for work-relatedness, and 4) coding work-related cases. Work-related cases were classified as workers, bystanders, commuters or students. Work-related injury frequencies and rates per 1 00 000 workers for the most recent 20 year period were calculated by age, sex, employment status, occupation and industry.

Results Of 17 658 injury fatalities reviewed for the period 1995–2014, 3766 (23%) were work-related, of which 1762 were workers. This corresponds to an overall rate of fatal injury of 4.7 (95% CI 4.5, 5.0) per 1 00 000 workers. Rates of fatal injury were highest for older workers aged 70–84 years (18.1, 95% CI 14.8, 21.8) and males (8.1, 95% CI 7.7, 8.5). The two industry groups with the highest burden of fatal injury were the Agricultural, Forestry and Fisheries and Transport, Postal and Warehouse.

Conclusions This research demonstrates an innovative use of coronial data, and provides a rare example of the establishment of a continuous and comprehensive long-term coronial dataset. It will be used to generate knowledge for informing workplace preventive strategies in NZ.

07A.4 HAZARDS AND INJURIES ASSOCIATED AMONG SMALL SCALE GOLD MINERS IN THE PHILIPPINES

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10.1136/OEM-2019-EPI.166

Worldwide, small-scale mining (SSM) provides employment to about 13 million people and affects the livelihood of 80–100 million. This study investigated the ergonomic and safety hazards of small scale miners in one of the largest small scale mining area in the Philippines which is the area of Ito-gon, Benguet. There were 93 small scale miners who were included in the study as they complied with the inclusion criteria. The methods consisted of survey questionnaires, health physical examination guide, individual interviews, and work process observation tool. The results showed that the small-scale miners worked for an average of 10.7 years, and a maximum work year of 40. The most widely employed mining technique was the dog-hole mining consisting of several sub-processes -tunneling, ball milling and gravity concentration, cyanide leaching, and smelting. The ergonomic and safety hazards identified were noise exposure from the dynamite blast, temperature extremes, and exposure to dust from dynamite blasting. The miners experienced prolonged crouching and bending, prolonged handling of tools, and carrying heavy sacks filled with mineral ores. In the ball milling and gravity concentration process, machine-related accidents were noted such as cuts from the crusher. In the cyanide leaching which uses massive amounts of cyanide, the most prevalent hazards were heat, dust, and chemicals such as cyanide fumes. In the smelting process, smoke from burning ore and coal as well as exposure to borax and nitric acid fumes. Burn injuries were reported among miners. A third (31.2%) of miners have experienced accidents. The most common injury was laceration at 47.8%, followed by methane inhalation, fracture of hand digits, and contusion at 17.4%. The most prevalent health symptom reported by the miners was muscle pain. It is suggested that intervention programs for ergonomics and safety measures be implemented by the local government.

Psychosocial Factors

07B.1 MODELLING MORTALITY BY SUICIDE AMONG WOMEN AT WORK IN THE SWISS NATIONAL COHORT

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10.1136/OEM-2019-EPI.167

Context The aim of this study was to describe the factors associated with mortality by suicide among women at work with a particular focus on work-related factors.

Population and methods The study population was based on the data of the Swiss National Cohort (SNC) consisting in all Swiss residents recorded in the 1990 and/or the 2000 compulsory national censuses linked to emigration and mortality registers. Within the SNC we selected all working women aged between 18 and 65 at the official census dates.

Following work-related variables were available in both censuses: Socio-economic status, weekly hours of work, the sector of activity according to the Swiss NOGA scheme and the job title coded according to ISCO. The date of beginning of follow-up was the date of the relevant census. The date of end of follow-up was the earliest of the 65th anniversary, dec 31 st 2014 (the end of mortality follow-up), the date of loss of follow-up or dec 4th 2010 if no declared work in the 2000 census. The risk of suicide was modelled using negative binomial regression incorporating the number of person-years as offset.

Results The cohort comprised 1,843,619 women and 2524 deaths by suicide corresponding to 24.9 million person-years. The most significant non-occupational predictors of suicide were age, civil status, period, nationality and geographical regions. Part-time work and long working hours were associated with increased suicide rates. Health and social activities had the highest suicide risks and education the lowest. Overall the job title according to ISCO-1d was not significant. However the rank of suicide risk among women followed approximately the skill levels associated with these codes. Of interest is however the high RR among professionals.

Conclusion After accounting for the main non-occupational factors, the suicide risk varied significantly with some work-related factors that were specific for women.

07B.2 PILOT PROJECT FOR IDENTIFYING PSYCHOSOCIAL RISK FACTORS AMONG SENIOR PHYSICIANS IN THE PEDIATRIC MEDICAL CENTER OF A UNIVERSITY HOSPITAL CENTER

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10.1136/OEM-2019-EPI.168

Context After several warning signals coming from senior physicians working in a Department of pediatrics at a large university hospital, the Department of occupational health

decided to assess objectively the psychosocial risks to which this personnel was exposed.

Methods A research team from the scientific unit of the Institut National de Santé Publique du Québec has developed an identification grid with markers that help understanding and limiting physical and psychological risks at work. This grid includes characteristics of the workplace environment and various aspects of management practices. It is based on theoretical models such as 'Demand-Latitude-Support' (Karasek & Theorell, 1990), 'effort-reward imbalance' (Siegrist, 1996), 'organizational justice' (Adams, 2000), and 'prevention' (Kristensen, 1999). The assessment involved an interview guide with a scoring system of data collected from credible persons familiar with the working environment.

After adequate training in the use of the interview guide, an occupational physician and an occupational psychologist interviewed jointly each of 34 pediatricians and 3 managers and scored the 12 items of the guide according to specific recommendations. The data collected from the interviews were submitted to a thematic analysis.

Results The analysis showed that the working environment of the Department was not favorable to the return to work or work-life balance. Regarding management, the warning signals pointed to heavy workloads, lack of recognition, and communication problems. There were some protecting factors such as support from colleagues, some decision latitude (but limited possibilities of knowledge development) and, unevenly between wards, support from the hierarchy. The most negative indicators were reported by junior doctors and, as expected, by temporary personnel.

Discussion According to these results, group involving the assessment team, pediatricians, and ward managers will be formed to suggest improvements in the fields of human-resource management, communication, recognition, workloads, and occupational health.

07B.3 A COHORT STUDY OF SLEEP ON HEALTH PSYCHOLOGY AMONG PROFESSIONAL DRIVERS

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10.1136/OEM-2019-EPI.169

Background Long-term effects of sleep-related factors on risk of psychiatric disorders among professional drivers have not been conclusive. A cohort study was used to evaluate the effectiveness of subjective and objective sleep assessment tools to assess for both the 7 year risk of psychiatric disorders events. **Methods:** Taiwan Bus Driver Cohort Study (TBDCS) recruited 1650 professional drivers from a large bus company in Taiwan in 2005. The subjects were interviewed in person, completed the sleep assessment questionnaires (Pittsburg sleeping quality score (PSQI), Epworth daytime sleepiness score (ESS), Snore Outcomes Survey score(SOS)), and had an overnight pulse oximeter survey. Psychiatric diseases as diagnosed in the National Health Research Database were the outcomes of this study, including substance abuse, anxiety, mood, and sleep disorders. Cox proportional hazards model was performed to estimate the hazard ratio for psychiatric disorders. **Results:** Between 2006 and 2012, 102 bus drivers were diagnosed as having

psychiatric disorders. Psychiatric disorders were related to higher PSQI score, SOS score, ODI4 levels, and ODI3 levels. The relation between PSQI and psychiatric disorders remains robust after adjusting for age, education, drinking, smoking, refreshing drinks, exercise, bus driving experience, and shift modes. **Conclusion:** This study showed increased psychiatric disorders in the 7 year follow-up after self-reported poor sleeping quality. Further research is warranted to develop strategies for preventing sleep-related psychiatric disorders among professional drivers.

07B.4 ARE PSYCHOSOCIAL WORKING CONDITIONS ASSOCIATED WITH SUICIDE AND INTENTIONAL SELF-HARM? A REGISTER-BASED STUDY OF 420,895 NORWEGIANS

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10.1136/OEM-2019-EPI.170

Objectives Poor psychosocial working conditions are associated with increased risk of mental health disorders. Some studies suggest that work factors may also increase the risk of suicidal behaviour. However, these studies mostly measured suicidal ideation, rarely completed suicides, and hardly ever used longitudinal data. We aimed to examine the relationship between selected psychosocial work factors and death by suicide, as well as hospital treatment for intentional self-harm and similar diagnoses.

Methods Data on all persons born in Norway 1967–1976, employed in 2007 (n=420,895), were retrieved from national registers. Binary psychosocial work exposures were obtained from a job-exposure matrix for job demands, job control and leader support. Based on these, we constructed job strain (high demands, low control), and isostrain (high demands, low control, low support) exposure variables. These were linked to occupation in 2007 (ISCO88 four-digit codes). We estimated associations (Risk Ratios, RRs) between the psychosocial work factors and four-year risk of intentional self-harm and suicide in binomial regression models, adjusted for year of birth, education level, marital history and current family pattern.

Results During 2008–2011, 884 had diagnoses of intentional self-harm (annual rate 53 per 100,000; women 56, men 49), while 164 suicided (annual rate 9.7; women 4.5, men 14.5). Intentional self-harm was associated with all work factors, except job demands and leader support among men. Associations were strongest for high isostrain, adjusted RR 1.5 (95% confidence interval 1.2–1.7) and high job strain RR 1.3 (1.2–1.5), similar in women and men. Associations with suicide were positive only among men, with strongest associations for high job strain, RR 1.5 (1.0–2.1).

Conclusions Psychosocial work factors were associated with intentional self-harm in both sexes, but only in men for suicide. High isostrain and high job strain showed the strongest associations. Reasons other than a causal relationship cannot be excluded, particularly health selection.