equipped pedestrians the means in improving their safety during icy weather conditions.

637 ROAD SAFETY EDUCATIONAL MATERIAL BASED ON OCCUPATIONAL HEALTH AND SAFETY EDUCATION METHODS

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Background Learning from accidents is an important method for improving safety. In Finland, fatal occupational accidents are investigated. The data from the investigations is used for statistical purposes, but also to create occupational accident cases that are used for accident prevention.

Fatal road accidents are also investigated. Due to legislation, the method used for analysis is different than in occupational accidents. The data is published as statistics, but the case information is not published, although road accident cases would also be important for improving road safety.

Objective The aim of this project was to produce case-based educational material on road accidents for heavy traffic professionals. The material was produced in the same format as the accident investigation cases created for occupational accidents.

The data was gathered by the Finnish Motor Insurers´ Centre. The first set of data included 10 selected fatal accidents from 1993 to 2009. The second set included 32 accidents that led to the death of the driver in a heavy vehicle from 2011 to 2013.

Results The 10 cases were edited into safety case materials and published as slide shows in 2013. The materials included short introductions to each case, background information on the accident, risk factors, and tools or ideas for avoiding similar accidents. The material was available for four teachers who used it in vocational education. The feedback was positive.

The second set of materials included three theme studies, each including several accident cases. Reports can be used by teachers or vocational education providers.

Conclusions Both materials are usable as learning material. The theme studies are available on an open access web page (http://totti.tvl.fi). Currently the material is only in Finnish. Case investigations about fatal occupational road accidents have not yet been published in this series, but procedures will be developed in order to conduct case investigations in the future.

638 EFFECTIVENESS OF THE HSEQ TRAINING PARKS

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Background The HSEQ Training Park concept is a unique safety innovation by which different actors of the construction industry and other branches can be trained on practical level to perform different work phases safely at construction sites. There are currently two training parks in Finland (in Espoo, founded 2009 and in Oulu (Northern Finland), 2014). The hypothesis is that the participating construction companies (and other stakoholders) in Finland benefit on this kind of participatory training approach and that the improvement can also been verified by using quantitative indicators. The main goal for this study is to survey the effectiveness of the training park trainings in Oulu and in Espoo. The study time is from February 2015 to February 2017. Three work packages have been formed: 1) Effectiveness in Oulu training park (note that only 1–2 years of activity) 2) Effectiveness in Espoo training park (somewhat 6 years of activity) 3) A design science approach to formulating a common safety measurement criteria for member stakeholders of Turvapuisto Northern Finland (appr. 70 different stakeholders).

Methods This study is based on design science premises, i.e. the aim is to provide up-to date and valid information that can be used for improving current training parks and reasoning (or unreasoning) new training park initiatives. In order to study such a complex issues we have needed to have a multidimensional approach with both qualitative and quantitative measures. A realistic evaluation was chosen as the methodological framework for this study, as it allows such multidimensional approaches and as it has been utilised earlier in different OSH studies. We have used the Nordic Safety Climate Questionnaire (NOSACQ-50) and the focus group discussion method when studying the effectivness of training parks in six companies.

Results The preliminary results of the NOSACQ study shows that before the visit/training in the HSEQ Training Park the seven dimensions were on average at following level (min 1, max 4): 1) management safety priority, commitment and competence: 3.43 (min 3.14, max 3.73), 2) management of safety empowerment: 3.32 (min 3.08, max 3.69), 3) management safety justice: 3.39 (min 2.90, max 3.77), 4) workers' safety commitment: 3.45 (min 3.18 max 3.73), 5) workers' safety priority and risk non-acceptance: 3.34 (min 2.99, max 3.73), 6) safety communication, learning, and trust in co-workers' safety competence: 3.38 (min 3.22, max 3.72), 7) workers' trust in the efficacy of safety systems: 3.53 (min 3.22, max 3.81). The focus group discussions pointed out the different matters in safety training which should be taken into consideration and how the HSEQ Training Parks should be developed.

Conclusions If occupational safety in the construction industry is to be improved, new innovative concepts for safety management and training are needed. Construction work is done in work environments in which employees cannot be continuously supervised. Thus in many cases, employers must place their trust in their employees' ability to perform work safely in all circumstances. Holistic, systemic safety training is one way in which to enhance employees' abilities and knowledge regarding this topic. The concept of the HSEQ Training Park as a new novel safety training innovation has been introduced in Finland. The construction process of the Training Park in Oulu shows how rival companies can jointly develop new kinds of practices when all stakeholders have a common interest in accident-free construction sites. Several educational institutions and organisations in Northern Finland have adopted Training Park training into their curriculums. Numerous new idea regarding future needs for training practices and development activities have been raised, for example, during the Training Park construction phase and in the trainer training sessions, and in organisations' and communities' own training sessions. These thoughts include a willingness to ensure that the construction industry's SMEs also apply Training Park training in their safety management practices. New practices for these purposes are planned for execution in the next few years.

This study presents the preliminary results from the NOSACQ distributed in the representatives of the six companies participating in the study. The seven dimensions which were studied were at quite high level already before the training in the Training Park. The paper will present the results in more details, e.g. the

comparisons of NOSACQ results made in different time periods and answered by the trained and untrained personnel, comparisons of accidents rates in various time periods and results of the qualitative data analyses (focus group discussions).

639 PREVENTING HARM FROM ALCOHOL AND DRUGS AT WORK: NATIONAL STUDY AND DEVELOPMENT OF EDUCATIONAL TOOLS

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Background There has long been concern over the impact of alcohol and other drug (AOD) consumption on workplace safety, particularly within the construction industry. Until now there has been little scientific evidence on the relationship between AOD and safety. This research aimed to evaluate AOD within the Australian construction industry and to develop, through engagement with industry, mental health and e-Therapy experts, AOD specific education.
Methods Using the Alcohol Use Disorders Identification Test a national assessment study evaluated the extent of general AOD use in the industry. A survey was distributed to 500 employees across Australia. Semi-structured interviews were also conducted. The researchers collaborated with AOD and e-Therapy experts to develop a web-based AOD program for managers. Researchers then collaborated with an industry-based mental health and suicide prevention organisation. A peer-based AOD education program was developed. It targeted social attitudes to impairment at work and was evaluated through a pilot study with 42 young apprentices.
Results The national assessment study showed that a total of 286 respondents (58%) scored above the cut-off score for 'risky' alcohol use with 43 respondents (15%) scoring in the significantly 'at risk' category. Other drug use was also identified as a major issue. The peer-based AOD education program was positively received by young workers. The pilot study showed an increase in both knowledge and awareness of alcohol and drug impairment and intention to seek help.
Conclusions A proportion of the industry is at risk of hazardous alcohol use. Other drugs are also a major issue. Several areas for consideration were identified. Results from the peer-based AOD education program were encouraging and support the need for further evaluation. Web-based programs can enable the provision of AOD education and support (and mental health information more broadly) to those living/working in remote locations.

640 TACKLING STRESS IN THE WORKPLACE

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Background Work related stress is a wide spread problem in Europe and also in Finland. Almost one third of the workforce report experiencing work stress and stress related symptoms, such as sleeping disorders and problems concentrating, are common problems among employees. Especially, experienced job insecurity and not having enough time to accomplish their duties properly are the most common problems reported in many surveys.
Description of the problem Even though employers are obligated by the Finnish legislation to take measures to analyse the workload factors and to avoid or reduce the risk, not all employers even recognise the psychosocial workload factors. Furthermore, employers and workplaces in general have too little information about the health risks caused by work stress and about the links between stress and other work related factors, such as sick leaves, workplace accidents and reduced productivity.
Results This presentation will describe actions taken in Finland to tackle work stress with the target of prolonging work careers and to reduce sick leaves and early retirement. Actions at all levels will be presented, i.e. in the strategic level, planning and implementation.
Conclusions Tackling work stress requires effective measures both in the policy level and in practical implementation. Successful measures are based in co-operation between governmental institutes, research institutes, trade unions and practitioners.

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641 RISKY DRIVING, UNSAFE VEHICLES AND CAR CRASH INJURY: A POPULATION-BASED CASE-CONTROL STUDY IN FIJI

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Background Risky driving and unsafe vehicles are two areas receiving increased global attention as priorities for road traffic injury prevention. However, the attendant risks have not been quantified in low- and middle-income Pacific nations using controlled epidemiological studies.
Methods A population-based case-control study was designed to include all four-wheeled motor vehicles involved in crashes where at least one occupant died or was hospitalised (case vehicles) and a random sample of vehicles driven on roads in Viti Levu, Fiji (control vehicles). The drivers or their proxies were administered structured questionnaires eliciting self-reported data on risky driving and vehicle factors, including crash involvement and traffic convictions in the previous five years.
Results Drivers of 154 case and 752 control vehicles participated in this study. Multivariable models of the main effects of interest found significant excess in the odds of injury-involved motor vehicle crashes (MVCs) with vehicles older than 10 years (OR 1.99; 95% CI: 1.27–3.12); vehicles with seat belts only in the front seats (OR 2.03; 95% CI: 1.19–3.46) and speeding up when someone tries to pass (OR 3.40; 95% CI: 1.51–7.65). The odds of MVC were significantly less if drivers had experienced a traffic conviction or crash in the previous 5 years (OR 0.43; 95% CI: 0.24–0.78 and OR 0.45; 95% CI: 0.22, 0.95, respectively).
Conclusions Speeding in some contexts and driving vehicles older than 10 years or without a full complement of seatbelts were associated with a 2–3 fold increase in the odds of serious injury-involved MVCs. In contrast to some other studies, previous traffic convictions and crash involvement appeared