tenure and years of work at the coal face were similar in both groups, about 20 and 8 years respectively. The prevalence of rib fractures was almost twice as high in former compared with current miners (15.5% [11.6, 19.5%] vs. 7.9% [5.6, 13.3%], respectively). Prevalence increased with age among active miners; among former miners prevalence was highest in 45 to 55 year olds.
Conclusions CXR surveillance for pneumoconiosis may have use in monitoring injury among miners. While the prevalence of rib fracture appeared high in this population, caution is warranted interpreting our findings: no comparison groups exist and the use of this methodology for characterising injury prevalence is untested.