

annually regardless of their ages, and the costs are paid by the Bureau of Labour Insurance (BLI). After each periodical examination on a worker engaged in a hazardous job, physicians need to assign the results to one of the four levels of management (Level 1, 2, 3 and 4). For workers with a management level of 2 or above, physicians need to make notes of the jobs that should be avoided and precautions that should be taken. Furthermore, for workers with a management level of 3 or above, physicians need to make diagnoses on the basis of the test results. All the health examinations are performed by health-care institutes accredited by BLI, and health-care institutes are required to report cases with a management level of 3 or above to both to the inspection authority. Therefore, the health examination system also serves as a part of the reporting system of occupational diseases and injuries in Taiwan.

1702d EFFECTIVENESS OF PERIODICAL MEDICAL EXAMINATION TO PREVENT WORK-RELATED ILL-HEALTH

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Introduction Periodic health examinations (PHE) have been a fundamental part of occupational health and safety (OHS) practice for decades. Nonetheless, PHE have not received a great deal of attention in health economics and ethics literature, which poses many interesting challenges from an efficiency and an equity perspective.

Methods We performed electronic searches in databases as EMBASE, PUBMED and Cochrane Library from September 2007. Search terms included MeSH, Emtree and free text terms related to economic evaluation, occupational health intervention and productivity. We independently included all studies based on three criteria:

1. the analysis was a full or partial economic evaluation (cost analyses);
2. included OHS interventions targeted at an employed population; and
3. were written in English, French, or Dutch.

Results The best available evidence assessing benefits of OSH interventions consisted of 156 economic evaluations. A broad range of intervention types was studied in the literature, most frequently health promotion (27%), or multiple intervention types within one study (31%). However, none of these studies specifically focussed on PHE. Studies mainly came from Europe (39%) and North-America (51%), and originated in diverse sectors and industries, most frequently health care (15%).

Conclusions Determining the value of OHS proved a theoretically complex endeavour and there are hardly data available on the value of PHE. While the majority of OHS interventions had positive conclusions, most studies were conducted in similar settings and showed substantial methodological deficiencies. Consequently, we need to be cautious to transfer results across settings or countries. Nonetheless, we rendered valuable insight into the potential cost-effectiveness of PHE

and key-elements to design a high-quality study. We have now set up a study in Belgium comparing short-, medium- and long-term outcomes in employees undergoing PHE, with a group without an intervention.

322 PREVALENCE OF OCCUPATIONAL EXPOSURE TO RESPIRABLE CRYSTALLINE SILICA IN THE METAL WORKING INDUSTRIES: TRANSFERRING RESEARCH INTO INDUSTRIAL PRACTICE

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Introduction The exposure to respirable crystalline silica (RCS) in some industrial processes within the metal working industry is a recognised occupational hazard, mainly due to the classification of RCS as a group 1 carcinogen to the respiratory system, and the severity of the exposure consequences.

Methods This study was conducted based on the determination of the concentration of airborne RCS particles and the evaluation of its risk level among metal workers placed in 15 industrial SME's and 130 workplaces. The study was conducted in two industrial processes:

- i. foundry;
- ii. other processes with the exposure risk.

Occupational personal exposure to RCS was measured in all workers exposed using the NIOSH method 7500.

Result The range of RCS concentrations are:

- i. global sample is 1,159 mg/m³ – (0,006 mg/m³);
- ii. foundry 0,093 mg/m³;
- iii. other processes 0,018 mg/m³.

For the 130 workplaces monitored, 82 were higher than the permitted limit recommended by the Standard NP 1796: 2014. The processes with higher risk of exposure are those within 'pure foundry' such as metal melting, casting, sand moulding, pouring and repairing furnace.

Discussion The average concentrations of RCS for the assessed workplaces were higher than the exposure limits by NP 1796:2014. An intervention plan for each SME was designed encompassing measures at different levels aiming the promotion of health and wellbeing in the workplaces. Due to the severity of the exposures consequences urgent actions must be taken in the workplaces. The inclusion of measures that go beyond the definition of 'simple' personal protective equipment (PPE) are needed to raise the level of prevention. Such interventions are well seen by SME but conditioned by operational and budgeting issues. The information on this study, about occupational processes and individual tasks and the corresponding levels of RCS exposure can guide future needs for intervention in critical areas.

113 AN INTERVENTIONAL STUDY TO ASSESS THE INCIDENCE OF VITAMIN B12/D3 DEFICIENCY AMONG CORPORATE EMPLOYEES

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Introduction In spite of living in tropical climates, vitamin D3 deficiency is evident in urban.

Indian population as a corporate lifestyle disorder; Office executives especially, are not exposed to sunlight due to changing lifestyles and long working hours. Incidence of vitamin B12 deficiency is observed to be high, due to predominantly vegetarian diets and insufficient consumption of dairy products, etc.

Methods This study was conducted at Occupational Health Centre, Hazira from September 2016 to January 2017. In the first phase, 300 executives were surveyed and subjected to analysis of blood levels of vitamin D3 and Vitamin B12. History of exposure to sunlight, exercise, dietary habits, medication etc. was obtained through a Screening Questionnaire before blood collection. In second phase, treatment was advised for three months including counselling for dietary modifications, increased sun exposure, etc. At the end of three months, repeat testing of Vitamins was done to assess the effectiveness.

Results 17.67% had vitamin B12 deficiency, 17.33% had vitamin D3 deficiency. Deficient vitamin B12 values were found in 53 subjects of which 61.5% were vegetarians, 39.5% non-vegetarians and 30.18% were having alcohol consumption. Deficient vitamin D3 values were found in 52 subjects of which 92% do not spend at least 10 min a day in sun without sunscreen. In second phase 51.62% had normal Vitamin D3 levels as compared to 8.33% in first phase and 92.95% had vitamin B12 levels normal in second phase as compared to 77.1% in first phase.

Conclusion Effectiveness of oral supplementation of B12/D3 is demonstrated by the results of the second phase of the survey. Increase in sun exposure, dietary modification and other lifestyle modifications were also effective. Office executives need to exercise outdoors and thus increase their exposure to sunlight to facilitate vitamin D absorption. Vitamin B12/D3 tests to be made a part of annual medical check up.

138

MUSCULOSKELETAL DISORDER AMONG THE GARMENT WORKERS: A MAJOR WORK RELATED HEALTH PROBLEM IN A LEADING GARMENT INDUSTRY OF BANGLADESH

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Background and objectives Work related musculoskeletal disorders (MSD) accounts for a significant share of post-workday injuries and illnesses and hence constitute a major proportion temporary or permanent disability among garment industry workers in many countries. Bangladesh is now one of the world's leading clothing exporters, and the garment industry employs more than 3.6 million workers in its 4500 factories. However, musculoskeletal disorders become a major health problem for seeking health care and an important cause for absenteeism which is a major concern among owners of the factories and policy makers.

The aim of this study was to estimate the magnitude of musculoskeletal disorders among workers in a large garment industry in Bangladesh.

Methodologies Review of 34 264 records of patients attended the outpatient department of the health care centre of the selected garment industry during April 2015 to April 2016 has been done to identify and compute the musculoskeletal

disorders in order to calculate the proportion of MSD. A checklist was used to collect data from the outpatient registers.

Results More than 4500 workers are enrolled in the different sections of the selected garment industry. Out of the total 34 264 outpatient attendants, 8039 (23%) sought care for musculoskeletal disorders. On an average 25 MSD patients sought medical help for the management of their health problem. The incidence of MSD in the garment factory is 164.9 per 100 worker years. Of the total patients, 49 cases were referred to the higher level of hospital.

Conclusions Work related MSD is a major health problem among garments workers in Bangladesh, which might cause a significant absenteeism in the work. It is important to identify appropriate intervention including improvement of working environment to prevent MSD among garment workers to sustain the pace of development in this sector.

1386

PRESENTING INJURIES (FARM AND OTHER) AT A REGIONAL HOSPITAL IN VICTORIA, AUSTRALIA – LINKING PREVENTION, PROMOTION AND PLACE

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Introduction Over the last decade agriculture, forestry and fishing workers had the highest rate of workplace fatalities compared to other occupations in Australia. This is coupled with long distance to both health services and for ambulance assistance. To date, little work has been done on injury prevention at a regional place based level. This study examined the types and causes of farm injuries compared with other injuries presenting to a regional hospital based in an agricultural community in Western Victoria, Australia, with the aim of improving both prevention and care post injury.

Methods A retrospective study of database records was conducted on 41 429 patients attending the Accident and Emergency (A and E) Department of a regional hospital in Victoria during 2010–2015. Data were analysed using SPSS and EXCEL.

Results Most (91%) of the injuries were related to non-intentional harm accidents. The most common place of injury was the home (49%) and one in twelve (8%, n=3314) patients identified the place of injury as on-farm. The majority (83%) arrived by private car. The most common cause of on-farm injuries were: animals (24%), fall from a farm vehicle (11%), and materials (11%) such as nails, needlesticks, timber. Patients who were injured on-farm were more likely to be male compared to injuries from other places (75% vs 58%, p<0.001, RR 1.30, 95% CI: 1.26 to 1.35). Non-intentional harm was more commonly identified among people injured on-farm (99%) compared to other places (91%) (p<0.001, RR 1.08, 95% CI: 1.07 to 1.09). Patients injured on-farm were more likely to be categorised with higher triage (resuscitation, emergency and urgent) compared to injury at other places (33% vs 27%, p<0.001, RR 1.35, 95% CI: 1.20 to 1.53).

Conclusion This presentation will highlight the most common injuries occurring in a regional community and make recommendations on place-based health promotion/prevention strategies to address both farm and community injuries.