Conclusions Given increasing incidence and narrowing of inequalities more effective preventive interventions are needed.

Safety management, Strategies and Policies, Traffic safety

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418 RISK ASSESSMENT OF FURNITURE AND PRODUCT LAYOUT USING INJURY BIG DATA

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Background Environmental modification is highlighted as one of the most effective method in child injury prevention, and environmental modification requires analysing and predicting possible injury situations corresponding to not only products themselves but also layout and interaction of them. However, guardians rely not on injury data or children's development data but on their experience and subjectivity now.
Methods We developed a system to analyse injury situations corresponding to layout of products and furniture. First, the developed system creates statistical model of injury by performing natural language parsing for big data on injury situation collected in medical institutions. Then based on both the created statistical model of injury and children's development data, the system predicts possible injury situations in a target layout of products
Results The current system allows a user such as a parent and a designer to easily estimate climbable areas or objects that can be reached by a child. The visualisation of climbable areas and reachable objects informs the user about possible injury situation in a target environmental layout. To demonstrate the validity of the developed system, we compared the actual injury data with the prediction. The detailed data on actual injury and situation information were collected by home visit investigations of four houses, and the simulation succeeded in predicting 13 of 14 actual injuries.
Conclusions In this study, we developed injury analysis and prediction system. The system allows a non-specialist to easily grasp a possible serious injury situation corresponding to a target layout of products and furniture. It is useful for determining the arrangement of products and furniture and the storage place of dangerous objects for injury prevention.

419 HOW TO PREDICT FUTURE IN RISK MANAGEMENT

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Background The goal in risk management is to define threats and to minimise risks in upcoming operations and actions. The problem is that risk management tools are usually based on things that have already happened, and related safety investigations and reports.
Description of the problem Vastly changing operational environment requires the ability to foresee future operations and the threats related to it. Our flight safety organisation made an observation that the risk management tools generally used could not answer to this demand. With this in mind the Air Force started to develop a systematic risk management tool for pointing out future threats and for planning the actions for minimising the risks.
Results The Finnish Air Force built up a risk management tool in which the experience, knowledge and know-how of our employees are made use of in the best possible way, as the tool gathers their ideas and forms focuses for future flight safety. In our tool the organisational filters are minimised for the safety information to pass the decision holders and the Air Force Commander. This tool enhances safety culture as it makes personnel work with flight safety issues and it also gives them recognition for their efforts. The Finnish Air Force has had good results using this tool. One example is the Finnish Defense Force reform that caused vast changes in our command structure, operations and personnel. With this tool we have been able to reduce the impact of the reform on flight safety.
Conclusions With this risk management tool we can modify our future operations so that most of the threats foreseen will not come true. The tool combines know-how of root level personnel and flight safety organisation still leaving the operational freedom for every level of the organisation. This tool also has a significant influence on safety culture.

420 DEVELOPMENT OF THE SAFETY MANAGEMENT SYSTEM AT ENTERPRISES

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Background Safety management system (SMS) can be considered as a key concept in the success of high level of occupational health and safety in the industrial enterprises. However establishing an SMS may only formally lead to excessive bureaucracy, window coupling and additional costs, especially for small and medium-sized enterprises. The paper concentrates on the analysis of relationships between the key elements in safety management and finding solutions to enhance safety level in different types of the industrial companies.
Methods Safety auditing by the MISHA method was used as the main tool to study the current safety level in the manufacturing companies. Additionally, qualitative data from safety interviews were studied and interpreted. During the study in 2014, 24 safety interviews were conducted in 16 Estonian manufacturing companies. The investigated enterprises were first divided into two groups: OHSAS 18001-certified and OHSAS 18001 non-certified. But the latter proved to have a significant difference in the safety level based on its affiliation: corporated enterprises showed better results in the safety activities than locally owned companies.
Results The study showed that the implementation of OHSAS 18001 will not automatically ensure high safety activities in the company. However, holding an OHSAS 18001 certification creates a basis for the systematic work in the area of safety management, hazards identification and prevention, and promotes strong improvement process put in use. The novelty of the paper lies in the conceptual model of the safety management system, that provides the key elements in formal, real and combined safety using qualitative and quantitative processing of audit results.

Conclusions The research revealed that OHSAS 18001 certification contributes strongly to formal safety elements. However – its contribution to the real safety elements was partial, e.g., to such elements as top management commitment to the safety policy, dissemination of safety policy and resources. For many real safety elements strong demands from corporations influence safety activities more than requirements derived from OHSAS 18001 standard, for example suggestions for improvements; general communication procedures; promotion, rewards and career planning and safety knowledge among supervisors, line managers and top managers. Concerning combined elements, many of them – such as workplace hazards analysis, assessments of working environment, evaluation of safety training needs are dependent on OHSAS 18001 certification.

421 COALITION BUILDING TO ADVOCATE FOR SAFER PASSAGE TO AND FROM SCHOOL IN KENYA

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Background In Kenya, many of the crashes involving children occur as they are travelling to and from school. The number of children who have died in the last five years is the equivalent to the loss of two entire primary schools. The legal framework in Kenya is insufficient to address this problem.
Description of the problem Multiple organisations in Kenya worked on improving the safety of children going to and from school, but from different angles. Usamala Watch Initiative focused on creating crosswalks, ASIRT Kenya educated school children on road safety, Gertrude's Children's Hospital treated victims, and Handicap International worked to enforce speed laws. A cohesive voice was needed to tackle the root problem—speed reduction to 30 km/h as recommended by the World Health Organisation and United Nations Economic Commission for Europe.
Results In 2014, the various civil society groups working on road safety joined to form the Kenya Road Safety Taskforce, and began advocating for the Traffic (Amendment) Bill, 2014. The bill would reduce speeds around schools to 30 km/h, create designated crosswalks, and set school transport standards. The Taskforce created a joint strategy to garner political and public support for the bill, tapping into each organisations' strengths and network. As a Taskforce, they received the support of key government entities, including the National Transport Safety Authority, Kenya Parliamentary Human Rights Association, and Kenya Women Parliamentary Association.
Conclusions By creating a coalition, organisations were able to mobilise each other's resources, including political and media contacts, to advocate for the bill's passage.

422 SCOTLAND'S BIG BOOK OF ACCIDENT PREVENTION

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Background The over-arching goal of the Scottish Government is to 'make Scotland a better place to live and a more prosperous and successful country'. Subtitled 'Accident Prevention- a leading priority for Scotland' this document highlights the better outcomes for the health of Scotland's population that can be achieved by partnership working in the areas of accident prevention and safety awareness.
Description The document acts as a touchstone for practitioners providing useful insights into 'what works' and a manifesto for RoSPA in Scotland delineating the role the charity plays in setting the unintentional harm prevention agenda in Scotland and the wider United Kingdom.
Results Endorsed by leaders within Scotland's Accident Prevention community the document clearly identifies why accident prevention should be the top priority for public health. Approximately 30% of Accident and Emergency attendances in Scotland are due to accidental injuries, the financial burden associated with this burden is unsustainable, requiring more resources, a challenge in a period of austerity or early intervention, accident prevention being the easiest and cheapest way to save a life. Scotland'sBig Book of Accident Prevention presents case studies linked to the positive benefits of early intervention which can be easily adapted and adopted by organisations across the globe to reduce the burden of injury on the global economy.
Conclusions In Scotland, accidents cost Society more than £12.4 billion per annum, of which Accident & Emergency attendances cost the NHS £1.48 billion. Accident prevention strategies as outlined in Scotland's Big Book of Accident Prevention are clearly identified as being 'low cost and high impact' contrasted with the expense of healthcare linked to unintentional injury.

423 STRENGTHENING LEGISLATION FOR IMPROVED ROAD SAFETY IN THAILAND

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Background Following the United Nations General Assembly resolution 64/255 proclaiming a "Decade of Action for Road Safety 2010–2020", Thailand developed a Road Safety Master Plan and established an inter-ministerial coordinating mechanism. Road safety legislation and proper enforcement are essential for achievement of the Road Safety Master Plan. Half way through the Decade, it is vital to review the established road safety management structures and existing legislation to identify areas of further improvement.
Methods An institutional and legislative assessment was conducted outlining institutions involved in national road safety activities, their roles and responsibilities. The legislative review explained the steps and timeframes of road safety legislation and specified parliamentary committees and other institutions involved in the process. A preliminary review of national road safety laws and regulations was conducted, taking into account previous analyses and reviews.
Results Thailand has a lead institution and a national structure to drive the Road Safety Master Plan. It is complemented by subcommittees following the UN's Five Pillars. Despite these mechanisms, the structures rely mainly on politicians who are members to hundreds other committees, resulting in sporadic meetings and dysfunctional operation. Evidences suggest that mismanagement of manpower, ineffective enforcement and the public awareness of road safety laws contributed to the status quo. The review shows that Thailand has most of the necessary laws, yet road traffic fatalities remain high. Several areas for new legislation and