Introduction Health of emergency responders is often overlooked. We aim to study the physical and mental health of non-professional emergency responders in a healthcare institution.

Methods This cross-sectional study used data from medical examination required for employees attending the Emergency Responder Course. The physician-administered questionnaire consisted of: demographics, medical history and lifestyle practices (smoking, alcohol and exercise). Physical examination included weight, height and blood pressure. Indirect standardisation method was used to calculate the standardised prevalence ratio (SPR) to compare with the results from the National Health Survey 2010, adjusted for age, ethnicity and gender. Kessler Psychological Distress Scale (K10) was dichotomized to assess for psychological distress. Prevalence risk ratio was used to explore the association between physical and mental health.

Results There were a total of 65 participants, with mean age of 49.4 years. Crude prevalence for diabetes, hypertension, dyslipidemia, overweight and smoking were 18.5%, 23.1%, 27.7%, 67.7% and 26.7% respectively. 41.7% of the 12 diabetics had HbA1C >7.5% and blood pressure of 66.7% of hypertensive participants were uncontrolled. Mean BMI was 26.9 kg/m². SPR for dyslipidemia and overweight were 1.14 and 1.39 respectively. SPR for other chronic diseases ranged from 0.76–0.89). 11 (16.9%) had abnormal K-10 score. Hypertension was associated with abnormal K-10 score (Prevalence Risk Ratio 4.0, 95% CI 1.41–11.3).

Conclusion Despite possibility of healthy worker effect, there is a high prevalence of overweight and dyslipidemia among emergency responders compared to the national population. Interventions are needed to safeguard overall health of emergency responders.

Oral Presentation

Developing Countries

0234 OCCUPATIONAL EXPOSURE TO N-HEXANE IS ASSOCIATED WITH REDUCED FSH LEVELS AND ALSO WITH PROLONGED MENSTRUAL CYCLES IN MEXICAN WORKERS OF REPRODUCTIVE AGE

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Introduction Former studies in rodents and cell lines have demonstrated ovarian toxicity caused by n-hexane and/or 2,5-hexanedione (2,5HD). In women occupationally exposed to solvents, variables "menstrual cycle period" and "time for getting pregnant" have been longer compared with controls, without identifying a compound responsible for those effects.

Material and methods We studied a group of Mexican women labouring in a shoe Factory (n=32). Individual environmental levels for seven compounds, included n-hexane, were

measured. Also, urinary 2,5HD and seric FSH and anti-Müllerian hormone (AMH) as potential biomarkers of ovarian toxicity, in addition to a gynecological history were obtained. We performed all tests and questionnaires in a reference group as well (n=32).

Results Mean exposure levels to n-hexane (49.2±39.6 mg/m³) and toluene (30.8±24.5 mg/m³) were the highest observed. There were no significant differences in serum FSH and AMH concentrations between groups (p>0.05). Exposed group showed prolonged menstrual cycles (p=0.007) and augmented time for getting pregnant compared with controls (p=0.007). Also in the exposed group, significant correlations were observed between FSH levels and n-hexane (r=-0.34, p=0.028) as well as FSH and 2,5HD (r=-0.33, p=0.029).

Conclusions n-hexane exposure may be responsible for a prolonged menstrual cycle. As judged by the correlations between FSH with n-hexane and 2,5HD this affection could be in the endocrine pathway rather than in the ovary itself. n-hexane could act as endocrine disruptor in women of reproductive age.

Oral Presentation

Disease Surveillance

0235 FRAMEWORK TO MATCH EXPOSURE AND HEALTH OUTCOMES TO BUILD HEALTH MANAGEMENT SYSTEM FOR CONSTRUCTION WORKERS IN KOREA

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Background Majority of construction workers are daily workers who move into many places frequently. Because of this characteristic of construction workers, it is difficult to monitor their exposure status and manage health including periodic health check-up. Therefore, there is a need to establish a health management system, which includes method to assess exposure and health status.

Methods Identification data for individual will be gathered based on the database of the Construction Workers Mutual Aid Association (5 million registered) and the Korean Construction Workers Union database (7000 registered). Those databases have present job title and duration. Since the database do not have exact past exposure data, questionnaire using mobile and web survey will be considered. Main interest of exposures are asbestos and silica using Korean JEM. Major health outcomes will be asbestosis, chronic obstructive pulmonary disease, lung cancer. In addition, other diseases including musculo-skeletal disorders can be the other outcomes. Health outcomes will be recognised by the data of the National Health Insurance data by matching social security numbers whose were acquired from the exposure database.

Results This is in the beginning of the study. The detailed study design will be formed in the first year (2017). In 2018, preliminary analysis with matching of JEM and health outcomes in individual level will be given. Health management system and prospective cohort follow-up will be conducted after 2019. In the presentation, detailed study design, data-

bases regarding construction workers in Korea will be shown.

Oral Presentation

Other

0236 DID A LEGISLATIVE CHANGE ENABLING USE OF PART-TIME SICK LEAVE AT AN EARLY STAGE OF WORK DISABILITY ENHANCE WORK PARTICIPATION IN FINLAND?

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Background The introduction of part-time sick leave to enhance work participation has been adopted in several countries, including all Nordic countries.

Objectives To assess the effectiveness of the use of part-time sick leave at the early stage (first 12 weeks) of work disability due to mental disorder or musculoskeletal disease on work participation.

Method In a nation-wide register-based quasi-experimental study we compared sustained return to work (RTW) and 2 year work participation between the part-time and full-time sickness absence benefit groups using propensity score matching. Persons who received partial or full sickness absence benefit between January 1, 2010 and December 31, 2011 were eligible as cases or controls, respectively. Work participation was calculated as the proportion of time within 2 years when participants were gainfully employed and did not receive either partial or full ill-health-related or unemployment benefits.

Results Sustained RTW was observed more frequently in the part-time than in the full-time sick leave group. A difference was seen in both genders, those aged 45–64 years and especially in mental disorders. Overall work participation during the 2 year follow-up was at a higher level in the part-time sick leave group compared with the full-time sick leave group. The difference was larger in men than women and in mental disorders than in musculoskeletal diseases.

Conclusion The use of part-time sick leave during the first 12 weeks of work disability enhances overall work participation during a two-year period. The prescription of part-time sick leave can be recommended at an early stage of work disability.

Poster Presentation

Cardiovascular Disease

0237 THE RELATIONSHIP BETWEEN HEART RATE VARIABILITY AND 5 YEAR RISK OF CARDIOVASCULAR DISEASE: EVIDENCE FROM THE TAIWAN BUS DRIVER COHORT STUDY

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Background We conducted a cohort study to evaluate the effectiveness of heart rate variability (HRV) to assess for the 5 year risk CVD event. The aim of our study is to find the association between HRV indices and the risk factors of reduced HRV, the association between HRV indices and CVD.

Methods The Taiwan Bus Driver Cohort Study recruited 1650 professional drivers from a large bus company in Taiwan since 2005. We only selected professional drivers whose total driving period exceeded 100 days during the 3 years. The remaining 1149 drivers completed the survey.

Results We found drivers whose driving duration more than 8 years showed the lowest risk of CVD (HR: 0.25, 95% CI 0.12 to 0.51, $p < 0.001$). Drivers who had the drinking habits had higher CVD risk (HR: 2.19, 95% CI 1.38 to 3.50, $p = 0.038$). BMI, SBP, DBP, Total cholesterol, Triglycerides were significantly associated with decreased HRV variables. When we compare HRV components between subjects with CVD and non-CVD group, decreased LF is found in CVD group ($p = 0.028$), especially for hypertensive disease ($p = 0.039$).

Conclusions This study concludes that among several HRV indices LF is an independent predictor of CVD. Moreover, there is much overlap in modifiable biological risk factors between reduced HRV and CVD. Therefore, we need to find whether a factor affect reduced HRV more or CVD risk more. Further research should be conducted regarding measures to change the modifiable risk factors of reduced HRV, and to investigate whether these interventions could reduce CVD risk in professional drivers.

Oral Presentation

Cancer

0239 RADON EXPOSURE AND LUNG CANCER MORTALITY IN THE GERMAN URANIUM MINER COHORT – RESULTS FROM THE EXTENDED FOLLOW-UP TO 2013 IN THE WISMUT STUDY

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