Message 9: “Be safe at work”

As occupational injuries cause approximately 350,000 deaths per year worldwide and account for more than 10 million Disability Adjusted Life Years (DALYs) in the economically active population, they represent a universal public health issue that calls for effective prevention. Although professional fields such as the field of construction, agriculture, transport and manufacturing present the highest rates of injuries, recent European Union (EU) studies reveal a common downward trend in fatal occupational injury rates in the developed world. Research on potential risk factors, mainly demographic, behavioural and environmental remains inconclusive as different countries report diversified patterns. This paper aims: (a) to describe the magnitude and the socio-economic burden of occupational injuries in the countries of the EU, (b) to outline underlying risk factors and (c) to present evidence based preventive practices that reduce the likelihood of occupational injury occurrence. This information has been used in the development of messages comprising the European Code Against Injuries (ECAI).

1. DEFINITION

Occupational injuries are defined as injuries due to an external cause resulting from an exposure related to the person’s work. The definition corresponds to injuries ‘that are employment-related and are the result of a traumatic event while a person is on duty.’ Work-related injuries of workers are commonly separated into three groups: work-road injuries, workplace injuries, and injuries that occur whilst travelling to or from work (commuting injuries). In most cases the latter are not included in the occupational injury definition and thus are also excluded from most statistics, as rarely are there soundly based estimates for commuting injuries.

2. MAGNITUDE OF THE PROBLEM

The most recent estimate of global occupational deaths is provided by the World Health Organisation (WHO) Comparative Risk Assessment (CRA) study that aims to assess the global burden of disease from the year 2000 onwards. Their estimate for occupational injury deaths is 312,000 with previous studies having reached similar conclusions of over 300,000 workers killed each year. Summarizing, the best estimate of the annual number of fatal injury deaths of workers is 350,000, including workplace and work-road deaths and excluding commuting deaths.

- Morbidity

Unintentional occupational injuries have been estimated to account for more than 10 million DALYs1 and among the worldwide economically active population of 2.9 billion workers, approximately 3.5 years of healthy life are lost per 1,000 workers due to exposure in workplaces’ injury risks. According to an ESAW report6 approximately 4.7 million accidents at work result in more than three days of absence from work occurred in the EU-15 in 2001, which can be translated roughly into a 4% of the workers having been victims of an occupational accident that year. In 2001 there were approximately 4,900 fatal accidents at work, with one EU worker becoming a victim every five seconds and one worker dying every two hours because of an occupational accident. The highest rates concern
accidents in construction, agriculture, transport, individual industries for the manufacture of mineral products, wood products, basic metals, utilities and the manufacture of food products.

- Time trends

Differences in types of injuries, occupational activities, employment characteristics, and implementation of safety measures can explain the existing mortality variability across different countries.¹ A recent study of the occupational injury rates in five selected EU countries revealed that crude rates have indeed declined, confirming a common downward trend in fatal occupational injury rates in developed countries.² These trends can be possibly explained by factors such as the improvement of workplace environment, changes in the economy and distribution of the workforce in EU countries, shifts within the labour force from dangerous work towards safer work and improvement of emergency services and treatments.³ Eurostat reports that fatal occupational injury rates have declined from 6.1 per 100,000 persons in employment in 1994 to 4.8 in 1999 for the EU¹⁰ and more recent data confirm that the incidence rate of fatal accidents at work reduced by 23% in the EU-25 for the period 1998–2003.¹¹

3. RISK FACTORS

3.1. Demographic risk factors

The role of gender as a potential risk factor in occupational injury represents a debatable issue in the literature.¹² A review of ILO data describing injury deaths at work for 21 countries indicates that males accounted for 91% to 99% of all deaths from injury at work in all countries, independently of the level of economic development of the country (ILO) and the estimated total number of injury deaths was distributed using proportions of approximately 93:7. Nevertheless, statistical data of the last decade according figures 1 and 2, demonstrate an unclear role of gender as a risk factor.

Figure 1. Serious accidents at work by gender EU-15 (1994–2002).

Figure 2. Serious accidents at work by gender EU-25 (1998–2002).
According to EU data, men are around three times more likely to have an accident at work compared to women and eleven times more likely to have a fatal accident at work, which can be attributed to the fact that they are usually working in more high-risk sectors and doing more full-time work, thus the role of gender itself as a risk factor remains unclear.

Opinions diverge largely on the role of education as an occupational injury risk factor. Past research has shown education level (primary school or less) to be a risk factor specifically for back disorders, whereas more recent studies showed no relationship between education and occupational injury. Research on the role of age in occupational injuries is inconclusive as different countries present different risk patterns. For example, in the US 35% of fatal injuries occur at the age of 30–44, probably due to factors such as lack of experience. Overall the observed pattern corresponds to a steady rise in the occupational injury incidence from the youngest groups to about 64 years of age.

3.2. Behavioural risk factors

Risk-taking behaviours such as alcohol consumption, non-use of seat belts, use of violence, riding a motorcycle, and/or recent history of driving under the influence of alcohol have been suggested as possible risk factors for occupational injury. Also, sleep disorders, smoking, and lack of physical activity have been found to alter health status and work ability, thus leading to fatigue and altered risk perception, which increase the likelihood of injuries.

3.3. Environmental risk factors

Environmental stressors such as high ambient noise levels, heat, poor lighting, high physical effort, overcrowding and need for sustained attention may be precipitating factors for occupational injuries. Other important risk factors suggested as injury risk factors are physical effort and climate discomfort. Since workstations are usually overcrowded with high ambient noise levels and bad lighting, workers are often subjected to a multitude of harsh conditions, which can ultimately have a cumulative effect on injury risk.

4. EFFECTIVE PREVENTIVE PRACTICES

- Training of workers and provision of information

Informing workers on the risks their work discloses and training them on safe practices are some of the most frequently used means of occupational injury prevention. Effective interventions vary with respect to the training material and training patterns, as well as to the recipients of such information and the implementation settings. Interventions concerning nursing staff, such as training on the proper use of lifting equipment informative sessions with job-specific content carried out either annually as part of the continuing education programs or as part of the compulsory orientation programs for new employees and back school programs have been tested and found to reduce significantly injury rates in hospitals and nursing homes. Also, stress and pain management sessions (under the ‘Cognitive Behavioral Therapy’ term) for nurses over a 6-week period by a clinical psychologist led to reduction in pain intensity scores but at the same time to an increase in stress score, thus proving to be only partially effective.

In the field of construction works, a multiple-use educational intervention for ladder set-up and use safety campaigns using educational brochures, television/radio programs and local press articles containing expert advice have been useful in reducing injury risk in a sustained manner. Additionally, a study evaluating a Decking Fall Prevention System found that providing safety information at daily meetings and during weekly task-specific toolbox talks and training on the proper use of personal protective equipment according to existing regulations and manufacturing instructions ensured a 100% fall protection. Finally, 45-minute training sessions over a 4-week period responded successfully to sudden back loading with an effect size of 0.53 SD in office employees in the USA and evidence-based prevention programs including educational activities also brought a relative reduction of 27% of work-related skin problems in cleaners at a one-year follow up in a study carried out in Denmark.

- Personal protective equipment (PPE)

Providing the correct equipment by the employer to the employee and teaching him on its correct use is another recurrent notion among successful injury prevention practices. As examples, the use of air-assisted friction reducing devices for lateral patient transfer by nursing staff was found to be a cost-effective solution recommended over the use of traditional draw sheet method and the use of mechanical resident lifting equipment not only decreased the resident handling injury rates but also demonstrated a beneficial effect for all nursing homes and all staff regardless of age or work patterns.

Examples from different professional fields are the
replacement of duty uniform pants with shorts that reduced the thermal burden suffered by the firefighters and improved their operational effectiveness. In a manufacturing company, a new type of wafer container (pod) with power grip handles proved to be partially effective as it had a significant effect on improved wrist posture but not on the whole body workload. Lastly, providing devices for recapping needles and small-size trays to facilitate one-handed recapping were effective in reducing needle stick and sharp injuries in emergency and labor rooms.

- Engineering modifications

Working environment represents a constant source of risk for the worker if it does not accommodate his/her needs during working time. Making it and maintaining it safe, as well as reporting newly discovered hazards, can reduce chances of an accident and a subsequent injury. In a study regarding workers’ health in hospital and research laboratories, workstation redesign was implemented successfully in order to minimize risk of musculoskeletal injury in laboratory technologists who routinely performed pipetting tasks. The features addressed were the primary work counter’s height, the adjustability of the seat pan and back of the chair, the proper task lighting and overall comfort of the workstation.

- Legislation and regulations

Regulations concerning injury prevention practices can take the form of specific guidelines issued by the companies or organizations responsible for the workers’ health. ‘Zero lift policy’ guidelines are such an example; they were applied in small rural hospitals in Washington aimed to reduce back injuries among health care workers and found to be effective, as injury claims decreased by 43% in the participating hospitals from 2000 to 2004. In a similar study, written guidelines ‘zero lift policy’ were used to prevent nursing staff injuries associated with resident handling and produced a significant improvement, with the largest reductions observed among the more serious injuries that resulted in workers’ compensation claims.

- Risk assessment

Risk assessment has been useful in preventing injuries since it leads to a risk evaluation and recommendations tailored to each different setting and working situation. As an example, at a cleaning services department, a consultative team consisting of representatives from management, employees and the hospital’s ergonomist was formulated. The aim was to assess the risk of manual handling in the workplace and to make recommendations in reducing the rate and severity of workers’ compensation injury in hospital cleaners. This intervention has been effective since it significantly reduced the numbers and rates of injury, although not the severity of injury. Even so, it was concluded that the recommendation of the consultative team could produce a meaningful and sustained reduction in rates of injury within the risk population.

- Health and safety management

Frequent inspections of job sites, safety methods and equipment used contribute to a decrease in risks at the workplace. In a construction company, the industry’s safety program implementation, focusing mainly on fall prevention practices, was further reinforced with the contribution of a third party (University) intervention, which performed the audit activity, to which the industry responded positively.

5. CONCLUSION

Occupational injuries are largely preventable if improvements are to be made within the working environments. Engineering controls, administrative policies, health and safety information and education are indispensable practices in order to promote safety-conscious attitudes and behaviour at work. The distribution of burden by type of external cause of mortality has allowed developed countries to focus on preventive actions at work, resulting in a reduction of injury rates over time. Such actions are the following:

- Read all safety information supplied by your employer and follow the safety rules. Know the risks so that you can avoid potential harm.
ΠΕΡΙΛΗΨΗ

Μήνυμα 9: “Φροντίστε για την ασφάλειά σας στην εργασία σας”

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Καθώς τα θανατηφόρα εργατικά ατυχήματα ανέρχονται παγκοσμίως στα 350,000, και εξηγούν πάνω από 10 εκατομμύρια χρόνια χαμένης υγειονομικής ζωής DALYs του ενεργού οικονομικού πληθυσμού, αντιπροσωπεύουν ένα πάγκοινο πρόβλημα της δημόσιας υγείας το οποίο ζητά επειγόντως αποτελεσματικές παρεμβάσεις. Παρόλο που εργασιακοί τομείς όπως ο κατασκευαστικός τομέας, ο τομέας της γεωργίας, των μεταφορών και της βιομηχανίας παρουσιάζουν μεγάλα ποσοστά ατυχημάτων, πρόσφατες ευρωπαϊκές μελέτες έδειξαν μια κοινή καθοδική πορεία θανατηφόρων εργατικών ατυχημάτων στις ανεπτυγμένες χώρες. Η έρευνα που σχετίζεται με πιθανούς παράγοντες κινδύνου, όπως δημογραφικούς, συμπεριφορικούς και περιβαλλοντικούς παραμέτρους, έδειξε ότι χωρίς κοινή καθοδική πορεία θανατηφόρων εργατικών ατυχήματα στις ανεπτυγμένες χώρες, η έρευνα που σχετίζεται με πιθανούς παράγοντες κινδύνου, όπως δημογραφικούς, συμπεριφορικούς και περιβαλλοντικούς, παραμένει ακόμη ανεπαρκής καθώς κάθε χώρα αναφέρεται και διαφορετικά παραδείγματα. Αυτή η εργασία στοχεύει: (α) να περιγράψει την έκταση του προβλήματος και τις κοινωνικο-οικονομικές επιπτώσεις των εργατικών ατυχημάτων στην Ευρωπαϊκή Ένωση, (β) να παρουσιάσει τις επιστημονικά αποδεδειγμένες πρακτικές που μειώνουν αποτελεσματικά την πιθανότητα των εργατικών ατυχημάτων. Οι πληροφορίες αυτές έχουν χρησιμοποιηθεί στη δημιουργία μηνυμάτων που συμπεριλαμβάνονται στον Ευρωπαϊκό Κώδικα Κατά των Ατυχημάτων.

Λέξεις ευρετηρίου: Ατύχημα, Επάγγελμα, Εργασία, Ευρωπαϊκός Κώδικας Κατά των Ατυχημάτων, Πρόληψη

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