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## PREVENTIVE MEDICINE

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### Behavioral audit of safety as a tool for decreasing occupational health and safety risk of healthcare providers

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The causes of the high infection rate of health workers in case of unfavorable epidemic situation, as well as occupational risks of health workers related to work conditions characterized by the presence of a complex of unfavorable factors of production environment; noted the combined effects of behavioural risk factors for health of health workers with professional risk, enhancing the cumulative negative impacts in professional deformation of the part of health workers, neglecting the requirements of safe labour; stressed the need for preventive work based on continuous and effective monitoring and evaluation of improvement actions, improvement and development of the management system of occupational health and safety is regulated by the system of standards for labor safety, a significant lack of which in healthcare institutions is the lack of such an effective interactive tool for enhancing motivation.

*Keywords:* occupational risks, occupational environment factors, system of occupational safety management, behavioral audit of safety.

### Introduction

Events of the last months, associated with spread of coronavirus infection COVID-19, vividly indicate a lot of problems related to the modern stage of the human society development, independently of social and political form of government. The first and most considerable impact was taken by healthcare system of virtually all the countries, encom-

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passed by pandemia. And, despite different approaches for healthcare providence for population, for providence and observance of anti-epidemiological measures, common feature is a high level of healthcare providers infection, associated with their professional obligations performance. So, Maria van Kerkhove, head of technical group in department of extraordinary diseases at World Health Organization, at briefing, held on 11 of May 2020 in Geneva, indicated worldwide troubled statistics, affixing in a number of countries high level (~ 10 %) infected persons among healthcare providers. Whereby, as a main reasons of healthcare providers infection, a luck of personnel means of protection was indicated, as well as long time of operation with infected by COVID-19 and insufficient level of disinfection. The same is testified by materials of the International Council of healthcare nurses, published on 3 of June 2020, telling that 7 % of cases caused by cornaviral disease fall on healthcare providers. Concerning infection rate of healthcare providers in Russia, the fact that a number of medical departments actually in full content were send in quarantine, confirm worldwide tendencies.

Besides indicated and obvious reasons of high infection of healthcare provides it is necessary to point out also high professional risks of healthcare providers, associated with operating conditions, characterized by complex of unfavorable factors of operation environment, including contamination by aerosols with microorganisms, medicamental and disinfection agents in amounts, exceeding maximum permissible concentrations. Among physical factors, adversely impacting on the health of healthcare providers, the most considerable are different kinds of ionizing and non-ionizing radiation. The other adverse factors of medical personnel operation are over-tensioning of separate organs and systems (central nervous system, analyzers, orthopedic apparatus etc.) [1; 2].

Integral estimate of operation environment factors and operation sequence majority of healthcare professions in accordance with Manual P.2.2.2006-05 [3] by combinations of all adverse factors of operation environment enabled to estimate conditions of work majority medical specialists as harmful of 1, 2, 3 degree. Such a high degree of harmfulness and danger, characterizing a priori occupational risk, enables to suppose a high level of a posteriori occupational risk for health providers' health, considerably increasing in highly adverse conditions, including epidemiological situations [4; 5].

### **Audit as monitoring and estimation method of efficiency control system for healthcare providers operation protection**

To decrease harmful and dangerous factors, to momitor and control occupational risks in medical institutions, independently of staff and specificity, in accordance with requirements of article 212 in Labor code of the Russian Federation, system of labor protection is developed and implemented (MSLP), which is integral part of general system of enterprise management according to GOST R 12.0.007-2009 "System of labor protection standards (SLPS). System of labor protection at enterprises. General requirements for development, application, estimation and improving". System approach for labor protection control, stressed in this document, is a basis for provision continuous improvement. It is a basis for labor protection concepts, directed on formation and support of preventive measures on dangers and risks optimization. Thereby preventive measures are based on continues and efficient monitoring and estimation actions taken for improvement, enhancement and development labor protection control system [6].

One of such monitoring and estimation methods of labor protection control at any enterprise functioning, including medical institutions, is audit, which enables to provide monitoring and estimation of MSLP efficiency on labor and health protection of health-care providers and incidents prevention.

Audit programs are developed in accordance with GOST R 12.0.008-2009 “System of labor safety standards” (SLSS). System of labor protection at enterprises. Inspection (audit) contains guidelines on audit programs control, performance internal and external audits MSLP, as well as competence estimation of auditors (experts) [7].

Medical institutions, depending on their specificity, develop and implement audit programs, which basis are standards and procedures of healthcare providence, clinical recommendations, standards of surgical procedures. For our mind, considerable disadvantage of these programs is absence of efficient interactive tool directed at motivation of safe labor increase as behavioral audit.

### **Behavioral audit of safety (BAS) peculiarities**

Behavioral audit of safety (BAS) is such kind of audit, that is based on observations of certain person (or staff group) efforts during performance of their professional objective, estimation performance of their professional objective conditions and following conversation between staff persons and auditor.

GOST R 12.0.008-2009 p. 6.5.5.1 determines behavioral audit direction on immediate correction of dangerous behavior, immediate support of safe behavior and those actions, which were taken by personnel of the enterprise, which are necessary to comply with requirements for safety, revealing the reasons of operation with regulations requirement violation (insufficient training, lack of conditions, inattentiveness etc.) [7; 8].

Behavioral audit of safety program within MSLP of medical institutions reflects first of all consideration of human factor in the following evaluation of professional risks — because it is impossible to make process of operation completely safe without consideration of human actions. Consequently, to control safety, it is necessary to learn how to control human actions [9].

Considerable difference of behavioral audit of safety from the other form of inspection that the main attention in it is devoted to dangerous human actions. Main BAS objects:

- monitoring of human actions (firstly, correct application of equipment, but not its operability);
- observance of procedures and instructions, but not their availability;
- monitoring protection from harmful and dangerous factors and application means of protection.

In the base of behavioral audit of safety should lay a principle: One staff member helps another staff member, whether he is a leading or ordinary staff member. That is, the most efficient behavioral audit of safety is possible in case of use interdependent behavioral model, which, in turn, must be directed at formation interdependent cultural safety. In audit performance take part not only specialists, but, if it is possible, majority or all staff members. The more staff members participate in behavioral audit, the higher its efficiency.

Practical experience shows that BAS may be carried out by one or several staff members (recommended not more than two persons), but statute “auditor” may have only

one staff member during audit performance, the rest staff members may play the role of observers or instructors.

The next necessary condition for behavioral audit of safety performance is specially prepared conversation with staff member. General algorithm of conversation between auditor and staff member in case of dangerous or safe action performance (Table).

*Table. Algorithm for conducting a conversation between an auditor and an employee*

If staff member perform dangerous action	If staff member work safe
<ol style="list-style-type: none"> <li>1. Observe some time and, having weighted situation, suspend dangerous action, begin conversation.</li> <li>2. Comment save behavior. Point out those efforts, which staff member undertake in accordance with requirements for safety.</li> <li>3. Discuss safe actions undertaken by staff member               <ol style="list-style-type: none"> <li>a) paying attention at consequences of dangerous action, despite the action itself. Do not comment, how staff member performed his work, avoid to use such words as "violation", ask him, to what consequences these actions may lead and provide staff member an opportunity to them himself;</li> <li>b) ask staff member, how that wokk may be performed safely.</li> </ol> </li> <li>4. Make him promise to work in the future safely.</li> <li>5. Discuss the other questions safely.</li> <li>6. Acknowledge staff member.</li> </ol>	<ol style="list-style-type: none"> <li>1. Observe some time and then begin conversation.</li> <li>2. Comment save behavior. Point out those efforts, which staff member undertake in accordance with requirements for safety.</li> <li>3. Discuss other questions of safety (training, meetings on labor protection, other sites, were possible to get injured).</li> <li>4. Acknowledge staff member.</li> </ol>

Information about staff member behavior consequences exert maximal influence on staff member. Dangerous behavior must be corrected immediately and safe behavior must be immediately encouraged. That is why auditor is responsible for immediately stopping non-desirable activity and timely encourage of safe behavior. Encouraging safe behavior of staff member in course of BAS performance secures experience of safe behavior and decreases professional risks level.

BAS performance must be integral part of position obligations of manages and specialists. Managers participation in BAS performance is one of the efficient means to demonstrate their adherence to safety questions from view point of social dialog.

It is necessary to point out enother feature of behavioral audit of safety, distinguishing it from all the other inspections and monitoring, lies in that at reports preparation or maps BAS performance there is no names of staff members are indicated, who operated non-safely, that it is another time stresses that its character is not punitive, but preventive one.

## Conclusion

Implementation behavioral audit of safety in medical institutions shall consider that it wouldn't be efficient, if formal attitude towards labor protection dominates in this organization, as well low degree of discipline among staff members, and management does

not motivate its staff to safe labor, using results of audit for punishment of looking for guilty persons.

At the same time behavioral audit of safety may be considered as one of the efficient tools of professional risk decreasing in case of involvement and desire of the whole collective to reveal actual reasons o requirements for operation process safety violation with the following analysis and corrective measures acceptance.

Idially, behavioral audit of safety must be implemented not for ststistics and for superior force reporting, but for potential saving health an decreasing occupational risks.

For implementation behavioral audit of safety in medical institution all the necessary resources must be available — means of engineering facilities, training methods, and motivation system and positive support of safe behavior must be developed.

Behavioral audit of safety in medical institutions is efficient, modern process of all staff members interactions. Its interactivity facilitates better understanding of medical staff labor protection requirements, increasing internal motivation for safe labor and, as a results — to decreasing professional risks.

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