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SAFETY PERFORMANCE EVALUATION AND ACCIDENT PREVENTION USING PROACTIVE INDICATORS: A CASE STUDY OF AN INDUSTRY

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Introduction Quality and effectiveness of safety systems are critical factors in achieving their goals. This study was aimed to represent a method to performance evaluation of Safety systems by proactive indicators using different updated models in the field of safety which will be tested in a selected industry in order to prevent accidents and injuries from occurring in the future.

Methods This study is a cross-sectional study. Proactive indicators used in this study were: Unsafe acts rate, Safety Climate, Accident Proneness and Near-miss incidents rate.

Results The number of in 1473 safety climate questionnaires and 543 Accident Proneness questionnaires were completed. The minimum and maximum safety climate score were 56.88 and 58.2, respectively and the minimum and maximum scores of Accident Proneness were 98.2 and 140.7 respectively. The maximum number of Near-miss incidents rate were 408 and the minimum of that was 196. The maximum number of unsafe acts rate was 43.8 percent and the minimum of that was 27.2 percent. In nine dimensions of Safety climate the eighth (personal perception of risk) with 4.07 has the lowest score and the fourth (laws and safety regulations) with 8.05 has the highest score. According to experts opinions the most important indicator in the assessment of safety performance was 'unsafe acts rate' and 'Near-miss incidents rate' was the less importance. The study finds significant correlation between unsafe acts rate and number of lost work day's accidents.

Discussion The results of this survey reveal that using proactive (Prospective) indicators could be an appropriate method in organisations safety performance evaluation and sequentially preventing accidents from occurring.

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EPIDEMIOLOGICAL SURVEILLANCE OF WORK-RELATED INJURIES IN NORWAY: PERSISTENT CHALLENGES AND MISSED OPPORTUNITIES?

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Objectives Data on work-related injury is critical in devising preventive strategies. In Norway, there are different systems that yield epidemiological data on work-related injuries, both fatal and non-fatal. This is a comprehensive profile of surveillance of work-related injuries in Norway. Moreover, we attempt to highlight the challenges and missed opportunities with regards to improving surveillance, and thereby prevention of work-related injuries.

Methods We collated information from several Norwegian studies that evaluated the different systems that yield epidemiological data on work-related injuries. These studies identified several challenges with regards to injury data collected by different institutions like the Labour Inspection, Public Health Institute, Registry of Private Insurance Companies and Hospital Based Registry. Several public documents that concern

national strategies for improving work-related injury surveillance in Norway were also examined.

Results None of the injury surveillance systems provided an accurate representation of work-related injuries. However, it is fair to submit that surveillance of work-related fatal injuries has improved in the last few years. Unfortunately, the same cannot be said about non-fatal traumatic injuries, and unintentional injuries attributed to work. Our findings indicate several challenges with regards to the surveillance infrastructure. These challenges could be attributed to among others, under-reporting, unclear reporting criteria, lack of coordination between the national agencies, tenuous quality assurance and inapt use of available technologies.

Conclusions It must be said that significant gains have been made in the past few years with regards to fatal injury surveillance, although improvement on evaluation of completeness of captured data and quality assurance is much desired. However, the surveillance of non-fatal injuries remains an enduring challenge.

There are both sound policy-level, and novel technological opportunities available for improving the current situation. But, these opportunities have been missed thus far. Consequently, challenges to surveillance of work-related injuries remain pervasive limiting our preventive efforts.

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UTILITY OF STABILOMETRIC FOOTBOARD IN PREVENTION OF WORK ACCIDENT FROM FALL. AN ITALIAN STUDY IN A POPULATION OF AT-HEIGHT WORKERS

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Introduction Precipitations at workplaces still are a frequent cause of severe or mortal work accidents in Italy. Evaluation of at-height work suitability is by now carried out using many different medical clinical protocols usually based on clinical otorhinolaryngoiatric visit. This visit is frequently carried out with clinical tests the evaluation of which is merely subjective and therefore not always comparable.

Methods To verify the possibility of increasing accuracy of evaluation of at-height workers and to better point out workers hyper susceptible to fall, we experimentally insert in our usual clinical otorhinolaryngoiatric protocol an instrumental balance evaluation carried out using a stabiometric computerised footboard (ARGO Balance Static Force Platform RGMB) collecting contemporaneously 27 items.

The clinical specialised otovestibular examination was composed by a specialised anamnesis, an otorhinolaryngoiatric medical examination, evaluation of tonic segmentary deviations, Romberg Test, research of spontaneous nystagmus, Barany test, Weits test.

We compared the results of clinical and instrumental examination in 2.082 male workers aged from 18 to 65 years engaged in at-height work.

Results 1.775 of patients included in the research have been defined as suitable for at-height work after the otorhinolaryngoiatric clinical evaluation carried out in an Occupational Health Medical Surveillance. Among them 93 had pathological results at footboard. This fact originates after six months in these workers a second clinical and instrumental examination which in 12 cases has motivated a change in workers' specific

work suitability. We report the different clinical and instrumental pathological patterns evidenced among the workers.

Discussion Stabylometric footboard seems to be a valid instrument to increase possibility of detection of at-height workers hyper susceptible to fall. Instrumental evaluation must be associate with medical clinical specialised examination. Our results have to be confirmed in larger studies having the aim of better define objective parameters of a normal balance in general population.

62 THE DEVELOPMENT AND TRIAL OF SYSTEMATIC VISUAL SEARCH; A NOVEL METHOD TO IMPROVE THE OBSERVATION OF WORKPLACE HAZARDS DURING INSPECTIONS

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Introduction Visual inspection, as core element in hazard identification, represents a widely used risk assessment method for workplace safety. However, poorly conducted visual inspections are problematical as observable hazards that should be seen, are often missed. Fourteen fatalities from the Rosepark Nursing Home fire in Scotland in 2011, tragically exemplifies this problem. The coroner in this case, reporting under judicial conditions concluded that; if the health and safety consultant who conducted a recent workplace inspection, had correctly observed inappropriately stored flammable materials, the deaths would have been avoided.

Methods To improve the practice of visual inspection, a systematic visual search method was developed and tested under randomised controlled trial conditions. Participants (n=211), previously trained in occupational health and food safety, were tasked with visually inspecting an industrial standard kitchen during a thirty minute period. The experimental group (n=107) received training in the use of systematic visual search while a control group (n=104) conducted their visual inspection as per normal. The kitchens were specially prepared for the experiment and contained a known number of observable hazards, representative of what environmental health and safety professionals, routinely encounter in reality.

Result Control group participants were only able to identify a circa mean 33% of observable hazards in the kitchens. In contrast experimental group participants, using the novel systematic visual search method, observed, a circa mean 50% of observable hazards present. This 17% difference was highly significant, with a large effect size (p≤0.001, Cohen's d=1.85), and demonstrates the higher performance of systematic visual search compared to current visual inspection practice.

Discussion These base rates reported, remain below what should be expected from environmental health and safety professionals. Visual inspection therefore needs further academic attention in order to improve workplace visual inspection practice and thereby improve the standard of risk assessment.

675 PICTURE BOOKS FOR SAFETY – COMMUNICATING OSH KNOWLEDGE WITHOUT WORDS

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Introduction Forestry and agriculture and are industries with a relatively high number of serious and lethal accidents in Sweden. They also employ a significant amount of foreign seasonal workers, as it is hard to find enough labour force within Sweden. The latter applies also to horticulture, landscaping and outdoor environmental care, and work in golf courses.

During 2015 and 2016, many refugees arrived in Sweden. This arrival of potential workers is seen by the above-mentioned industries, and by the Swedish state, as an opportunity to employ more people in these industries. But to work safely, these people need basic information on occupational health and safety, although they have not learnt Swedish yet.

To meet this need, Prevent together with the social partners, has created picture books on OSH aimed at workers in forestry, agriculture, horticulture, landscaping and outdoor environmental care and golf course keeping.

Methods The books use no text but depict key information and risky situations in the workplace, and show how risks can be mitigated through following existing guidelines and regulations. To decide what situations to show, Prevent worked with experts from the social parties and professionals from the industries. The situations range from specific instructions like how to lead cattle and what PPE should be used, to the importance of taking breaks.

The picture books are free of cost, pocket-sized, and they are also available as pdf and e-publications. The pictures can be used to get started communicating on various operations in the workplace, and to reflect on safety issues.

Result The first book, on forestry, was published in November 2016 and the following four books in spring/summer 2017. The books have created a lot of attention in the media and from other industries who would like their own versions, as well as from training instances.

794 LEARNING BY GAME PLAYING AND USING DIGITAL MEDIA: AN EXAMPLE THROUGH MANAGEMENT OF CHEMICAL EXPOSURE

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Objectives Chemical burn is relatively rare, frightening and potentially invalidating. Simple and effective means are necessary to become actors and not spectators before and during an accident.

Methods We started by designing a movie describing a chemical burn and explaining good practical guidance for management in hospital environment.

After evaluation, we decided to target all occupational and safety professionals: a workshop took place during a congress introducing the gaming and fun notion of learning together. After assessing this workshop, we decided to move forward and improve contents and interactivity by elaborating a symposium workshop with the aim of including all occupational health and safety professionals and workers.

Players commented the different steps and choices regarding their management. Time was given for evaluation followed by exchanges between all.

Results Over hundred professionals participated. They totally adhered to the project and were fully implicated. Confronted to real life situations, panic was observed as the most