

## Eliminating Occupational Disease: Translating Research into Action EPICOH 2017

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### Poster Presentation

#### Pesticides

0007

#### ASSESSMENT OF PESTICIDE EXPOSURE AND OCCUPATIONAL SAFETY AND HEALTH OF FARMERS IN THE PHILIPPINES

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**Aims** This is a study conducted among 534 farmers in an agricultural area in the vegetable industry. The target site is Benguet, Philippines which is the largest vegetable producer in the Philippines. This study assessed the pesticide exposure and occupational safety and health benguet farmers, and identified the work risks to the occupational health of the farmers.

**Methods** Survey questionnaires look into pesticide exposures and work practices of the farmers. Physical and hematologic health assessment tools as well as laboratory examinations for blood were conducted to look into occupational health of farmers.

**Results** The most commonly used pesticides were Tameron (36.1%), Dithane, (34.1%), Sumicidine (29.0%), and Selecron (24.9%). Tameron, being the most commonly used, has an active ingredient of methamidophos and classified as an organophosphate pesticide. About 41% who underwent the physical examination were diagnosed to have abnormal assessment results. Pesticide use and risk factors were found to be associated with easy fatigability, weight loss, loss of appetite, cerebellar function, creatinine levels, haemoglobin, mean corpuscular volume, mean corpuscular haemoglobin count, and platelet count ( $p=0.05$ ). About 51% of the farmers had abnormal RBC cholinesterase which can be indicative of organophosphate exposure.

**Conclusion** There was association between pesticide exposure and work practices with the occupational health of the framers in Benguet. The results of the study underscore the need to improve protection measures so as to reduce the exposure of the population and environment to pesticides.

### Oral Presentation

#### Developing Countries

0008

#### OCCUPATIONAL EPIDEMIOLOGY OF HEALTH RISKS AND CHEMICAL EXPOSURES AMONG SMALL SCALE MINERS IN THE PHILIPPINES

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The study investigated occupational hazards in small scale mining in Benguet, Philippines which is one of the largest mining

areas in the country. The study studied 40 small scale industries, and collected 40 water samples (potable) for cyanide and mercury which are used in mining. Questionnaire-guided interviews and work analysis covering mining practices and risk exposures were conducted, as well as chemical analysis through gas chromatography. Results of the study showed unsafe conditions in the industries such as risk of fall during erection and dismantling of scaffolds, guard rails were not provided in scaffoldings, manual extraction of underground ores, use of explosives, poor visibility in looking for ores to take out to surface, exposure to noise from explosives, and to dust from the demolished structures. Mine waste was drained into soil or ground and/or rivers and streams. The most common health problems among miners were hypertension (62%), followed by hypertensive cardiovascular disease due to left wall ischemia (14%). Health symptoms such as dermatitis, and peripheral neuropathy were noted and these can be considered as manifestations of chronic cyanide poisoning, further, aggravated by improper use of protective equipment. For the environmental samples of potable water, 88% and 98% were positive with mercury and cyanide respectively. About 52% of drinking water samples exceeded the TLV for mercury while 2% exceeded the TLV for cyanide. There is a need to establish programs on miners' occupational and environmental health and safety, and the community.

### Oral Presentation

#### Working Conditions

0009

#### ERGONOMIC HAZARDS AND INJURIES AMONG SMALL SCALE MINERS IN THE PHILIPPINES

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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 93 small scale miners in one of the largest small scale mining area in the Philippines which is the area of Itogon, Benguet. The methods consisted of survey questionnaires, health physical examination guide, 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 hazards identified were noise exposure from the dynamite blast, temperature extremes, and 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 cyanide leaching which uses massive amounts of cyanide, hazards were heat, dust, and chemicals such as cyanide fumes. In the smelting process, hazards were borax and nitric acid fumes, and smoke from burning ore and coal, and burn injuries. A third (31.2%) of miners have experienced accidents. Of this, 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 which points to exposure to ergonomic hazards and risks. It is suggested that intervention programs for ergonomics and safety measures be implemented by the local government.

## Poster Presentation

### Developing Countries

#### 0010 EPIDEMIOLOGY OF ROAD CRASH AND ACCIDENT FATALITIES AMONG BUS AND TRUCK DRIVERS: VULNERABLE OCCUPATIONAL GROUP

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**Aim** This study looked at occupational road crashes among truck and bus drivers in comparison to other drivers and motorists on the road of Metro Manila which is one of the cities with a high traffic density. One of the most precarious and risky occupations is driving especially buses used for public transportation, and trucks for commercial activities.

**Methods** The study used meta-analysis of previous studies conducted, grey literature, government statistics, and validation through key database research in concerned national government agencies involved in road traffic from 2010–2015.

**Results** The study found that in terms of the number of public utility vehicles registered in Metro Manila (2015), 51.27% were buses and 20.21% were trucks. Majority of the drivers worked more than 12 hours a day. In terms of time and peak of accidents, it is alarming to note that about 35% of the road crashes occurred from 22–23 gmt (2010–2015), and 30% from 23–24 (2010–2015) gmt. Human error accounted for the overwhelming cause of road crashes such as drunk driving, beating the red light, sleepiness, at 99.52% in 2012, 99.47% in 2013, 95.33% in 2014, and 97.19% in 2015.

**Conclusion** The study has shown how risky driving is as an occupation especially due to the work schedule. The study suggests developing better information, education and communication campaign and policies particularly on pedestrian safety, road safety, road-sharing concepts. Moreover, it is suggested that occupational health and safety among drivers as a special occupational group should be carried out.

## Poster Presentation

### Respiratory

#### 0012 PULMONARY FUNCTION AND HIGH-RESOLUTION COMPUTED TOMOGRAPHY (HRCT) IN OFFSHORE OIL DRILLERS

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**Purpose** 1 to study short-term changes in pulmonary function in drill floor workers exposed to airborne contaminants from drilling fluids offshore compared to a reference group of non-exposed offshore workers; and 2 to detect possible signs of pulmonary disease by HRCT scans in previously exposed workers.

**Methods** In a follow-up study 51 drill floor workers and 55 referents were examined with measurements of pulmonary function at the heliport before and after 14 days of work.

Additionally 57 drill floor workers exposed to drilling fluids in the 1980's were examined in a cross sectional study with HRCT of the lungs.

**Results** Mean declines in forced vital capacity (FVC) and forced expiratory volume in 1 s (FEV<sub>1</sub>) were 50 mL and 60 mL in the drill floor workers, respectively, and in the referents 60 mL and 70 mL. Average base-line examination time was 10:47 a.m., and re-examination time 14 days later was 15:05. After adjusting for possible diurnal changes in pulmonary function, the exposed workers still experienced a statistically significant decline in FEV<sub>1</sub> while the referents did not. Declines in FEV<sub>1</sub> and FVC among exposed workers were correlated to fewer days of active drilling during the 14 days offshore.

HRCT abnormalities were detected in 54%, but coarse fibrosis with honeycombing was not observed.

**Conclusion** After correction for diurnal variation in pulmonary function, a statistically significant decline in FEV<sub>1</sub> was observed among the drill floor workers. There were indications of a connexion between pulmonary function decline and exposure factors other than oil mist.

## Poster Presentation

### Disease Surveillance

#### 0014 HOW DO WE ELIMINATE OCCUPATIONAL DISEASES IN GREAT BRITAIN?

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In our view there is an inverse care law operating in Great Britain (GB), in that access to occupational health services (OHS), which are adequate to find occupational diseases (ODs) at an early enough stage to prevent progression, is accessible to only the circa 13% of the labour force<sup>1</sup>, who are mostly at low risk<sup>2</sup>.

This is because:

- There is no access to OHS through the National Health Service<sup>2</sup>
- There is no legal obligation, either on the state or on employers, to provide OD surveillance, except for circa 0.1% of the workforce<sup>2</sup>.
- There is no protection for occupational health professionals (OHPs), who are paid directly or indirectly by employers. Employers can change service providers if they receive unwelcomed reports of diseases or hazards<sup>2,3</sup>
- Doctors who diagnose ODs are not required to report them to a compensation scheme or the Labour Regulator in GB<sup>4</sup>
- As the duty to report cases of ODs rests on employers, these are negligibly reported to the Regulator; consequently the causative workplaces are not being identified or rectified<sup>2,5</sup>
- OHPs now spend most of their time on sickness absence/performance management cases, rather than on detecting and preventing cases of OD<sup>2</sup>.