irrespective of industries. They are forced to work in cramped space assuming awkward posture that burden to cardio-respiratory system.

Methods This study was performed on worker (n=31) engaged in welding job in different construction industry throughout West Bengal. The task was examined in the light of the observed physiological parameters and postural load in workers during their performances. The physical strain in terms of cardio-acceleration and energy cost was examined by Heart Rate Monitor. Ergonomic assessment tool REBA (Rapid Entire Body Assessment) was used to assess the working posture and risk level of postural load. Different thermal factors like Dry bulb temperature(DB), Wet bulb temperature(WB), Globe temperature(GT), Relative humidity(RH), Air velocity (AV), Wet bulb globe temperature(WBGT) was evaluated.

Result Cardio-acceleration and energy cost was found to be moderately heavy. Risk level of postural load was found to be 4–9 category. DB (32.27°C-35.7°C), WB (23.92°C –26.5°C), GT (36.73°C-40.73°C), RH (43.27%–49.9%), AV (15.56 meter/minute-26.67 meter/minute), WBGT (27.23°C-30.2°C) was found.

Discussion It was observed that the workers were suffering from huge amount of postural load and also encountered with radiant heat from work environment which turns the work more strenuous for them. It is urgently necessary to consider some interventions which may limit the environmental stress and postural load to increase the productivity of welders.

354 DIAGNOSIS, PREVENTION AND COMPENSATION OF OCCUPATIONAL DISEASES IN THE RUSSIAN FEDERATION

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In the countries of EU simultaneously act several lists of occupational diseases (OD) (opened, closed, closed regulated). National list of OD in the Russian Federation (RF) is opened type. In common RF OD list is harmonised with ILO OD list (revised 2010) with some exceptions. For example, National OD list does not recognise work related diseases.

The dynamics of the number of cases of OD in the RF in 2011–2015 and OD level (per 100 thousand people) and their trends for 2016–2030 were studied compared to the level of OD in the EU countries-27. In 2011 the number of new cases of OD was 8923 (the population were 142.9 million people); in 2015r. the number of detected cases of occupational diseases was 7410 (the population were 146.3 million people). The level of OD was decreased from 6.24 (2011) up to 5.06 (2015) per 100 thousand people. The analysis of OD level shows that the number of detected cases of OD for the first time in the RF was significant (7–8 times) lower than in UN countries-27–40.07 per 100 thousand population (2014).

Structure of OD in RF shows than maximal part of OD are diseases caused by physical agents (48.85%), hearing impairment caused by noise and disease caused by vibration including. The another main ODs were: ODs caused by chemical agents as well as occupational respiratory and occupational skin diseases. There are absent post-traumatic stress disorders and dramatic low level of occupational cancer. Over 2002–2014, total of 498 cases of occupational cancer was registered, that is less than 0,3% of minimal expected number of cases.

This is connected with peculiarities of OD registration system and underestimation real level of OD. All this justifies the need of occupational diseases diagnosis, prevention and compensation system improving in the RF.

444 SYSTEMATIC OCCUPATIONAL HEALTH ENHANCEMENT LEVEL PROGRAMME – TOWARDS ACHIEVING OSH MASTER PLAN 2020 BY ENHANCING INDUSTRIAL HYGIENE IN MALAYSIA

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Introduction Systematic Occupational Enhancement Level Programme (SoHELP) is a systematic intervention programme which focus to help industries in Malaysia to enhance industrial hygiene and occupational health standard in the workplaces and to meet the regulatory requirements on industrial hygiene related regulations. The development of this programme are based on the increasing trend on reported occupational diseases in Malaysia and relatively low compliance to industrial hygiene related regulations which industrial hygiene related regulations seems as difficult and costly to comply compare to industrial safety regulations. The basis of the programme are focusing on three (3) main occupational hazards which are mainly due to exposure to excessive noise, chemical and ergonomic risk factor at the workplace.

Methods The participation of the industries into this programme are voluntarily and they should have safety and health officer as person in charge to coordinate the programme at their workplace. The department has developed the module based on this three (3) main occupational hazard which the industries need to comply and implemented at their workplace with given time of 14 months from 1 st April 2016 until 31 st May 2017.

Results The programme have been successfully being implemented to 214 workplaces which involved 261 Occupational Safety and Health (OSH) Practitioner and 1 39 855 workers in Malaysia. The overall achievement and compliance based on implementation of the programme are 3.9/5.0 (78%).

Conclusion This programme has been included in the Occupational Safety and Health Master Plan 2016–2020 (OSH-MP 2020) for Malaysia and been part of national platform for strategic and synergistic cooperation between government, employers, OSH practitioners, and employees to enhance industrial hygiene and health standard in the workplaces and as part of preventive tools to reduce the numbers of occupational diseases at the workplace.

481 CANTEEN HYGIENE INDEX IN INDIANOIL

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Introduction Organisations provides and maintains canteens at their offices and installations. Employees eat food in these canteens while they are in office. For maintaining good health, it is essential to have a well-balanced nutritious diet from these canteens.

Materials and methods Health and Hygiene audit of 115 canteens of IndianOil establishments was carried out to assess the health and hygiene of canteens/kitchens in our organisation. Based on the audit observations and recommendations, a common checklist for good kitchen practices and Kitchen Audit Checklist for calculating hygiene index was firmed up and circulated across the Corporation. It was advised that the Hygiene Index of all Canteens/Kitchens of IOCL establishments must be maintained as per the checklist provided and must be reviewed and updated quarterly by the Canteen Committee of respective location. The Hygiene Index must be prominently displayed at all locations as per sample provided. It was also advised that the checklist points for good kitchen practices must be implemented at all locations for improving the overall cleanliness and hygiene of our canteens and kitchens. Quarterly Review Report with updated Hygiene Index need to be sent to Corporate HSE for review. The action plan for liquidation of the recommendation is be prepared by respective location.

Result This Project made employees calorie conscious and benefitted all of them who consume from the produce of these facility and helped the supervisors to maintain high standards of hygiene at their respective workplaces.

Discussion It is important to check the kitchen practices like cooking, food handling from hygiene and nutrition point of view. Hence in the interest of the employee's health there should be a periodic nutritional audit, hygiene audit of these canteen and kitchens along with the training for cooks/service boys at the kitchen and pantry.

508 VARIABILITY IN OCCUPATIONAL NOISE EXPOSURE LEVELS IN METAL INDUSTRIES IN TANZANIA

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Introduction Machines and processes in the metal industry produce noise levels that are harmful to the human ear if not properly controlled. Empirical studies are lacking to document noise exposure which is one of the stepping stones towards development and enforcement of policies, and standards on noise control in developing countries, including Tanzania where this is lacking.

Methods The study was conducted from June 2016 to June 2017. Full-shift noise measurements (LAeq) were taken by personal dosimeters (Brüel and Kjaer type 4448) in four metal factories in Tanzania (Factory A; 47 measurements, B; 47, C; 34 and D; 40). Workers were randomly selected from payroll and shift list and assigned into job groups; Melters, moulders, firemen, tongsmen, roughing, cutters and pushers.

Results Personal noise exposure varied both within and between factories. The average noise exposure was 91.6 dB(A) in factory A, 96.7 dB(A) in factory B, 93.7 dB(A) in factory C and 89.9 dB (A) in factory D. The moulders had the lowest noise exposure (87.3 dB(A)), followed by melters (89.9 dB(A)), pushers (91.6 dB (A)), tongsmen (93.7 dB(A)), roughing (94.2 dB(A)), firemen (94.5 dB(A)) and cutters/bundlers (98.1 dB(A)).

Discussion To our knowledge this is the first study in East Africa to document personal noise exposure levels in metal industries. The noise exposure exceeded the occupational exposure limit used by OSHA, Tanzania. This study is expected to serve as an important input towards the development of the country's own regulations regarding noise exposure at the workplace.

529 A COMPARATIVE CASE STUDY TO UNDERSTAND THE ENABLING FACTORS AND BARRIERS TO IMPLEMENTING HEALTHWISE IN SELECTED HOSPITALS IN SOUTHERN AFRICA

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Introduction HealthWISE is a participatory, quality improvement tool, jointly developed by the International Labour Organisation and the World Health Organisation, to improve the occupational health and safety (OHS) of health workers. Its implementation in practice has been inadequately studied. We therefore conducted a three-country comparative case study in selected hospitals in Mozambique, South Africa and Zimbabwe to better understand the enabling factors and barriers to its implementation.

Methods Pilot implementation of three HealthWISE modules was observed, including planning meetings, Training-of-Trainers (ToT) workshops, action plan development, and check-in visits. Field notes, videotapes of the ToT workshops, monthly reports, and questionnaires supported the analysis. The Promoting Action on Research Implementation in Health Services (PARiHS) framework, which describes successful implementation as a function of evidence, context and facilitation, structured the examination of enabling factors and barriers.

Result Hospitals and participants were selected by local co-investigators and partners. Implementation began with three-day ToT workshops, where 78 participants were trained across the three countries. Action plans detailed activities related to building capacity and raising awareness about OHS. Check-in visits highlighted some misunderstandings related to the roles of the research team and participants in implementation activities.

While evidence to support OHS improvements is strong, implementation was constrained by context-related factors such as the steps in obtaining approvals for the research and determining funding flows. The ILO-NIOH-UBC partnership was key in moving activities forward.

Discussion Key steps prior to implementation included strengthening partnerships with stakeholders, and engaging with team members and participants to better understand OHS issues and priorities. Key steps in implementation included training to build local capacity and to empower participants with knowledge and skills to recognise and creatively address workplace issues, and supporting the development of individual hospital action plans that reflected workplace priorities while recognising resource constraints. Administrative hurdles took time to address.