Conclusion Despite higher levels of physical activity and lower levels of sedentary behaviour, shift workers were more likely to have increased rates of diabetes and obesity and are subsequently at increased the risk of developing other chronic disease. The effects of shift work on cardiometabolic status may be independent of simple obesity.

1152 COLLECTING AND ORGANISING BASIC OCCUPATIONAL HEALTH DATA FOR INTERNATIONAL COMPARISONS

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Introduction In regard to international research on occupational health, field survey reports concerning occupational health institutions and related professionals overseas have increased, resulting in an increased number of international comparative studies. However, obtaining mortality and sick leave statistics as well as basic data on industrial accidents overseas still remain difficult because these data have never been collected or, if they have been collected, have never been organised. A research group has been launched to collect basic data, including the above-mentioned data, of as many countries as possible as well as organising the data. The aim of the study is to obtain knowledge that will develop into international comparative studies.

Methods The steps we are taking consist of

i.   collecting new data and information that the ILO, WHO and other international organisations and Japanese research institutes possess or have published,
ii. combining these with the data and information held by Japanese occupational health researchers as well as the results of bibliographic searches, and
iii. comparing these with the data of other countries and showing them in an organised form.

Results We have made the lists to be collected as follows and started to collect the data with the worldwide base:

a. Occupational disease statistics (by industry, disease and year)
b. Mortality statistics due to industrial accidents
c. Off–the–job injury and sickness statistics (with necessary definitions)
d. Implementation status of health examinations and special health examinations (if actually performed), together with examination items and the rate of abnormal findings
e. Actual benefit payment under industrial accident compensation insurance (if there is an insurance plan or similar system)
f. Suicide statistics
g. Actual management of chemical substances
h. Other necessary points in your survey of worker health in your country
i. Have any industrial accident prevention plans or similar programs been established by the government? If so, what are the rates of accomplishment and achievement of the plans?
j. Statistics related to the basic work force of your country.

The preliminary findings include that there are no systematic registries on some occupational diseases statistics even in industrialised countries, and for international comparison it is necessary to get the information on how to collect statistics which may vary between countries.

Conclusion Our research will enable having basic knowledge that contributes to improving occupational health standards. Simultaneously, we intend to summarise our work, recommending the benefits of using these basic data, and indicating matters requiring further solutions and the prospects for international comparisons. The results will be published on our website for general use and in scientific journals.

191 HEALTH BURDEN FROM INJURIES AMONG WORKING POPULATIONS IN THAILAND

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Introduction Injury causes an enormous amount of physical, financial and emotional hardship for working populations, their families and workplaces. It has been identified as the top of occupational health problems in Thailand. This descriptive study aimed to investigate:

- the situation of data entry regarding to occupational injuries
- the unintentional injury rates among working populations with breakdown by gender, age and type of occupation, and
- the health burden from such injuries.

Methods Data were collected from thirty-one participated hospitals. Such data were manipulated and analysed using frequency, percentage and Disability-Adjusted Life Years (DALYs). A number of injured patients were adjusted with the proportion of those injured patients who did not access the services at general/regional hospitals.

Results The results showed that 38.71% of the hospitals did not notify ICD-10 coding for the occupational injuries into the hospital database. The injury rates were 102.43 per 1000 working populations and the injured fatality rates were 88.60 per 1 00 000 working populations. Such rates were higher in males than females with age 35–44 years old. The burdens of unintentional injuries among 31 hospitals in males and females were 62.29 DALYs and 23.23 DALYs per 1000 working populations, respectively. Of DALYs, Year of Life Loss (YLL) was higher than Year Lost due to Disability (YLD).

Conclusion This study recommended that unintentional injuries prevention from occupational exposures should address on industrial work and agriculture work. Such results are useful to support 'safety Thailand' project which is aimed to integrate and promote collaboration on safety and occupational health among concerned ministries. According to the under-report of occupational injuries, it is needed to train the staff of the hospital to record ICD-10 code for occupational injuries in the database. Such data are crucial for the planning and guiding of preventive strategies for occupational health injurie.

THE RELATIONSHIP BETWEEN METALS EXPOSURE AND METABOLIC SYNDROME AMONG ELECTROPLATING WORKERS IN TAIWAN

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Introduction Electroplating is required in printed circuit board (PCB) manufacturing factories. Electroplating workers may expose to metals in electroplating processes, and metals exposure will increase cellular oxidative stress and induce insulin resistance. Since insulin resistance is known to be associated with metabolic syndrome, we assessed the relationships between metals exposure and metabolic syndrome among electroplating workers.

Methods We recruited 172 electroplating workers and 84 office workers from 4 factories. Volunteers were required for overnight fasting, and we collected questionnaire, urine and blood samples in the morning. We used homeostasis model assessment of insulin resistance (HOMA-IR) to assess insulin resistance, and the criteria of metabolic syndrome was according to Taiwan Health Promotion Administration.

Result The study showed urinary concentration of vanadium (0.11 vs 0.07 µg/g creatinine, p<0.001), iron (8.81 vs 6.88 µg/g creatinine, p=0.03), nickel (1.66 vs 1.4 µg/g creatinine, p=0.02), zinc (351 vs 298.2 µg/g creatinine, p=0.002) in the exposed group are statistically significant higher than those of the reference group. By using the multivariate-linear regression, urinary nickel, arsenic, cadmium, lead showed significant positive correlation with HOMA-IR, and urinary zinc, arsenic, cadmium, lead showed significant positive correlation with fasting glucose. Besides, some urinary metal levels showed significant positive correlation with triglycerides, waist circumference, or blood pressure. Some of the urinary levels had negative correlation with high-density lipoprotein.

Conclusion Urinary nickel, copper, chromium, cadmium, lead are associated with metabolic syndrome. Elevating urinary concentrations of these five metals may induce metabolic syndrome.

THE FACTORS WHICH INFLUENCES TO THE SERUM ADIPONECTIN LEVEL AMONG JAPANESE WORKERS WITH DECLINING RENAL FUNCTION

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Introduction This study aimed to investigate factors which influences to the serum adiponectin level among Japanese workers with declining renal function.

Methods This study involved all participants who had undergone measurement of the serum adiponectin level at least one time at annual health examination during the period from 2008 to 2016 among Japanese workers in a railway company. We conducted analyses of participants with declining renal function. For those with serum adiponectin levels measured multiple times during this period, health examination data obtained during the year when the most recent level was measured were used for analysis.

The participants were classified into 4 categories according to eGFR. Categories G3a, G3b, G4, and G5 were 45–59, 30–44, 15–29 and <15 mL/min/1.73 m^2; and the serum adiponectin level was obtained for each group.

Next, factors' affecting the serum adiponectin level was investigated among indices of lifestyle-related diseases and different lifestyles measured at health examination. The serum adiponectin level was used as a dependent variable, while eGFR, indices of lifestyle-related diseases, and different lifestyles were used as independent variables. Multiple regression analysis was performed to identify items significantly influences to the serum adiponectin level.

Results This study included 646 participants, and was 98.3% male. The mean serum adiponectin level was 8.6 µg/mL (1.8–32.5). The levels of the categories divided by eGFRs were 8.1 (G3a), 10.3 (G3b), 13.5 (G4), and 15.6 (G5). Multiple regression analysis identified four items as being significantly associated with the serum adiponectin level (standardised regression coefficient): eGFR (0.334), body mass index (0.241), the presence/absence of regular sleeping habits (0.114), and low-density lipoprotein (0.077).

Conclusions In the participants with declining renal function, the serum adiponectin level was significantly associated with some items. Estimated GFR showed the greatest standardised regression coefficient, indicating that eGFR strongly affects the serum adiponectin level.

MATERNAL OCCUPATION IS ASSOCIATED WITH MATERNAL GLOBAL DNA (HYDROXY) METHYLATION IN THE SECOND TRIMESTER OF PREGNANCY

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Introduction Environmental factors, such as nutrition and occupational exposure can influence epigenetic marks like DNA methylation, which play a role in the development of chronic diseases.

Methods Data of the MAternal Nutrition and Offspring's Epigenome (MANOE) study was used to assess the effect of maternal occupation on maternal and infant DNA (hydroxy) methylation levels. Mothers were categorised in job categories according to the International Standard Classification of Occupations (ISCO). Maternal global DNA (hydroxy)methylation levels during each trimester of pregnancy and at delivery