

to safety, nanomaterials, environmental, and multidisciplinary risk management applications. Banding strategies and processes were developed to provide a standardised and simplified framework to identify and reduce occupational risk factors for emergency preparedness and response personnel.

**Result** The U.S. NIOSH Occupational Exposure Banding process is now available to assist in protecting emergency response personnel from hazardous material exposures for tens of thousands of chemicals lacking Occupational Exposure Limits. Banding strategy frameworks for emergency preparedness have also been applied to physical and biological exposures. This framework provides consistency for informed risk management decisions that assists in identifying emergency-related occupations and provides proven risk communication for the development of trainings and interventions.

**Discussion** Emergency response scenarios include exposure potential for both noncommunicable and communicable work-related diseases. Therefore, medical and support personnel must be considered in multiple emergency preparedness parameters. The International Occupational Hygiene Association (IOHA) is seeking collaborations to develop and communicate trainings that increase awareness of these occupational risk factors and provide intervention techniques to increase response capacities and minimise public health consequences for emergency preparedness, surveillance, and response.

916

#### ARE WORK FACTORS ASSOCIATED WITH RETURN-TO-WORK IN AN OUT-OF-HOSPITAL CARDIAC ARREST SURVIVORS COHORT?

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10.1136/oemed-2018-ICOHabstracts.335

**Introduction** Although survival rates after out-of-hospital cardiac arrest (OHCA) have improved, little is known about return-to-work of OHCA survivors and predictors. This study aims to study return-to-work in survivors OHCA.

**Methods** All consecutive OHCA survivors of our intensive care unit between 2000 and 2013 aged 18–65 years, and who had been working up to the OHCA had been included. Available data for pre-hospital care, in-hospital care, and care after hospital discharge, such as work items (work location, job classification, nature of the job) have been compared with work status and return-to-work.

**Result** Among 379 survivors followed, 153 were included in the study, and 96 returned to work (62.8%), mostly at the same job (n=72, 75% of 96). Predictors of return to work were younger age (adjusted odds ratio ORa 3.64 [1.10; 12.02], positions as managers and professionals, and services and sales workers (compared to technicians and associate professionals, clerical support workers, respectively ORa 3.43 [1.05; 11.22] and 4.69 [1.14; 19.37]), workplace occurrence (ORa 11.72 [1.37; 99.93]). Workplace location was strongly

associated with low flow, but not with no flow nor with other characteristic of the chain of survival.

**Discussion** The study emphasised the importance of return-to-work after OHCA and anticipation related to work location. On behalf of all the co-author, I agree our abstract will be being published by the BMJ OEM under the licence 'Licence to BMJ Publishing Group Ltd ('BMJ') for publication of conference abstracts'.

921

#### POSITION STATEMENT OF THE ICOH WORKING GROUP ON 'EMERGENCY PREPAREDNESS AND RESPONSE IN OCCUPATIONAL HEALTH (EPROH)

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10.1136/oemed-2018-ICOHabstracts.336

**Introduction** The Emergency Preparedness and Response in Occupational Health (EPROH) scientific committee was developed to raise awareness of emergency risks for workers, to train managers, employees, and medical staff to prepare for and prevent accidents, acute medical events and disasters, and to mitigate their impact. The committee proposes a position statement on the fundamental need for prevention, response, first-aid treatment, and care in the field of occupational health care.

**Methods** This position statement was developed following Evidence Based Medicine principles, including literature review, practice networking, and surveys including workers' expectations.

**Result** The scope of the EPROH group will be focused on Emergency Plans, Procedures, Preparedness, and Training. To ameliorate the dramatic situation of workplace fatalities and accidents/events, EPROH experts have developed recommendations for what every worker should expect in case of a medical emergency, work-related or not, minor or major, while working for his/her company. Minimum response plans for every workplace include information about initial management and contact information. First aid must be encouraged, and occupational health and safety professionals will have to develop procedures that detail responses to emergencies, from minor events to major disasters. As needed, emergency providers should be followed up regularly by an occupational specialist for extended intervals after an event.

**Discussion** Although global harmonisation, local adaptation, and additional research are needed, this position statement emphasises the importance of having a global statement on the multiple aspects of emergency preparedness and response in occupational settings for every worker everywhere in the world.

## Epidemiology

## 1043 COMPARATIVE STUDY OF SHIFT WORK EFFECTS AND INJURIES AMONG NURSES WORKING IN ROTATING NIGHT SHIFT &amp; DAY SHIFT IN INDIA

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10.1136/oemed-2018-ICOHabstracts.337

**Introduction** Shift work can have an impact on the physical and psychological well-being of the health care worker. The impact can be manifold in developing countries like India, where health sector already suffers due to the poor doctor: nurse and nurse: population ratio. This study was conducted to compare the health outcomes and injuries, along with associated risk factors between the nurses working in Rotating Night Shift (RNS) as compared to Day Shift only (DS).

**Methods** It was a cross-sectional study conducted from June to November 2016 in a tertiary care hospital of Delhi. It involved 275 nurses working in rotating night shift and 275 nurses from day shift of various departments, selected through simple random sampling. Standard Shift Work Index Questionnaire (SSI) was used as the study instrument, with selected variables (according to objectives of the study). Data were analysed using descriptive statistics, chi-square, t-test and multivariate regression.

**Result** The nurses working in rotating night shifts were found to have significantly lower mean scores in job satisfaction ( $p=0.04$ ), sleep ( $p<0.001$ ) and psychological well-being ( $p=0.047$ ) as compared to day shift workers. Working on a contractual basis, rotating night shift and living outside the hospital campus were associated with higher odds of having needle stick injury (NSI).

**Discussion** This study revealed some modifiable targets for improving shift work adaptation, e.g sleep, job satisfaction and general health. These can be modified by including appropriate interventions in their training itself, such as behavioural changes for good sleep hygiene, counselling and periodic screening. Prevention of needle stick injuries is the best strategy, but setting up of adequate surveillance mechanism in every hospital is also necessary. Fixed timing and duration of duty hours in case of rotating shifts can also contribute to lesser human errors and better job satisfaction.

## 1052 MIGRANT WORKERS AND OCCUPATIONAL HEALTH IN NORWAY: A PROFILE

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10.1136/oemed-2018-ICOHabstracts.338

**Introduction** Norway has since 2006 experienced, an increase in migrant workers. Migrant workers are providing a valuable labour force that is contributing to the economy. But, there are several challenges that these workers face with regards to occupational health. We have limited data on migrant workers, and aim to provide a profile of occupational health challenges as they concern these workers.

**Methods** Data as they concern migrant worker's occupational health in Norway are scarce. The Labour Inspectorate has fatality statistics, inspections data, and there are also few studies, and surveys that provide useful information for this profile.

**Result** The fatality statistics in general have shown a positive trend over the past few years. What is troubling, is the proportion of migrant workers that make up the national statistic. In 2015 the 34% of all fatalities at work were migrant workers. Data on non-fatal serious injuries with the Labour Inspectorate also suggest incidence of injuries is higher among migrant workers in high-risk sectors. Self-reported surveys conducted in Norway have indicated that migrant workers have higher rate of occupational exposures compared to Norwegian workers. Our inspections data suggest that migrant workers also have long working hours, low pay and hazardous living conditions.

**Discussion** The data are indicating that migrant workers are likely more exposed to occupational hazards, and have precarious working and living conditions compared to Norwegian workers. The migrant workers are a hard to reach population (transitory/language barriers), moreover they are sometimes sceptical of both the research community and the regulatory institutions. This situation has implications for traditional epidemiological research, OSH practice and policy-making. Going forward OSH research, practice and policy need to develop novel methods to better protect the health and safety of migrant workers.

## 1054 PHYSICAL WORKLOAD EXPOSURE THRESHOLD IN CUMULATIVE-TRAUMA DISORDERS USEFUL FOR PRIMARY PREVENTION AND FOR CAUSAL ASSESSMENT: A 12.5 Y FOLLOW-UP COHORT STUDY

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10.1136/oemed-2018-ICOHabstracts.339

**Introduction** Cumulative-Trauma Disorders (CTD) are major loss causes in labour environments through the world, but few is known about quantitative robust and reliable workload exposure limits. The aim of this research was to define shoulder repetitiveness exposure threshold by assessing the risk of rotator cuff, biceps and bursal injuries (dependent variable) in a cohort of workers.

**Methods** A retrospective cohort study was assembled with workers from different positions. Inclusion/exclusion criteria were rigorously applied. Clinical and sociodemographic variables were extracted from each worker's clinic history (age, sex, handedness, civil status, academic level, menopause, mood disorders, hyperglycemia, hyperuricemia, and abnormal globular-sedimentation velocity, rheumatoid factor, reactive-c protein, thyroid-stimulating hormone and anti-nuclear antibodies). Dependent variable was obtained using nuclear magnetic resonance, ultrasound and/or surgical reports. Shoulders workload was assessed independently getting cumulative-exposure time to repetitive motions, which was adjusted by rest/break periods, maternity/paternity leave, vacations and all-causes medical absences (effective cumulative-exposure time). The exposure threshold was acquired using an adjusted multivariate Weibull regression modelling in order to control confusing effects. A Huber's M-estimator was performed warranting robust results, correcting both shoulders non-completely independent measures (two shoulders by worker).