for similar populations varies widely in the literature, but our number of 333 although high, is within the range reported.² These results raise questions over the cost-effectiveness and proportionality of the current screening process as a method of preventing TB among HCWs and protecting patients from forward transmission.

1420 A STUDY ON PREVALENCE OF METABOLIC SYNDROME AND IMPACT OF WORK-PLACE EMPLOYEE WELLNESS PROMOTION PROGRAMS IN INDIAN CEMENT MANUFACTURING UNITS

Vidya Kiran Bhat*. *Ultratech Cement Limited, Chittorgarh, India*

10.1136/oemed-2018-ICOHabstracts.474

The metabolic syndrome (MetS) is a major and escalating public health and clinical challenge worldwide in the wake of urbanisation, surplus energy intake, increasing obesity, and sedentary life habits. It is a complex disorder comprising a group of interconnected cardio-metabolic risk factors, which includes abdominal obesity, insulin resistance, hypertension and high blood sugar that increase the risk of developing cardiovascular disease and type 2 diabetes mellitus, amongst other chronic metabolic abnormalities and leading to premature death. It is estimated that around 20–25 per cent of the world's adult population have the MetS, has an independent risk factor for cardiovascular disease and considered it an indication for intensive lifestyle modification. Balancing between energy expenditure and nutrition requirement is a delicate process that can be easily disrupted by environmental and genetic factors leading to the development of MetS.

In India, despite having 39% of the population as workforce, there is no data to understand the burden of accessible lifestyle disorders nor evidence towards efficacy of workplace health interventions. Given this, the present study was undertaken with an objective to identify and document the burden and ongoing healthy workplace interventions for control of MetS and Health Promotion in leading cement manufacturing units of Ultratech Cement limited, (An Aditya Birla Group) in India.

Periodical medical examination used to study prevalence for MetS. A total of 2176 workers of 18 to 58 years of age were included in this Pilot study. Questionnaire survey conducted to assess determinants of MetS. People with MetS are compared with healthy employees to understand the Impact of MetS on their work-life by analysing data of employees' Absenteeism, Medical insurance claim for self, Near misses, First-aid injuries. Data compared with general prevalence of MetS in India and globally. Work-place employee wellness programs of organisation reanalyzed to check its impact on health.

1126 A NEW PRACTICAL PROCEDURE FOR ASSESSING CARDIORESPIRATORY FITNESS IN WORKPLACE HEALTH CHECK-UPS

^{1,2}Tomoaki Matsuo*, ²Rina So. ¹Occupational Epidemiology Research Group, National Institute of Occupational Safety and Health, Japan; ²Research Centre for Overwork-Related Disorders, National Institute of Occupational Safety and Health, Japan

10.1136/oemed-2018-ICOHabstracts.475

Introduction Japan faces a serious national issue of declining worker numbers due to low birth-rate and longevity. There is an increased need to maintain workers' health and extend the working years prior to workforce retirement. Hence, research in workers' physical fitness will play a significant role in occupational health issues. Cardiorespiratory fitness (CRF) assessed by maximal oxygen consumption (VO_{2max}) plays an important role in workers' health. However, measuring VO_{2max} can be burdensome for subjects and requires skilled examiners. This is a practical disadvantage for including VO_{2max} in workplace health check-ups. In this study, we developed a new CRF measurement procedure in lieu of measuring VO_{2max} .

Methods Our study participants included 101 Japanese workers (55 men and 46 women, aged 30 to 59 years). We measured subjects' VO_{2max} by the Bruce protocol using treadmill exercise and an indirect calorimeter. Subjects also completed two newly devised assessments: (1) a step-test consisting of a 3 min stepping exercise followed by a 2 min rest and (2) a questionnaire measuring workers' physical activity level during working time and during non-working time on workdays and non-workdays. We conducted multiple regression analyses with VO_{2max} as a dependent variable and parameters obtained from the procedure as independent variables.

Results We chose the combined heart rates during the step-test's exercise and recovery periods and the questionnaire's total score as significant ($p < 0.05$) independent variables. In a multiple regression model, age (years), sex (1, 0), heart rates during the step-test (beats) and total score on the questionnaire (points) accounted for 58.6% of the VO_{2max} variance.

Conclusion The procedure we developed can be performed without a heavy exercise burden on the subject or special skills of the examiner. This study suggests that the procedure can potentially be used to assess CRF in the worker's health check-ups where VO_{2max} measurements are not available.

1751 INFLUENZA VACCINATION UPTAKE IN HEALTHCARE WORKERS IN IRELAND: EFFECTIVENESS OF A BRIEF EDUCATIONAL INTERVENTION IN PROMOTING POSITIVE ATTITUDINAL CHANGE

¹Grainne McNally, ¹Conor McDonnell, ^{1,2}Laura Tobin. ¹University Hospital Limerick, Co Limerick, Ireland; ²Healthy Ireland Project, Co Limerick, Ireland

10.1136/oemed-2018-ICOHabstracts.476

Introduction Annual Influenza vaccination rates among Healthcare Workers (HCW) in Ireland are almost universally low despite national and international recommendations. Improving HCW Influenza vaccination rates remains an annual challenge for Occupational Health Departments. Previously studied intervention strategies that increased vaccine uptake internationally include: provision of free vaccine, easy access to the vaccine, knowledge and behaviour modification through educational activities and/or reminders and/or incentives. The aim of this study was to determine if attitudes towards the Influenza vaccination in HCW in Ireland remained a barrier to uptake of vaccination and if a brief educational intervention could cause an attitudinal shift towards receiving the vaccination. It also questioned the attitudes of HCW towards mandatory Influenza vaccination.

Methods A brief interventional video was commissioned locally prior to the start of the national influenza campaign 2017/18. It contained local healthcare staff discussing evidence based

facts regarding the influenza vaccination and rationale for HCW uptake. HCW who attended the intervention were offered a questionnaire at the educational session assessing their attitude towards the vaccination.

Result 157 HCW attended and 143 completed the questionnaire. In 2016/17 Influenza season 43.4% (n=62) indicated they received the influenza vaccination. Following the intervention, the intention to receive the vaccination in 2017/18 increased to 76.2% (n=109). A further 15.3% (n=22) indicated vaccination consideration. 50.3% (n=72) stated the brief intervention had influenced their decision. Prior to the educational intervention 39.2% (n=56) agreed with mandatory Influenza vaccination for HCW. This increased to 49.7% (n=71) post intervention.

Discussion The brief educational intervention increased the numbers of HCW indicating they would get or would consider getting the annual Influenza vaccination. The intervention was noted as an influencing factor and could be a useful tool in increasing the vaccination rate amongst HCW in Ireland particularly if engagement with it was a mandatory requirement.

1425 HEALTH LITERACY IN JAPANESE WORKPLACE: ASSOCIATION WITH LIFESTYLE AND NCD'S

¹Fumiko Kitajima*, ¹Hiroshi Fukuda, ²Yuka Sakamoto, ²Kayo Suwa, ²Akiko Fujiwara, ²Rie Morita. ¹Department of General Medicine, School of Medicine, Juntendo University, Tokyo, Japan; ²Nikken Sekkei LTD, Tokyo, Japan

10.1136/oemed-2018-ICOHabstracts.477

Introduction Health literacy (HL), which is defined as 'the ability to access, understand, and use information for health' (Nutbeam, 1998), has gained attention as a strategy to reduce health disparities, but not enough research has been conducted in Japanese workplace. This report shows to examine how HL among company employees are associated with lifestyle and NCD's.

Methods A cross-sectional study was conducted by giving self-administered surveys to 2245 employees working at an architectural consultant company in 2014. Five questions from an communicative and critical HL scale for workers (Ishikawa, *et al.*, 2008) were used, and simultaneously we asked Morimoto's lifestyle index including dietary, exercise, sleep, smoking and drinking habits, mental status of stress, and productivity. We also investigated the association between prevalence of obesity, hypertension, diabetes, dyslipidemia and HL from health screening data.

Results On the CCHL scales, scores for 'gathering information' were highest, with 60% of employees answering at least 'agree.' This was higher than 'selecting information', 'judging information', 'sharing information', and 'personal decision-making'. We found positive relation between HL and several lifestyles, such as concerning about diet balance, eating speed, late dinner, physical activity, quality of sleep. Self-awareness of stress was significantly low and the productivity was high in the high HL group. Prevalence of obesity, hypertension, dyslipidemia, diabetes are 21%, 12%, 35%, 8%, respectively. Prevalence of hypertension and diabetes are significantly low in the high HL group.

Conclusion Similar to previous study, we found the positive relation between employees HL and lifestyle or NCD's. This may be related to the high educational background of employees and the 15 years history of workplace health promotion

activities carried out in this company. We will need to further analyse multi-facility and longitudinal analysis and conduct workplace health promotion activities according to employee's health literacy level.

1434 REBUILDING A CONCEPT FOR THE PERIODICAL HEALTH EXAMINATION IN JAPAN

Yasushi Okubo*, Reiko Kuroda, Kenya Yamamoto. Division for Environment, Health and Safety, The University of Tokyo, Japan

10.1136/oemed-2018-ICOHabstracts.478

Introduction The aims of the periodical health examination have been changed in accordance with social conditions and necessities in the ages. In past, the main aim was the prevention the occupational disease and work-related disease. In recent years, they are the prevention the metabolic syndrome and cardiac or cerebrovascular diseases. However, it is unclear the next step. Therefore, we investigated a concept of the periodical health examination for workers.

Methods We conducted reviews on the usability of the items of the periodical health examination and focus group discussions with the professional occupational health physicians. The first procedure was reviews of the items of the periodical health examination. The second procedure was the focus group discussion on the usability of the periodical health examination. Then we classified the issues into 5 groups. Each group made a concept of the health examination by focus group discussion.

Results Most of the items of the health examination were not effective to predict the onset the disease by the results of the literature reviews. However most of the occupational health physicians utilised each item in the health management activities. As the results of the focus group discussions, it was pointed out that the development the productivities and reduction the accidents at work should be adopted in the aims in the future, the fitness at work and the improvement the workers' health literacy should be used as the outcome, the prevention the cancers should be conducted as not the screening but the risk assessment.

Conclusion The health examination until now is the screening of the target diseases, but it should be developed into the evaluation the risk of the disease and working conditions, and the aims should be not only the workers' health but the development the productivities and the workers' health literacy.

983 THERMAL STRESS AND CONSTRAIN IN A TUNISIAN STEEL INDUSTRY

^{1,2}Amira Omrane*, ^{1,2}Lamia Bouzgarrou, ¹Selma Kammoun, ^{1,2}Awatef Kreim, ¹Mohamed Adene Henchi, ^{1,2}Taoufik Khalfallah. ¹Research Unit, University of Monastir, Tunisia; ²Occupational Medicine Department, University Hospital, Taher Sfar, Mahdia, Tunisia

10.1136/oemed-2018-ICOHabstracts.479

Introduction The hardship at work in the steel industry is linked to the important thermal constraints related to production processes. This study aims to identify the heat strain at work in the steel industry in Tunisia through the assessed metabolism by cardiovascular heart rate recording and to evaluate the thermal stress based on the various of measurable parameters.