Discussion Control Banding outcomes have been applied internationally, implemented by national institutes and university programs, and directly transferred into national regulations. RLBMS outcomes can assist in addressing the 2.5 billion workers worldwide without access to OSHH experts, providing a strategy for preventing work-related noncommunicable diseases in EDCs.

1531

HOW TO BE A BETTER FIREFIGHTER? A GUIDELINE TO IMPROVE YOUR PERFORMANCE, TAKING CARE OF YOUR PHYSICAL AND MENTAL HEALTH

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Introduction Globally, firefighting is a highly stressful, physical and mental demanding occupation. In a study carried out by the principal author, Guatemalan firefighters suffered from musculoskeletal disorders and distress, mainly because of physical unfitness, inadequate eating habits and violence exposure. A teaching intervention was planned with a component of training and the elaboration of a book, designed for Central American firefighters, with the aim of teaching firefighters how to take care of their physical and mental health. The book is already having direct impact on more than 5,000 Guatemalan firefighters.

Methods The book was planned as a teaching intervention firstly for Guatemalan firefighters and then scope was widened to Central American firefighters. It was conducted using participatory methodology with representatives of firefighters, who designed layout and wrote chapter 1. Collaboration was obtained from toxicology and nutrition experts of Universidad de San Carlos, including senior students, in writing chapters 2, 3 and 4. This University also collaborated in the printing of the first 500 copies. Collaboration was also obtained from Ludwig-Maximilians-Universität, in writing chapters 5, 6 and 7, as well as the final revision and layout.

Results The book was electronically issued in 2016 using Ludwig-Maximilians-Universität networks and hard copies were delivered to Guatemala's firefighters authorities in a formal ceremony on 2017. More than 3000 of copies are waiting to be printed at Universidad de San Carlos de Guatemala.

Conclusion This is a perfect example of a successful teaching intervention, with multicenter collaboration, including universities in Germany and in Guatemala, as well as the direct participation of the targeted population.

673

A MULTI-DISCIPLINARY, INTER-CONTINENTAL COLLABORATION TO BUILD CAPABILITY IN OCCUPATIONAL HEALTH AMONG HEALTH CARE PROFESSIONALS

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Introduction The interaction between community, environment and the workplace is crucial in the provision of basic health care services in low resource countries. United Nations' Sustainable Development Goals, strategies of its agencies WHO and ILO and professional bodies such as ICOH and IALI have highlighted the need for capability building and integration in delivering the necessary services to these communities. However, health care professionals, including medical doctors and nurses undergo limited training in occupational health during their professional undergraduate education.

Methods A series of workshops for health care professionals to develop knowledge and basic skills in workplace hazard identification, assessment and control were conducted in India and Malaysia. The multi-disciplinary program involving occupational medicine, hygiene, ergonomics and hazard communication was delivered by a group of occupational health professionals from five different continents. Their time and resources were provided voluntarily at no cost for the local organisers.

Result The workshops involved interactive group work facilitated by skilled specialists sharing their international experiences, together with demonstration of case studies by local experts. This approach enabled the diverse local health care workers, especially young females, to share the challenges faced in their work and develop valuable skills that can be applied to their work.

Discussion The success of these workshops has inspired the volunteers to explore the potential for developing a more sustainable 'academy' for capability building in basic occupational health. This model for a social enterprise in low resource countries through collaborating at international level will be presented and discussed.

91

ARE WE SHIFTING EXPOSURE TO CHEMICAL AGENTS TO WAREHOUSE WORKERS?

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European legislation related to exposure to chemical agents is becoming stricter. REACH and CLP have ensured that more agents are classified as dangerous and there are also more agents end up on authorisation and restricted lists. It is clear that the industry has to deal with this and exposure to chemicals is considered to be under control. The last few years the warehouse workers are worrying more and more about exposure to chemical agents. Deadly accidents with fumigated containers was the trigger but should we worry about that or should we be more aware about chronic exposure to a soup of chemicals? In several countries procedures for measuring sea freight containers are introduced. They are mainly based on non- or semi-selective methods and focus on 16 specific chemical agents and total VOC.

A study in different warehouses showed some remarkable results. Less than 1% of the total inbound flow was actual fumigated and this was even not deliberately. A shift in personal exposure was seen when having measuring campaigns in winter and in summer. In winter there is more background exposure and in summer the peak exposure when opening a container was higher. Investigation of the procedures that are introduced in several European countries is showing that the need for a proper risk assessment is needed before a safe unloading process can be made. The defined group of 16 chemical agents and the total VOC is far from what is needed to assess workers exposure.

92 SAFE CONTAINER UNLOADING PROCEDURES: AN OBLIGATION OR NOT IMPORTANT?

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Introduction Several studies have shown that there may be concerns about exposure to dangerous substances for workers unloading sea freight containers, although safe procedures for unloading containers are usually in place to protect workers from being exposed to chemical agents. Since preliminary research has shown that less than 1% of unloaded containers are deliberately fumigated with known chemicals, it was necessary to find the root cause.

Methods Many production sites for sea freight containers are located in Asia. The first task in this study was the identification of production factories and their locations. The second task was to identify the full production cycle of the goods that are manufactured and shipped via freight containers. The third task was to gather exposure data during the production cycle and identify off-gassing post production, when loading containers for travel to Europe.

Results All tasks took about six years to complete, and identified a way to predict container air concentration on the unloading site (downstream) based on information at the production site (upstream). This algorithm is based upon site concentration measurements, lab experiments of the raw materials and unloading concentration measurements. These parameters can be applied for the full production cycle and are independent of variations in terms of production site outputs.

Discussion Safe container unloading procedures are now based on an upstream limit value, meaning that if the concentration at a production site is higher than the established limit value, the goods cannot be shipped by container, or the container is required to be ventilated at the unloading site. This case study series is a good example of how occupational hygiene principles can be used in root cause analysis and problem solving, in terms of exposures to chemical agents.

1770 OCCUPATIONAL HEALTH: FROM ENFORCEMENT TO PREVENTION AND REHABILITATION

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Aim of special session To consider various aspects of occupational health enforcement, prevention and rehabilitation in a range of settings.

1770a REHABILITATION PARADIGM: RETURN TO WORK FROM DISABILITY

A Darus. Social Security Organization of Malaysia (SOCSO)

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Evidence based, both scientifically and practical experience have indicated that maintaining a disabled worker's attachment to a pre-disability employment prior to entering some form of social security assistance, has, contingent upon jurisdictional circumstances, delivered some impressive socio-economic outcomes.

SOCISO receives over 75,000 new claims a year with a majority of these cases coming from its employment injury scheme and the rest coming from its invalidity pension scheme; despite various prevention activities being implemented. With such findings, SOCISO reengineered its complete operations to ensure that every claim is managed to ensure that the workers or their family members are protected. Operational reengineering had also considered early intervention to reduce disability or impairment when an accident or diseases occur.

It has been slightly over 10 years since the establishment of the SOCISO Return to Work Program which has been the catalyst for the establishment rehabilitation and social reintegration activities for injured and disabled workers in the country. This has culminated in over 14 thousand cases who had went through the program and returned to gainful employment.

This session will provide an overview of the challenges that Malaysia faced in the effective re-integration of injured and disabled workers, the rationale for adopting international best practice professional standards in Return to Work and Disability Management, together with the implementation process adopted and will highlight practical considerations – both challenges and opportunities in the roll-out across our country.

1770b EMERGING TRENDS IN OCCUPATIONAL HYGIENE

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Although the challenges of the occupational hygienist are still the same as at the beginning of our profession, the role of Industrial Hygienists is changing. To understand the changes that are happening all around us we have to see the bigger picture. Key trends and changes in the world of work can be found in relation to economic, demographic, technological and environmental changes.

The effect of economic growth still influences decent employment and social protection (moving heavy industry to developing countries with less (strict) OSH regulations). The demographic changes influences the different areas of the world differently. Looking at our profession we see these changes influence our own future.

Towards technological and environmental changes, we see it will bring new jobs but it will also destruct jobs as a result of the automatization, robotization. The trend in our work as occupational hygienist has, shifted over years from reducing the number of exposed workers in heavy industries (welding, foundries) to the more psychosocial risks and optimisation of comfort/wellbeing (operator in control room, higher workloads, outsourcing and temporary contracts).

The developments in measurement-techniques (exposure to dust/vapours) have not changed enormously since the personal sampling pump has been developed. But the influence of computer technology and direct readable/ continuous sensing equipment (sensor, monitors, use of apps on mobile phones)