

respectively. The rate of depressive symptoms was 42.8%, and the average of well-being index in Korea was 58.3. The longer the working hours were, the higher the risk of depressive symptoms was. Even after adjusting for sex, age, socioeconomic position, physical problems, job stress and exposure to violence, the risks of depressive symptoms were significantly higher in people who worked 53–68 hours/week (PR, 1.13 95% CI: 1.09 to 1.17), and more than 68 hours/week (PR, 1.07 95% CI: 1.02 to 1.13) than 35–40 hours/week.

**Conclusion** We showed the long working hours could be an independent risk factor for depressive symptoms in employees. Long working hours can lead to the lack of time to recover and sleep disturbances, which can be associated with depressive symptoms. It is necessary to adjust to the appropriate working hours for employees' mental health.

### 1372 THE 2016 GLOBAL BURDEN OF DISEASE ARISING FROM OCCUPATIONAL EXPOSURES

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**Introduction** There are a variety of hazards faced by workers across the globe. Many are common to workers in similar occupations or industries in different regions. Others comprehensive study of the occupational burden of disease has been most recently studied as part of the Global Burden of Disease (GBD) study, headed by the Institute of Health Metrics and Evaluation at the University of Washington.

**Methods** The risk factors section of the GBD study uses a population attributable fraction (PAF) approach, combining relative risk estimates from the published literature with estimates of exposure prevalence. The PAFs are applied to estimates of the total number of cases or Disability Adjusted Life Years (DALYs) of a particular disorder to produce estimates of the number of deaths or the overall burden (in DALYs) arising from individual occupational risk factors and groups of risk factors. The included risk factors are a range of carcinogens resulting in cancer; particulate matter, gases and fumes resulting in chronic obstructive lung disease; asthmagens causing asthma; noise causing noise-induced hearing loss; ergonomic risk factors causing low back pain; and injury risk factors resulting in injury.

**Results** The preliminary results for 2016 suggest that the largest burden in terms of deaths was from carcinogens, injury risk factors and particulate matter, gases and fumes. In terms of DALYs, the largest burden was from ergonomic factors, injury risk factors, particulate matter, gases and fumes and noise. The rates and PAFs varied by region and across age and gender.

**Conclusion** Studying the burden of disease arising from occupational exposures provides guidance to policy makers and practitioners regarding the scope of ill health resulting from work and where resources might most be needed.

### 1539 NEW EU-OSHA-APPROACH TO QUANTIFY EXPOSED WORKER POPULATIONS IN THE EU

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**Introduction** The quantification of the number of workers that are exposed to dangerous substances is a key element for evidence based policy decisions, particularly in the area of occupational safety and health legislation and regulation of chemicals in general. In the past three decades a lot of scientific efforts were made to quantify the number of exposed workers at national, at EU and at international level. The methodological difficulties can be categorised in three major topics:

- The availability of reliable and representative exposure data
- The availability of substance and sector specific production and usage data
- The availability of detailed statistics on sectoral employment, occupations and major working tasks.

**Methods** The EU-OSHA approach is characterised by a combination of production and usage data from PRODCOM, SPIN and ECHA with survey data from the European Working Conditions Survey (EWCS), the Labour Force Survey (LFS) and the European Survey on New and Emerging Risks (ESENER). Moreover, these data are combined with structural business data of EUROSTAT. In a second step the findings are correlated with national datasets, e.g. from follow-up projects of CAREX or national cancer registers. Still the results of this correlation have to be justified by sector experts' assessment. Further datasets at European level (the planned EU OSH Info-System) or specific surveys on certain substances will improve the reliability and comprehensiveness.

**Results** Improved reliability and precision of quantitative assessment of the occurrence of exposure to substances in certain sectors and occupations, and the best possible estimate of the number workers exposed to these substances.

**Discussion** Public data on chemical substances is constantly increasing and providing more precision. It will be possible to update and improve the figures from previous estimation approach.

### 1579 ENVIRONMENTAL ASBESTOS EXPOSURE IN SOUTHERN ITALY: MESOTHELIOMA CASES DUE TO THE SAME POLLUTION SOURCE

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**Introduction** Bari municipality (Apulia region, Southern Italy) has been defined as a contaminated site of national priority for remediation because of diffuse environmental contamination caused by an asbestos cement factory. Up to date, the regional mesothelioma registry listed 66 environmental mesothelioma cases among residents. We report two peculiar cases of malignant mesothelioma, one peritoneal and one pleural, due to residential asbestos exposure close to a military barracks, located inside the urban area and reclaimed only in 2006.

**Methods** The records of the two cases with environmental exposure were listed in the Apulia regional mesothelioma registry. The registry ensures complete, quality information on exposure and diagnosis thanks to the adoption of operative guidelines agreed at national level. Molecular analysis with CGH-array was performed on paraffin-embedded tissue.