

Result With this methodology of safety observation, the accident rate in terms of LTI (Lost Time Injury) and TRC (Total Recordable Cases) has been drastically brought down from 51 cases (2013–2014) to 23 cases (2016–2017) – 55% reduction which includes 3 consecutive years of being LTI (Lost Time Injury) free.

Discussion Safety observation has proved an effective and excellent tool, which reinforces positive safety behaviour, raises safety awareness thereby motivating people to be committed for safety, corrects unsafe behaviours in a positive, proactive way leading to prevention of injuries and property losses.

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BEHAVIOURAL SAFETY – THE ULTIMATE STAGE IN ACCIDENT PREVENTION

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Introduction To establish employee's perception of the safety culture in a multinational manufacturing facility, the status of safety management, in particular to measure the intangibles such as management commitment and employee beliefs and involvement in safety.

Method Cross sectional data was collected from 455 employees who voluntarily participated in the study. The research study was implemented based on a descriptive survey in order to estimate certain population parameters in relation to safety climate, safety culture and behavioural based safety in the workplace. They were asked to prioritise in relation to their perceived importance, the eight sections which had a total of fifty-four statements to address all of the important factors in safety management including beliefs and practices.

Results A valid sample of 89.2% was achieved for this study. The data showed a strong organisational commitment to safety, with 99% employees agreeing with this statement. 90% of employees agree that management commitment is evident; however, opportunities were identified in ensuring greater supervisory presence in the workplace. The lowest scoring values were the beliefs by employees that all accidents were preventable and that they were linked to personal behaviour. 65% agree that zero accidents are achievable, 23% agreeing that if they had an accident it would be their own fault, these results remain a significant challenge for the organisation and may reflect a lack of understanding of the organisations injury data which reflects that over 50% of accidents are linked to behaviour.

Discussion This research study confirmed the validity of the one of the most important factors in the model of safety management, which is management commitment and employee involvement. If these 'soft' factors are identified and present within an organisation, this will then lead to excellence in safety.

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PSYCHOLOGICAL CONSEQUENCES OF ELECTRICAL ACCIDENTS AT WORK. INTERVIEWS WITH SWEDISH ELECTRICIANS

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Introduction It is well known that electrical accidents can cause physical injury. Less well known is that long-term consequences may include emotional and cognitive problems. The objective was to explore electricians' experiences and perceptions of work-related electrical accidents, with focus on psychological short- and long-term consequences, including how contacts with health care services and the workplace had been perceived.

Methods Semi-structured interviews with 23 Swedish male electricians, aged 25–68, who had experienced at least one electrical accident and who had reported residual sensory, muscular, or mental symptoms. Data was analysed by means of qualitative content analysis, with the analysis keeping close to the areas of query and the electricians' statements.

Result Immediate emotional reactions included surprise, confusion, fear, anxiety, and anger, but also long-term consequences in terms of psychological dysfunction were seen. Experiencing a no-let-go situation was particularly stressful. The cause of the accident, and questions about guilt and blame, were central in the aftermath. Lack of knowledge and routine among health care professionals concerning electrical injury was reported, as well as lack of medical and psychological follow-up.

Discussion Long-term psychological consequences can be seen after occupational electrical accidents. Adequate handling at the workplace and from the health care services, including follow-up, could facilitate rehabilitation and return-to-work.

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KOREA'S RISK ASSESSMENT RECOGNITION SYSTEM AND PERFORMANCE

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Introduction KOSHA has promoted risk assessment in the workplace so that employers can identify, evaluate, manage and improve hazardous factors in their workplaces. Risk assessment recognition is given to excellence sites that apply for risk assessment evaluation and are recognised as proper level in risk assessment from KOSHA. As a result, this system supports the establishment of a voluntary system

*Legal basis: Article 41–2 (Risk Assessment) of the KOREA ISHA and ACoP No. 2016–2017 of the Ministry of Labour

Methods We carry out risk assessment recognition work as follows.

- Workplaces apply for risk assessment evaluation to KOSHA attaching risk assessment result and implementation rule
- KOSHA visit the work site within one month
- If there are no items that are less than 50 points out of 100 points and the total score is 70 points or more, those workplaces become candidates
- Accreditation committee composing of nine persons decides on risk assessment recognition
- Issuance of certificate within 5 days

Results The risk assessment recognition system has been implemented since 2013 and has achieved remarkable achievement by educating about 1 30 000 employers, consulting 1 10 000 places, recognising 14 000 places, and reducing average industrial accident by 30.5% annually

Conclusion As the Korean government introduced the risk assessment recognition system to support self-safety management system

in the workplace, it has achieved remarkable results. Therefore, we will expand this system further throughout incentives in reduction of Preventive rates, exemption of supervision, and facility improvement fund support, etc.

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HOW TO MANAGE THE IMPACT OF MEGATRENDS ON THE WORLD OF WORK? – CHALLENGES AND PROSPECTS

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Introduction New trends like globalisation, digitalization, demographic change and social changes characterised by increasing migration and diversity are changing the world of work rapidly. This leads to new demands on employees, with the emergence of new safety and health risks. What are the new risks associated with current and imminent changes in the working environment? And how can occupational safety and health address them?

Methods Work 4.0 will need a Prevention 4.0. DGUV has therefore started research into new forms of work and risks caused by different megatrends on the one hand and monitoring possible future risks for safety and health at work in order to prevent or at least minimise them on the other hand.

Results The following examples show the development observed by the experts

- New forms of work and flexibility of work
- New technologies
- Communication between humans and communication between humans and robots
- New expectations of leadership
- Forms of learning and learning locations
- Skills and behaviour

In addition, DGUV identified prevention priorities with its Risk Observatory at an early stage. In October 2016, as a result of a consultation with some 400 inspectors of the social accident insurance institutions, ten topics were identified which will be important for the prevention work of the social accident insurance in the next five years. Sector-specific measures to face the risks were also identified. The Risk Observatory will start the next survey in 2017.

Discussion The presentation wants to show megatrends and their impact on the future world of work and the challenges for safety and health to avoid occupational accidents and injuries in future with focus on the results of the above mentioned research.

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A PILOT STUDY TO IDENTIFY THE FACTORS FAVOURING HYPOVIGILANCE BY DROWSINESS MEASURED BY A NON-INVASIVE MONITORING DEVICE UNDER REAL CONDITIONS

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Introduction Every year, more than one million people die on the road worldwide, 20% of these deadly accidents being caused by hypovigilance due to drowsiness.

Methods Our study tested the feasibility of monitoring the level of sleepiness under real driving conditions, using the non-invasive Phasya monitoring device. Data were collected in 24 bus drivers' records, from November 3 to December 15, 2016.

Continuous measurement of the level of drowsiness with Phasya device, allowed to scale this level from 0 (awake) to 10 (drowsy) by analysing ocular movements extracted from images of the eye.

In addition, we determined individual and occupational risk factors potentially associated with drowsiness. Individual variables included, biometric, health-related data and the sleep profile. Occupational factors included the duration and distance travelled.

Diurnal sleepiness was self-assessed with the Epworth Sleepiness Scale.

Results We recorded 31 journeys for a total of 6070 kilometres and 193 hours of driving.

The drowsiness monitored was greater than or equal to 5 over 10 in 11.98% of the data collected, which is equivalent to more than 23 cumulative hours and more than 700 kilometres travelled being drowsy.

Health behaviours such as regular physical activity and the absence of overweight showed non-significant protective patterns.

However, diurnal sleepiness was highly associated with the level of drowsiness ($r=0,74$) ($p=0,02$). Likewise, the duration of journeys was also highly associated with increasing sleepiness ($r=0,25$, $p<0,0005$).

Conclusion This study demonstrates that the Phasya monitoring device is able to measure drowsiness under real driving conditions. Our results emphasise the need for prevention campaigns to include early detection of risk factors, as well as optimising the care of drivers suffering from drowsiness.

We suggest that imposition of breaks based on drivers' drowsiness level and driving time. Giving a break after 2 hours of driving appears reasonable in terms of safety.

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OCCUPATIONAL SAFETY AND CONCUSSION INJURY AWARENESS OF IRISH PROFESSIONAL AND SEMI-PROFESSIONAL FOOTBALLERS

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Introduction The purpose of the study was to investigate the occupational safety awareness of a cohort of professional athletes; specifically looking at the risk of concussion, reporting rates, and practices amongst professional and semi-professional footballers.

Methods The study was an empirical quantitative study, in the form of a census, of a particular cohort ($n=250$) conducted in 2015. Participants were professional or semi-professional footballers playing in the League of Ireland. Footballers undertook a questionnaire on safety awareness and self-reported concussion over the previous five playing seasons. 149 footballers participated (60% response rate, >90% CI). Data was analysed using SPSS.

Results Over two thirds of respondents were unaware if their football club had a formal safety programme. Results indicated footballers had little occupational safety awareness, though they felt that both management and teammates employed good safety practices. 32% of respondents stated they had