

the overall construction management processes overseen by a primary contractor. A new study is underway that integrates ergonomic training, planning, and oversight within the primary contractor's safety programs, and encourages planning to reduce ergonomic hazards during the preconstruction phase.

### 1597e PARTICIPATORY PROJECTS TO IMPROVE THE USE OF ERGONOMIC MEASURES

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**Introduction** Ergonomic measures are available to reduce high physical work demands among construction workers. Providing construction workers with information of risk factors alone will not be effective in increasing the use of ergonomic measures due to the complex working environment, the involvement of many different stakeholders and the conservative nature of the construction industry. Our aim was to study the process of face-to-face (F2F) and e-guidance (EG) strategies of participatory ergonomics (PE) company projects on the implementation of ergonomic measures to prevent musculoskeletal disorders.

**Methods** The implementation process was evaluated alongside a cluster randomised parallel intervention trial with a follow-up at six months regarding the effect of two PE guidance strategies on the use of ergonomic measures. The design of the study was described in Visser, *et al.* (2014). Ergonomic consultants guided six companies through face-to-face contact in F2F and six through email contact in EG. Whether the intervention was delivered as planned was evaluated by the process evaluation components dose delivered and dose received as described by Linnan and Steckler (2002). In addition, satisfaction and behavioural change among construction workers were evaluated.

**Result** Implementation activities delivered (F2F: 63%; EG: 44%) and received (F2F: 42%; EG 16%) in companies were low. The satisfaction with the PE strategies was strongly affected by the actual activities in the companies. For behavioural change, knowledge regarding risk factors and ergonomic measures (+14%; F2F) and culture regarding the norms, values and expectations of the company regarding working with ergonomic measures (+26%; EG) among workers increased.

**Discussion** This study showed that compliance to a face-to-face and an e-guidance strategy is low. To improve the compliance, it is advised to start with a face-to-face meeting with all stakeholders to see which parts of the intervention are needed and which guidance strategy can be used for these parts.

### 1594 VISION ZERO IN CONSTRUCTION

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**Aim of special session** To introduce *Vision Zero*, as developed by the International Social Security Association (ISSA) for the construction industry, and to describe its application and impact in developed and developing economies.

**Presenters** <sup>1</sup>Prof. Karl-Heinz Noetel, <sup>2</sup>Mr. Paul Duphil, <sup>3</sup>Dr. K.N. Sen, <sup>4</sup>Mr. Jean Claude Poirier, <sup>5</sup>Dr. Knut Ringen

### 1594a VISION ZERO IN CONSTRUCTION: SUSTAINABLE WORK AND SUSTAINABLE DEVELOPMENT

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Today factors like international competition, the demographic change, the proceeding structural change and the growing density of information determine everyone's lives. At the same time, due to these factors the economy, the society as well as organisations dealing with OSH like the International Social Security Association are facing major challenges worldwide in the field of the prevention of occupational diseases and injuries

Considering health as being the highest good of man, the primary focus should be on maintaining human health by all possible means. A reliable method for maintaining human health is to invest in the prevention of health hazards. At the same time investing in prevention helps to avoid much higher costs caused by occupational accidents, occupational diseases, and lost working time, and can also be regarded as a key competitive factor. Thus, prevention contributes to sustainable economic success of the companies as well as the preservation of employability of people.

The fatality rate in the field of construction is still higher than that in other industries. With its prevention strategy 'Vision Zero' ISSA Construction – by using appropriate preventive measures – seeks to create a working environment where no individual is injured or killed at work nor suffers from serious injuries or occupational diseases To achieve this, ISSA Construction sets seven Golden Rules and describes measures which contribute to meeting the named objectives. ISSA Construction already works together with ISSA Mining to achieve these objectives. The future ambitions to work together with all other ISSA sections on 'Vision Zero', thus paving the way to work together worldwide and across all sectors on a work environment with zero risk to get injured at work.

The Seven Golden Rules for 'Vision Zero' are the following:

**Rule 1:** Take leadership commitment by setting safety always as the number one priority on every agenda, by serving as a model for OSH matters, by reacting instantly to unsafe conditions and behaviour.

**Rule 2:** Identify hazards and risks by a systematic risk assessment, including maintenance and repairs, evaluating work accidents, diseases and near misses.

**Rule 3:** Set targets for safety by defining your own OSH targets, evaluating progress and adapt them if necessary, designing prevention campaigns.

**Rule 4:** Ensure a safe system by increasing the responsibility of all managers, implementing a safety management system.

**Rule 5:** Use safe and healthy technology by taking account of OSH when ordering new machinery or plant, using all machines in a safe way and checking safety installations regularly, providing safe access and egress.

**Rule 6:** Improve qualification by educating – because competence needs education –, by defining the required qualification for each workplace, and by setting up a plan for training and instruction.

**Rule 7:** Invest in people by involving your employees, using your employee's ideas about how to safety, acknowledging good safety performance, developing confidence and a culture of prevention.