cancer. We designed the study to overcome certain limitations of earlier epidemiology studies.

Method The epidemiological and exposure assessment components of the study are coordinated by the University of Pittsburgh and the University of Illinois at Chicago, respectively. Our cohort comprises 12 manufacturing sites in the US and nine sites in Europe, and represents three companies, five countries (US, Austria, Germany, Sweden and UK) and multiple manufacturing processes and exposures. Statistical analyses will adjust external and internal mortality rate comparisons for potential co-exposures, including smoking histories obtained via a nested case-control study. The study will include separate and pooled analyses.

Results Our data collection effort identified two additional US study sites and additional subjects in the German and Swedish sites. Accordingly, our originally projected cohort size of 21 000 subjects has increased to 35 508 (US-7005; Europe-33 508). Vital status tracing, cause of death determination and identification of subjects for the nested case-control study are ongoing.

Conclusions Our study will enable country-specific and pooled analyses of mortality rates and exposure-response relationships among workers from 21 study sites and the opportunity to compare and contrast findings across countries, sites, companies and/or manufacturing processes and exposures involved in this global industry. We will detail progress to date on the US and combined epidemiological component of the study.

0270   **MENTAL DISTRESS IN RELATION TO PSYCHOSOCIAL FACTORS AT WORK AMONG FAMILY PHYSICIANS**

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Objectives The study investigated the associations between mental health and job demands, control and social support at work and controlled for physical inactivity, sense of coherence and psychosocial factors in everyday life in a representative sample of Lithuanian family physicians.

Method With a response rate 89.2%, a total of 323 family physicians filled in anonymous questionnaire on mental distress (GHQ-12) and psychosocial stressors at work and in everyday life, personal health resources (sense of coherence) and demographic variables. The statistical software SPSS 14.0 for Windows was used in the analysis. Associations were tested by way of multivariate logistic regression analysis.

Results The prevalence of mental distress was 40.2% among family physicians and was positively associated with high job demands (p < 0.001), low job control (p = 0.009) and low social support at work (p = 0.009). In a fully adjusted model controlling for age, gender, physical inactivity, sense of coherence, self-rated health, social relations and work-family interface, the adjusted OR for high job demands remained statistically significant with the OR=2.40; 1.40–4.12, but for low job control it was 1.27; 95% CI 0.74–2.19, and for low social support at work - insignificant.

Conclusions Nearly half of the family physicians were mentally distressed. Psychosocial job characteristics, especially high job demands play an important role in poor mental health, as well as social relations, self-rated health and low sense of coherence. Health promotion strategies should be applied for this important occupation to diminish mental distress.

0271   **THE CHANGE OF OXIDATIVE DNA DAMAGE IN NURSES WITH SHIFT WORK**

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Objectives To investigate the change of concentration of 8-hydroxy-2'-deoxyguanosine (8-OHdG) at different work time among shift work nurses.

Method A total of 51 nurses with regulated rotation shift in medical centre or district hospital. Urinary concentrations of 8-OHdG, a biomarker of oxidative DNA damage, were measured. According the rotation schedule, like 1–2 days off - 2day shifts-2evenning shifts- 2night shifts, the urine was collected at 4 time points. The 2 workdays on the last day shift and last night shift of a shift course were selected and urine was collected at work before and finished work after on assigned workday, separately.

Results The urinary concentrations of 8-OHdG at work after was significantly higher than at work before on the end of day shift (paired t test, p-value: 0.0363). The concentrations of 8-OHdG between at work after and work before on the end of nigh shift were not significantly different (paired t test, p-value: 0.1673). Besides, there was no difference on the concentrations of 8-OHdG at work after between a day shift and a night shift. We also found that the change of concentrations of 8-OHdG at a day shift was significantly different on work institution (p-value: 0.0009).

Conclusions We found the more change of concentration of 8-OHdG was at a day shift work then a night shift work, even night shift was as a risk factor of health.

Therefore, the change of concentration of 8-OHdG was as a biomarker to respond the workload exposure.

0272   **RISK OF LYMPHOMA AND OCCUPATIONAL EXPOSURE TO ORGANIC DUST**

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Objectives A medical history of allergy, and particularly asthma, has been associated with an inverse risk of non-Hodgkin's lymphoma (NHL). As occupational exposure to specific organic dusts is a risk factor for asthma, we explored risk of lymphoma and its major subtypes in relation to organic dusts.

Method In 1999–2004, 324 incident lymphoma cases and 464 population controls, frequency matched to cases by age and gender, were recruited among adult residents in Sardinia, Italy. Expert industrial hygienists assessed exposure to organic dust overall, and specific organic dusts. The odds ratio (OR) for lymphoma (all types) and its major subtypes, and its 95% confidence interval, was calculated using unconditional logistic regression.

Results Exposure to organic dust in general was inversely associated with risk of lymphoma (all types) (OR = 0.7, 95% CI 0.4–1.2), with a declining trend by duration and level of exposure. The inverse association was apparently more pronounced for

exposure to flour dust and wood dust, but not to natural or artificial textile fibres. A consistent inverse risk was observed for B-cell lymphoma (OR = 0.6, 95% CI 0.3–1.0), and it was likewise for its major subtypes, namely diffuse large cell lymphoma (DLBCL), follicular lymphoma (FL) and chronic lymphocytic leukaemia (CLL). Age <= 18 at first exposure conveyed a further decrease in lymphoma risk (OR = 0.5, 95% CI 0.2–1.2).

Conclusions Although with interpretative limitations due to the small study size, our results suggest that exposure to flour dust and wood dust might contribute a reduction in risk of malignant lymphoma.

0273 | FACTORS ASSOCIATED WITH THE USE OF HEARING PROTECTION DEVICE AT WORK

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Objectives To identify factors associated with hearing protection device use (HPD) at work.

Methods This is a cross-sectional study carried out with a random cluster area sample of households from the city of Salvador, Bahia, Brazil. Questionnaires were used to obtain sociodemographic, occupational and health related data. Noise exposed worker were those who reported having to shout to be heard in the workplace. When exposed, they were asked whether they use HPD, and how often was it.

Results There were 2429 workers from 18 to 65 years of age, and 299 (12.3%) reported being exposed to loud noise at work. The prevalence of HPD use was 44.5%, 59.3% and 21.4% for men and women, respectively. Among men, only high socioeconomic status (prevalence ratio, PR=1.47; 95% confidence interval, CI: 1.14, 1.90) and previous audiometry (PR=1.47; 95% CI: 1.15, 1.88) were associated with HPD use. In contrast, among women the perception of a good safety climate was associated with HPD use (PR=2.92; 95% CI: 1.34, 6.34), particularly the reporting of having supervisors committed with safety (PR=2.09; 95% CI: 1.04, 4.21), clear rules to prevent work-related injuries (PR=2.81; 95% CI: 1.41, 5.59) and when they were informed about work safety guidelines (PR=2.42; 95% CI: 1.23, 4.76).

Conclusions Our results show that there is a gender bias regarding HPD use less favourable to women compared with men; women's HPD use is more likely to be positively influenced by safety climate suggesting that gender needs to be taken into account in hearing protection programs.

0274 | OCCUPATIONAL NOISE EXPOSURE AND THE PREVALENCE OF HYPERGLYCEMIA

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Objectives This cross-sectional study aimed to investigate the association between occupational noise exposure and the prevalence of hyperglycemia among workers.

Method We recruited 532 volunteers in a machinery and equipment manufacturing factory as the study population in Central Taiwan. The walk-through survey was performed to identify the workplaces with noise levels above 80 A-weighted decibel (dBA) first and then the noise dosimeter was used to conduct personal time-weighted-average sound levels. After assigning each subject to a similar exposure group, we classified all subjects into high-exposure (noise levels ≥85 dBA, n = 91), median-exposure (80≤ noise levels <85dBA, n = 62), low-exposure (noise levels <80 dBA, n = 76) and reference groups (officers, n = 303). Logistic regressions were applied to estimate the risk of hyperglycemia by different exposure groups after controlling for potential confounders.

Results The mean noise levels of high-exposure, median-exposure, low-exposure and office workers were 89.5 ± 2.90 dBA, 83.4 ± 0.4 dBA, 76.7 ± 1.1 dBA and 71.4 ± 4.0 dBA, respectively, and there was a significant difference between groups (p < 0.001). The prevalence of hyperglycemia among high-exposure, median-exposure, low-exposure and office workers were 10.2%, 13.2%, 11.3% and 9.9%, respectively. After controlled for age, sex, education level, body mass index, cigarette smoking, alcohol drinking and regular exercise, the odds ratio of hyperglycemia between the high-exposure and office workers was 3.96 (95% confidence interval = 0.83–18.83), which had a marginal difference (p = 0.08).

Conclusions Occupational noise exposure above 85 dBA might be associated with the increasing prevalence of hyperglycemia. Future studies should be conducted to demonstrate the potential causality of occupational noise and hyperglycemia.

0275 | AN ERGONOMIC ASSESSMENT: OCCUPATIONAL HEALTH AND SAFETY RISK FACTORS OF COMMERCIAL CAFETERIA WORKERS

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Objectives Kitchen work is demanding, both physically and mentally. The employees work under pressure of time and perform various parallel tasks, many of which include exposure to a combination of risk factors of MSDs. This study was conducted for ergonomic assessment of commercial kitchen workers working in university hostel cafeteria

Method A survey of 40 workers employed at university hostel cafeteria at G. B Pant University of Agriculture and Technology at Uttarakhand state in India was carried out. Self administered questionnaire, interviews and observations were used as research instruments to collect data.

Results It was found that there exists some major risk factors including repetition, awkward postures, force exertion, static posture, mechanical contact stress, temperature and vibration at these commercial kitchen workstation. 77.5 percent respondents were found to be involved in 5–8 h, 15 per cent of respondent were found to be involved for 9–12 h and 7.5 percent of the respondents were found working for 13–16 h. Nearly all the workers felt pain in neck, shoulders, wrist, elbow, knee, and ankle, upper and in lower back.

Conclusions An ergonomically designed workstation reduces the human efforts, enhances the work efficiency and at the same time provides the safety to the worker. Kitchen workers should be given awareness about the advantages and disadvantages of the good ergonomic practices so as to reduce the occupational health hazards and increase productivity.