The organization as well as the duration of the working time is a factor strongly influencing the production accidents. The contemporary industrial processes, the modern lifestyle and the different economic interests have led to the fact that many people work on shifts, including night shifts. This type of work organization is typical of sectors such as health care, transport, processing industry, energy, oil and gas, etc. Acute forms of employment and non-standard work regimes (night work, working on weekends and holidays, etc.) have direct impact on the worker's concentration and the quality of work, affect the worker's behavior, affect the worker's sleep rhythm and cause accidents. Most of the major industrial incidents and accidents of technical nature have occurred during the night and, in most cases due to human error. The statistical data show a higher number of accidents occurred during shift work. The accidents during night shifts are more severe and dangerous. Important factors to the risk assessment of the accidents and incidents during work are: sleep quality, deep sleep, circadian rhythm and alertness changes in the management of the circadian rhythms in combination with the lack of sleep and the chronic fatigue. The accidents during day shifts are more frequent, but less severe and do not have such a negative impact on health as the accidents during night shifts. The proportion of accidents occurring during break times is low. For assessing the relative risk of accidents reported in the present study is to assess the relative risk of accidents related to the working time by analyzing the consequences, the exposure and the likelihood for occurring of these risks. Additional special emphasis is placed on strata designs which fit to the available data sources.

Methods: The relative risk of accidents in working time during the night is evaluated by a factor of 2.3. It is calculated for the period of 23.00 - 01.00 h, during the night shift. The risk of accidents during night hours is higher in the time period 23.00 h - 01.00 h (Fig. 1). The relative risk increases parallel to the increase of the number of consecutive night shifts. The conclusion is that the poor working conditions during night shifts may contribute to the occurrence of accidents. The duration of the work shift is great importance for the risk of accidents. Knowledge of the distribution of flexible shift schedules according to the basic physiological, ergonomic, health and socio-driven requirements can greatly reduce the negative effects of shift work and also can limit the risk of accidents related to the organization of the working time. The temporary demands for business continuity require the adoption of a flexible shift organization of the working time (24-hour work, non-standard hours, including night shifts, extended shifts, weekend work, part-time, flexible working hours, seasonal work, on-call work, etc.) These demands must be synchronized with human's individual preferences, personal interests, life rhythms and needs for nutrition, sleep and rest.

Bibliography: