ORIGINAL PAPER

Mater Sociomed. 2016 Feb; 28(1): 51-52

ANALYSIS OF THE CAUSES OF OCCUPATIONAL INJURIES AND APPLICATION OF PREVENTIVE MEASURES

Nermina Cemalovic¹, Semso Rosic², Nermin Toromanovic³

¹Occupational Health Service, Primary Health Care Center, Cazin, Bosnia and Herzegovina

²Clinic for Women's Health, Primary Health Care Center, Cazin, Bosnia and Herzegovina

³Center for Physical Rehabilitation, Primary Health Care Center, Cazin, Bosnia and Herzegovina

Corresponding author: Nermina Cemalovic

ABSTRACT

Introduction: Occupational injuries are one of the major public health problems in the world and in our country, and are the leading cause of mortality and morbidity of workers. The goals of this study are to determine the type and nature of occupational injuries and propose a program of preventive measures. **Material and methods:** The study included 98 injured workers in the period from January 1, 2014 to December 31, 2014 in the area of the Cazin municipality. The sources of data used are reports of an accident at work in the Occupational Health Services and the Primary Health Care Center. **Results:** The most common injuries are the ones by sharp object (30.6%), incarceration (27.5%) and fall from a height (19.3%). According to the nature of the injuries the most numerous are contusions and lacerations. Activities that are most prevalent among those injured are in service provision (48.0%), manufacturing (36.4%) and construction (33.3%). **Conclusions:** It is necessary to implement measures of collective and personal protection, education of workers, proper handling of tools and machinery, improving interpersonal relationships, rewarding and implementation of the strategy of making plans for the program of occupational safety.

Key words: occupational injuries, prevention

1. INTRODUCTION

Injuries at work have both socio-medical and socio-economic importance and have as a consequence a significant number of lost work days and often permanent decrease or loss of working capacity. General, human, social and financial losses are very large in the society. Studies suggests that the injuries at work are the leading cause of death of workers at age up to 37 years and are in third place in the total population (1-3). In 2004, the rate of occupational injuries in the EU was 12.1 to 50.5/1,000 workers, and in Republic of Croatia 17.1/1000 workers (EUROSTAT), Annual Report of the State Inspectorate (2005). In 2004, the rate of occupational injuries in the municipality of Cazin was 6.2/1000 workers (4). Injuries at work can be considered as indicators of inadequate working conditions and working environment (5). Through this study we performed the analysis of the injuries in the municipality of Cazin and proposed a program of preventive measures.

2. GOALS

- To determine the number of registered occupational injuries for a period of twelve months.

- Determine the age, gender and qualification structure, as well as type of occupation of the injured.
- Determine types, nature and cause of injuries at work.
- Provide a program of preventive measures.

3. MATERIAL AND METHODS

The study included 98 workers of both sexes. The sources of data used are reports of accidents at work in the Occupational Health Services as well as the protocol of accidents at work from the Emergency department of the Health Care Center in Cazin. In this retrospective study, we processed data and from statistical models we used chi-square test.

4. RESULTS

In 2014, in the municipality of Cazin were 6800 actively working inhabitants. In the same year there were 98 cases of injuries at work. It is calculated that the rate of occupational injuries is 14.1/1000 workers. Out of the registered 98 injured workers 73% were male and 27% female. The most common age group among the injured was 30-39 years of age and by percentage it includes 34.7% of all injuries. The most numerous industries among the injured are service

Figure 1. Distribution of injuries in certain industries

Figure 2. Distribution of injuries according to occupation

provision (25.5%), construction (24.5%) and manufacturing (22.5%). The most common types of injuries are injuries with sharp objects (30.6%), incarceration (27.5%) and fall from height (19.4%). According to the nature of injuries in specific industries, the most common are cuts (11.34%) and contusions (11.34%). According to the industry and the type of injury most often are injured construction (20.9%), transport (19.5%) and workers operating machinery (18.6%).

5. DISCUSSION

The rate of reported occupational injuries in Cazin municipality during 2014 compared to 2004 is significantly higher. Injuries were most common in the age group from 30 to 39 years of age. Most of the injuries were among craftsmen in the construction, service provision and production and processing industries. Service provision sector workers were most often injured by sharp objects, with a large number of cuts. In the construction industry are equally represented injuries sustained by incarceration, sharp objects (tin, glass, metal and other building materials) and fall from a height. In the production and processing industries were most prevalent contusions and lacerations. The most commonly affected parts of the body are the upper limbs and abdomen. The causes of injuries were carelessness, improper handling of tools and machinery and incomplete use of personal pro-

tective equipment. This can be linked to poor concentration and fatigue of workers, insufficient training, weaker motivation for work, lack of or poor supervision in enterprises, as well as the absence of the inspection supervision.

There are many theories for occurrence of injuries at work (6,7). The causes of occupational injuries are numerous and depend on many factors: the gender, age, work experience, qualifications, motivation, type of work and the way of performing work, organization, working conditions, socio-economic factors and others. As a result, occurs large number of lost working hours, as well as disability. Reduction in the frequency of injuries at work and thus the duration of sick leave can be achieved by gaining knowledge of the causes of injuries with the standardization of their control (3,7).

There are legal frameworks and obligations to implement prevention programs of protection and safety, which must be ensured and implemented by the employer. Our country is in transition, so that there is no or insufficient supervision on the implementation of safety at work.

6. CONCLUSION

It is necessary to implement at the workplaces: measures of technical protection, provide a technically correct equipment and tools, customize job environment to its purpose, provide optimal illumination, protective clothes, protection against noise and optimize micro climate.

Provide to the companies:

- Measures of collective and personal protection.
- Education of workers in proper handling of tools and machinery.
- Psychological factors (relationships)
- Proper organization of work (motivation, reward, promotion, etc.)
- Teamwork (chosen doctor, an occupational medicine specialist, employer, an expert of Protection at Work, etc.).
- Implementation of the Strategy through developing plans and programs of occupational safety
- Promoting health at work in order to build awareness about caring for the health of workers (European networks for promotion of health at work).

- **Author's contribution:** All authors in this paper have contributed in all phases in it's preparing. First author made final proof reading.
- **Conflict of interest:** none declared.

REFERENCES

1. Jovanović JM, Arandelović M, Jovanović M. Multidisciplinary aspects of occupational accidents and injuries. *Facta universitatis-series: Working and Living Environmental Protection*. 2004; 2(4): 325-33.
2. Sheu JJ, Hwang JS, Wang JD. Diagnosis and monetary quantification of occupational injuries by indices related to human capital loss: analysis of a steel company as an illustration. *Accid Anal Prev* 2000; 32(3): 435-43.
3. Bowen A, Neumann V, Conner M, Tennant A, Chamberlain MA. Mood disorders following traumatic brain injury: identifying the extent of the problem and the people at risk. *Brain Inj* 1998; 177-90.
4. Čemalović N, Hairlahović H, Malić N, Civić H. Učestalost povreda na radu u općini Cazin, *Materia socio medica* 2005; 17(3-4): 105-107.
5. Babović P. Povrede na radu kao indikatori neadekvatnih uslova rada i radne sredine. *Acta medica Medianae* 2009; 48(4): 22-26.
6. Jovanović JM. Uzroci nezgoda i povreda na radu. *Acta Facultatis Medicinae Naissensis* 2004; 21(1): 49-57.
7. Rivera FP, Thompson DC. Systematic reviews of injury-prevention strategies for occupational injuries: an overview. *Am J Prev Med* 2000; 18(4): 1-3.