with both open and closed ended questions followed by urine sample collection which was then analysed by CVAAS technique to determine the level of mercury. Data analysis was done by using Chi-square and incase numbers were too small for Fisher's exact test was employed. Measure of association is significant where $p < 0.05$ Statistical analysis was done by SPSS version 21.

Results A total of 150 participants with the age between 15 and 67 (mean age 33.77 (SD=12.12) and 33.26 (SD=12.83) years old for exposed and unexposed groups respectively) were recruited and ascertained for exposure. Urinary mercury concentrations for exposed group were higher than the referent group (mean 81.18 (SD=46) mcgHg/g-creatinine and 5.14 (SD=2.73) mcgHg/g-creatinine respectively) ($p < 0.05$). Symptoms such as cough, chest tightness, tremor of hands, tremor of tongue, tremor of eyelid and trouble of walking were significantly more prevalent in exposed ($p < 0.05$) than non exposed.

Discussion Body burden caused by mercury affects not only miner but also the community surrounding the mining area. Exposure to even lower amount of mercury may bring about significant health effects. Therefore there is a need for stakeholders to raise the community awareness on mercury effects and its preventive measures.

1103 WHAT ARE WE DOING ABOUT CHILDREN MINING GOLD?

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Introduction There is concern in the Philippines, Indonesia, central Africa, and South America related to children's employment in small scale gold mines (SSGM). Ages range from 8 to 16 years, although statistics are lacking. We know children work in SSGM because they are poor; world gold prices keep them labouring. There is appeal to banning youth from mines, and creating no children in gold processing supply lines. These approaches appear to be the most ethical solutions, however this issue is more complex.

Definition of problem Evidence from Human Rights Watch indicates there are as many as 1,000,000 children in SSGM. There are risks of traumatic injury, dermatitis and diving risks in Philippines, lead poisoning in Africa, mercury (Hg) intoxication, and Hg contamination of local waters. There are remediation challenges, especially where mine tailings meet aquatic settings.

Environmental health results Local governments, NGOs, health providers, and mining companies must provide funding and alternatives such as schooling, and providing jobs to replant trees. Certify that no children <16 are involved with gold coming to world markets. Seek nonHg solutions to separating gold, including banning local sales of liquid Hg.

Discussion Local university medical/public health schools should sponsor studies of children who are now or were engaged in mining, examining injury rates, nervous system effects, effects of mine dusts-silica and lead, and times in water (in Philippines and Indonesia). These endeavours should also include studies of adult miners, examining the risks of silicosis/lung disease, autoimmune/kidney disease, and cancers based on industrial hygiene measures of silica and radiation. We need innovative means to remediate environmental damage

from gold mining. We need leadership in occupational health, education, exposure assessment/industrial hygiene to reduce the numbers of children in SSGM.

1216 WORKPLACE HEALTH RISKS MANAGEMENT IN DEVELOPING WEST AFRICA COUNTRIES, THE ROLE OF ACADEMIC HEALTH INSTITUTIONS

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Introduction This paper examines the major health threats and risks to employees in Ghana and some West African countries amidst the rapidly growing mining, metals, oil and gas industries. It looks at the role of key stakeholders, particularly academic health institutions in the evidenced-based management of occupational health to improve the health, productivity and performance of the working population.

Methods The paper was developed from extensive literature review and interview of some industry leaders to understand some historical trends of employee occupational health promotion and protection indices and the current situation of occupational health and hygiene standards in the sub-region.

Results Clearly, the present West African employee (local and expatriate) are heavily burdened with diverse kinds of health threats, both from the workplace and non-work-related sources. The threats and associated risks were noted to be hugely skewed towards infectious diseases and occupational health hazards origins. That notwithstanding, non-communicable diseases challenges, like mental health, hypertension, diabetes, cancers and musculoskeletal disorders had prominent place in the workplace health hazards and risks matrix.

Discussion Academic health institutions in West Africa, despite having major roles to play in defining and managing occupational health hazards, were noted not to be actively engaged. Training of competent professionals to run workplace wellness, occupational health and hygiene programs in high-risk workplaces in developing countries, research to have evidence based problem definitions and efficient alternative solution pathways with maximum health outcome are all some of the roles falling in the domain of academic health institutions. Legislation and occupational standards development cannot be achieved without credible research evidence support – this was noted to be a huge gap in the West-Africa sub-Region.

The way forward was identified as; key stakeholders working together using a systemic and systematic approach to progressively define and address workplace health problems to improve occupational health outcome.

I am currently and IFAD medical advisor and have been in this role for the past 7 months as consultant. Prior to assuming this position, I was a UN volunteer as a medical officer providing occupational health, primary health and emergency medical services to the UN staff deployed in North Korea. This I did for 18 months with no salary, but only basic allowance to support my basic living allowance. Before moving to North Korea, I served in a similar capacity for 10 years in Ghana, DR Congo and Lebanon with basic remuneration. I am optimistic that, this provided valuable services to contribute to the identified and shared gap (by ICOH and ILO) of far less than 10% of developing countries employees receiving occupational health services consistent with workplace risks

and hazards they face. It is out of this enormous amount of occupational health experience that I present this paper. Finally, my strive to attain the highest competence in occupational health made me register for MPH (Occupational and Environmental health) in Tulane University School of Public health and Tropical Medicine. New Orleans, USA. This is costing me over US\$ 50,000.00. With this financial commitment already made, I would gratefully appreciate the requested waiver support to attend this all important ICOH 2018 Congress. My sharing of my over 10 years of occupational health experience in 5 different countries and 4 continents in the would add a rich flavour to the program.

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FACTORS INFLUENCING CONSENT FOR AUTOPSIES FOR COMPENSATION PURPOSES AMONGST SOUTH AFRICAN MINERS

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Introduction Statutory, autopsy-based compensation for occupational lung diseases for South African miners began 100 years ago. Cardio-respiratory organs are removed locally where miners die, regardless of the clinical cause of death and with written consent from a near relative. The organs are examined at the National Institute for Occupational Health in Johannesburg. Previous studies in many countries have shown that the process of obtaining consent is a major determinant of autopsy uptake.

Mines provide organ removal services for mineworkers who die while employed. We determined uptake and explored experiences and perceptions of personnel involved in obtaining autopsy consent.

Methods A sequential mixed-methods study was conducted. The proportion of miners who died and had an autopsy was determined for three mines (2009 to 2012). Fourteen in-depth interviews were conducted among personnel involved in obtaining autopsy consent in the three mines. Thematic content analysis was applied.

Results Average autopsy uptake was 34% in the platinum mine, and 12% and 86% in the two gold mines. Procedures for obtaining consent were similar. The categories of personnel involved in the process included human resource officers, nurses, prosecutors and union officials.

Barriers to the offering of autopsies were the location of death (consent was less likely to be offered if deaths occurred far from the mines), lack of awareness and poor knowledge and interpretation of the law governing compensation, work load and distrust of the inefficient compensation system. Enablers included sensitivity in communication (empathy, confidentiality, language and culture) and involvement of union officials.

Discussion Autopsy uptake was variable across the mining population and was influenced by several individual, sociocultural and institutional factors. Training is required to ensure that personnel who request consent are knowledgeable about the processes and benefits of autopsy compensation, and that they use appropriate communication strategies when talking to families.

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OCCUPATIONAL HEALTH IN MINING: RISK AND ASSURANCE EXPERIENCES

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Introduction Mineral extractive and processing industries are faced with difficult challenges regarding the management and control of risks inherent to the typical activities undertaken, with numerous hazards posing potential and serious risks to the safety, health and wellbeing of workforces and communities alike.

Methods Safety and health must be critical inclusion criteria across all stages of the mining lifecycle, i.e. exploration, design and construction, operation, extraction and processing, engineering and maintenance, and beyond, into mine closure and rehabilitation. Additionally, safety and health must be considered in transportation networks and distribution facilities, and in the manufacturing, recycling and disposal of mining products.

Occupational Health is driven by two disciplines – Occupational Hygiene and Occupational Medicine. These two pillars work together and complement each other through a process of Health Risk Assessment (HRA) and management.

Result In the workplace environment, the occupational HRA is the pivotal multi-disciplinary component to risk assessment, and a key consideration in the decision-making process.

The occupational HRA is the systematic identification and analysis of workplace hazards with the aim of implementing and monitoring control measures, i.e. actions and interventions that aid in eliminating or reducing the levels of hazardous exposures. These control measures apply across the board, and follow a Hierarchy of Control approach, from equipment, techniques, and processes; to protocols, policies and guidelines; as well as the education of workforces and communities living in areas surrounding mining operations.

Discussion The success of mining projects and operations hinges, among other criteria, on a sound understanding of the potential health risks for the development of inherently safer designs and operating systems.

This paper discusses learnings with respect to the occupational HRA requirements for mining operations and projects, in order to identify and mitigate the risks in terms of occupational health. Considerations for risk assessment methods are presented, together with the importance of ongoing review and quality assurance, to improve the HRA process.

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MERCURY FREE GOLD MINING: ADVANCING THE GLOBAL MINAMATA RESOLUTION

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Aim of special session To discuss the toxicity of mercury versus borax, health affection of miners and legal aspects of mercury use in gold-mining.

Presenters: ¹Jesper Bælum, ²Stephan Bose-O'Reilly, ³Florencia Harari, ⁴Jane F Thomsen, ⁵Jinky L Lu, ⁶Sophia F Lu