

## 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.