ASSESSMENT OF THE OCCUPATIONAL SAFETY OF JUNIOR MEDICAL PERSONNEL DURING THE COVID-19 PANDEMIC

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ABSTRACT

The COVID-19 pandemic has once again confirmed the central role of occupational health and safety in protecting workers and their loved ones. The crisis is not only fraught with unemployment and underemployment: it also affects the conditions and wages and the availability of social protection for medical workers. During an epidemic, workers may be at risk of facing the infection during their work. As a result, post-traumatic stress disorder (PTSD) may develop in them. Health workers are the first line of containment for the virus, and therefore, they need personal protective equipment to do their job. Protecting medical personnel during a pandemic should be a priority for governments and society. The high percentage of medical personnel infected with the coronavirus is a worrying fact. And this has happened not in one, but in many countries that have faced this disease.

Keywords: COVID-19, medical personnel, occupational health, working conditions, safety.

I. INTRODUCTION

It is impossible to combat the epidemic's impact to ensure the health protection and the continuous provision of medical services both during and after the epidemic without a strong health system. Epidemics and pandemics put such systems under enormous strain and stress. Measures require personnel, dedication and material support to overcome the emergency. Also, medical institutions, in particular, isolation cells, can become hotbeds of disease transmission and, in the absence of appropriate sanitary and preventive measures, lead to the infection of many people. Junior health workers working on the front lines against the pandemic can themselves become infected and die. During an outbreak, occupational health and safety professionals play a key role in providing workers and their management with reliable information necessary to understand the symptoms of the disease and individual precautions (such as rules of conduct during coughing (sneezing), hand washing, self-isolation in case of illness, etc.). They should help employers assess risks, identify infectious and non-infectious hazards, assess the relevant risks, take counteraction and prevention measures, monitor and control them, and develop or update a plan for prevention, containment of infection, minimization of infection, and restoration of normal activities.

II. MATERIALS AND METHODS

• Study of existing preventive measures of nurses against COVID-19.
• Offer methods to improve the quality of occupational safety of nurses.

The Government of Kazakhstan, central and local executive authorities, and, to a greater extent, health authorities are taking several operational measures to minimize the risk of COVID-19 spread and reduce the incidence of the disease. [1, 2] Among the measures are the closure of state borders, the introduction of mandatory quarantine, restrictions on freedom of movement, the prohibition of mass events, and the isolation of cities, districts, and suburban areas. All this has led to large-scale changes in the usual order of life and economic activity.

The government also identifies risk groups for COVID-19 infection and spread. [3, 4, 5]

1. Very high-risk group
doctors, middle and junior health workers in infectious diseases hospitals, including intensive care units and other hospitals designated to provide medical care to patients with coronavirus. The amount of the allowance does not exceed 20 times the minimum wage.

2. High-risk group:
   - doctors, middle and junior medical workers of dispensary hospitals;
   - doctors and paramedics of emergency medical care, including in outpatient organizations;
   - doctors and paramedics of the air ambulance, if they are involved.

3. Medium risk group:
   - doctors, middle and junior medical workers of quarantine hospitals;
   - drivers of emergency medical teams;
   - laboratory specialists;
   - employees of the sanitary and epidemiological service directly involved in the implementation of anti-epidemic measures;
   - employees of emergency departments of hospitals and primary health care organizations who are ready to receive patients with viral respiratory infections (VRI), pneumonia and take biological material related to anti-epidemic measures;
   - health care workers who ensure quarantine at roadblocks.

Protecting a junior health care worker from the risk of infection during an epidemic

Junior health workers are actively involved in the implementation of measures to counter the outbreak of the disease, which may become infected from contact with infected patients and their colleagues; biological fluids released by infected patients; medical equipment, personal protective equipment (PPE) in case of improper use, cleaning or disinfection; the environment that has not been properly cleaned or disinfected; laundry equipment, crockery, cutlery and medical waste that has not been properly cleaned or disposed of (WHO, 2020). In the current COVID-19 pandemic, medical personnel in Italy and China accounted for approximately 20% of all those whose diagnosis was confirmed (The Lancet, 2020). [6, 7, 8]

Measures may vary depending on the nature of the infectious disease and how it is transmitted to avoid or minimize the risk of infecting nurses. In the context of the COVID-19 pandemic, measures [9, 10, 11] such as:

- Physical and technical countermeasures aimed at minimizing the spread of pathogens and contamination of surfaces and objects. It includes providing sufficient space to increase the physical distance between health workers and patients and providing isolation units with a good ventilation system for patients with a confirmed diagnosis or suspected COVID-19 infection (WHO, 2020).

- Administrative measures aimed at preventing dangerous behaviour. It includes the allocation of sufficient funds for the implementation of infection prevention and control measures (PCM), such as the provision of appropriate infrastructure, the development of a clear PCM policy, the simplification of the procedure for conducting laboratory tests, proper filtering and placement of patients, ensuring an adequate ratio between the number of patients and medical staff, as well as staff training (WHO, 2020). Another necessary measure concerns measures to monitor the health of those at risk of infection and detect any adverse effects of occupational hazards at an early stage when it is easier to recover from the disease (for example, by measuring the temperature of workers, identifying other early symptoms of an infectious disease).

- Proper PPE. It includes selecting appropriate PPE and training on putting them on, taking them off, and disposing of them (WHO, 2020).

III. RESULTS AND DISCUSSION

Based on this, many recommendations [12, 13, 14] have been published for each of them.
• **High risk.** When the staff contacts a patient who has confirmed or is suspected of having Covid-19, in these cases, you should use a protective mask, eye protection from splashes or drops, gloves and a robe that is resistant to the penetration of the virus.

• **Moderate risk.** When contact with patients with suspected coronavirus infection was not close.

• **Last level – low probability of exposure.** Refers to medical personnel who do not have direct contact with patients. It is also said that there is a low risk if contacts occur at a distance of two meters or more or if measures are taken to prevent contact.

In the latter two cases, the Optimal Image Sampling Schedule (OISS) recommends washing hands and the use of surgical masks. They are designed to prevent contamination of the working environment during surgical procedures. But they can also protect against drops of biological fluids.

It is recommended to provide information, training and psychological support for health workers to perform their daily work. As well as the need to guarantee support to the families of medical personnel who have died in the performance of their duties.

The work of medical personnel is not evaluated in all countries socially and economically as it deserves. The COVID-19 pandemic highlighted the important role of health professionals in society. For this reason, some governments have already made additional payments to medical staff during the pandemic. This measure (implemented in several countries) aims to protect health workers from a lack of material resources. It also recognizes how important this sector of professionals is to the fight against the pandemic.

The epidemic may affect only a few vulnerable groups or rural communities, or it may spread to the entire population as a whole. With a comprehensive plan to prepare for emergencies and epidemics, enterprises can take coordinated responses faster and more effectively, adapting them to the specifics of the situation they are facing. In order to take measures that take into account such specifics, enterprises should follow the reports of sanitary and hygienic authorities, local health authorities and other partners, receive information, materials and technical recommendations from them:

Convention (No. 155) and Recommendation (No. 164) on Occupational Safety and Health in the workplace: rights, functions and responsibilities. Several provisions of Convention No. 155 and Recommendation No. 164 relate to prevention and protection measures to minimize the negative impact of a pandemic like COVID-19 on occupational health and safety. [15]

Some of these provisions are listed below:

• Employers should ensure, to the extent reasonably practicable, that the workplaces, machinery, equipment and processes under their control are safe and do not endanger health. The chemical, biological and physical substances and agents under their control are safe for health when appropriate protective measures are taken. Employers should, if necessary, provide appropriate protective clothing and equipment to prevent, as far as reasonably and practically possible, accidents or harmful health consequences (article 16 of Convention No. 155). Provide employees with appropriate protective clothing and personal protective equipment free of charge (paragraph 10 (e) of Recommendation No. 164).

• Employees and their representatives receive proper information and training in the company. They are empowered to review all aspects of occupational safety and health-related to their work, and employers advise them on these aspects.

• An employee is protected from unjustified consequences in accordance with national conditions and practice. (Article 13 of Convention No. 155)

**Prevention of stress, psychological risks of junior medical personnel**

In an emergency, people react to stress in different ways. Psychological signs of stress can include growing anxiety, low mood, low motivation, and depressive thoughts. During an outbreak of a disease like COVID-19, all health care workers are exposed to enormous stress, which has serious consequences for mental health.
source of stress can be the long-term effects of contact with people infected with the virus and the fear of getting infected at work and then infecting their loved ones (Inter-Agency Standing Committee, 2020). Possible staff reductions may compound it due to illness or quarantine. Many of these workers perform jobs that already involve relatively high levels of stress. During an epidemic, they often have to work longer than the usual 40-hour workweek and without a break between shifts. A high workload and reduced rest time can increase fatigue and stress, negatively affecting their personal lives and mental health. Simultaneously, fatigue and stress can cause an increased risk of injuries and accidents (International Labour Organization, 2016). [16]

During the COVID-19 pandemic, social stigmatization and discriminatory behaviour were observed against people of certain ethnic origins and nationalities and those who were considered to have had contact with carriers of the virus (WHO, UNICEF and IFRC, 2020). People working in areas and professions at high risk of infection, especially nurses and doctors, can become the object of stigmatization and discrimination, leading to their exclusion from the community and an increase in related violence and harassment.

The handbook on the Protection of the Health of Medical personnel and Emergency workers, published by WHO and ILO (2018), provides a list of measures necessary to prevent work-related stress, which can also be transmitted to other workers in an epidemic. These measures include the following:

- Conducting proper training and communicating up-to-date information to employees, which ensures awareness and creates a sense of confidence;
- Enabling employees to report problems and get answers about the health risks they and their colleagues are exposed to;
- Multi-disciplinary meetings to identify issues, including those affecting staff well-being, and to jointly develop strategies to address them;
- Promote organizational culture and sensitivity to the concerns of others as the epidemic may affect the families of field staff;
- Prepare a memo to assess and understand your strengths, weaknesses, and limitations, including recognizing signs of stress and nervous exhaustion in yourself and others;
- Creating a system of friendly mutual assistance to provide psychological support and counteract stress and nervous exhaustion;
- Regulation of rest periods and the introduction of a sufficient number of breaks during the working day;
- Providing opportunities for healthy living, including employees exercising and promoting healthy eating;
- Providing psychological assistance to employees by allowing them to share their fears and concerns privately;
- Conducting role-playing games in which managers play the role of subordinates, showing how to behave in such a way as to counteract stress;
- Organizing campaigns to counteract the stigmatization and social exclusion of health workers caused by the population's excessive fear of infection and illness, as well as to instill in the people a sense of gratitude to the men and women working at the forefront against the epidemic, so that health workers feel proud of their work;
- The use of humour and interactive ways to establish dialogue, find innovative solutions and stimulate positive psychological attitudes.

The measures taken to protect employees should prevent and reduce psychological risks, including the risk of violence and harassment, and promote employees' mental health and well-being while preventing the risk of long-term consequences.

The organization and holding of the World Day of Labour Protection is an additional opportunity at the federal, regional and municipal levels to emphasize the importance and relevance of labour protection issues, the need to solve the problems of organizing the safety of workers in the healthcare sector.
IV. CONCLUSION

The COVID-19 pandemic increased the potential risks of junior medical professionals, especially given our patient population's undifferentiated nature. However, the risks remain relatively small in a fully staffed department with appropriate equipment and training. Otherwise, healthy emergency physicians (under a certain age) should be expected to participate fully in patient care activities in their emergency department. Nurses with any generally recognized increased risk of harm (e.g., old age, immunodeficiency) should be able to opt-out of direct patient care due to their higher risk of an adverse outcome if they become ill with COVID-19 but should be allowed to continue providing care if they choose.

Other requests to opt-out of direct patient care should be evaluated on an individual basis. Such an assessment should include the request, the availability of the doctor's resources, the possibility of generalization (i.e., whether all other similar requests can be taken into account), and the extent to which this adjustment will increase the risk of colleagues who continue to provide direct care. Appropriate responses to the shortage of personal protective equipment should focus on institutional and public responsibilities rather than on ending patient care. There is a need to clearly articulate the mutual responsibilities of agencies and governments to emergency physicians working in the context of a pandemic and make a firm commitment to their implementation. These include: ensuring adequate PPE. Establish clear policies and procedures in the event of a PPE shortage (this should consist of prioritizing resources for high-risk areas and identifying acceptable alternatives to ideal PPE).

CONFLICT OF INTERESTS AND CONTRIBUTION OF AUTHORS

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